

Bold, underlined text indicates proposed additions.

~~Bold, strikethrough~~ text indicates proposed deletions.

The Depository Trust Company

Settlement Service Guide

[Changes to these Procedures, as amended by File No. SR-DTC-2019-005, are available at dtcc.com/~media/Files/Downloads/legal/rule-filings/2019/DTC/SR-DTC-2019-005.pdf. These changes have been approved by the Securities and Exchange Commission but have not yet been implemented. By September 26, 2019, these changes will be implemented and this legend will automatically be removed from these Procedures.]

About Settlement

Important Terms

The following terms are important to understanding the Settlement Service:

This term	Refers to
Aggregate Affiliated Family Net Debit Cap	A limit to the settlement debit an Affiliated Family can incur at any point during the processing day.
chill	A systemic way DTC can prohibit a Participant from processing certain activities (for example, valued delivery chill will prevent the Participant from making valued deliveries from its account).
Collateral Monitor (CM)	DTC's process for measuring the sufficiency of the collateral in a Participant's account to cover its net settlement obligation.
collateral value	The market value of a security less the applicable DTC haircut.
Computer-to-Computer Facility (CCF/CCF II)	A batch transmission system for input/output based on various protocols between a Participant's mainframe and DTC's mainframe.

This term	Refers to
Continuous Net Settlement (CNS)	The system employed by NSCC to settle NYSE, AMEX, NASDAQ, and over-the-counter trades.
deliver order (DO)	The term used to define a book-entry movement of shares of a particular security between two DTC Participants.
drop	A transaction that does not complete because of insufficient position, Risk Management Controls, and so forth.
haircut	The percentage decrease of a security's market value in determining the collateral value of the security.
initial distribution	The delivery of shares of a new issue from the lead manager and syndicate members to their customers. Shares are considered initial distribution shares until they are sold on the secondary market.
long allocations	Deliveries from NSCC's Omnibus Account 888 to a Participant's DTC account as a result of Continuous Net Settlement processing.
market value	The prior day's closing price of a security for security valuation purposes.
memo segregation	An inventory control mechanism that allows a Participant to protect fully-paid-for securities in its general free or IPO control account.
Message Queuing (MQ)	A system for messaging across multiple platforms. Developed as part of IBM's WebSphere family, it is also referred to as "WebSphere MQ" or "MQ Series."
Minimum Amount (MA)	DTC's classification for securities in a Participant's account that are not considered collateral.
Money Market Instrument (MMI)	Debt securities such as commercial paper or medium-term notes that are eligible for DTC's MMI Program.
Net Additions (NA)	DTC's classification for securities in a Participant's account that are considered collateral.
net debit cap	A limit to the settlement net debit a Participant can incur at any point during the processing day.
<u>Night Batch Process</u>	<u>A process that operates to control the order of processing of transactions in the night cycle.</u>
night deliver order (NDO)	A DO input on the day prior to settlement. A reduced rate is charged for NDO transactions.
payment order (PO)	A transaction in which a Participant charges another Participant for changes in value for outstanding stock loans or option contract premiums.
Receiver Authorized Delivery (RAD)	A control mechanism that allows a Participant to review transactions prior to completion of processing. It limits the Participant's exposure from misdirected or erroneously entered DOs, POs, institutional delivery transactions, MMI transactions, reclaims, pledges and releases of pledged securities.

This term	Refers to
reclamation or reclaim	The return of a DO, PO, institutional delivery transaction or MMI transaction received by a Participant. All reclaims are considered original transactions for purposes of DTC processing and are subject to Risk Management Controls and RAD.
Risk Management Controls	The controls, primarily net debit cap and CM, that are used to provide protection to all DTC Participants against the inability of one or more Participants to settle net settlement obligations.
Settlement progress payments (SPP)	An intraday funds transfer sent via Fedwire to a Participant's DTC Participant account.
Settlement User Interface	Any system or combination of systems that allows for input/inquiry into the DTC Settlement System.
short covers	Deliveries to NSCC's Omnibus Account 888 as a result of CNS.
syndicate	A group of broker-dealers that agree to purchase a new issue of securities from the issuer for resale to the investment public.
Unknown Rate	For variable rate MMI Securities, the interest rate that the IPA will pay for the income portion of a presentment.
unvalued additions	<p>Unvalued additions to a Participant's security account that do not carry a related payment obligation with the receipt of securities. They include:</p> <ul style="list-style-type: none"> • Deposits • Free release of pledged securities • Receipt of a free DO • Releases of segregated securities

Look-Ahead Processing

DTC's Look-Ahead process runs on fifteen minute intervals and selects pairs of transactions that when processed simultaneously will not violate the involved Participants net debit cap, collateral or other Risk Management system controls.

The Look-Ahead process reduces transaction blockage for securities by identifying a receive transaction pending due to a net debit cap insufficiency and determines whether an offsetting delivery transaction pending because of a quantity deficiency in the same security would permit both transaction pending because of a quantity deficiency in the same security would permit both transactions to be completed in compliance with DTC's Risk Management system controls. DTC's processing system, Account Transaction Processor (ATP) calculates the net effect to the collateral and net debit cap controls for all three Participants involved and if the net effect will not result in a deficit in the collateral or net debit cap for any of the three Participants, ATP processes the transactions simultaneously.

DTC's Look-Ahead process also allows Money Market Issuance Deliveries pending for a Custodian's or Dealer's net debit cap to complete against Maturity Presentments pending for an Issuing/Paying Agent's net debit cap. The processing system calculates the net effect of the dollar amount of offsetting transactions in the accounts of the two Participants involved. If the net of the transactions results in positive risk management controls in those two accounts, the transactions will be completed..

Note: The Look-Ahead process is not utilized during the Night Batch Process.

Risk Management Controls

About the Product

Risk Management Controls protect DTC and its Participants from the inability of one or more Participants to pay their settlement obligations. Risk Management Controls are based on guidelines established by the Federal Reserve Bank (FRB). DTC currently employs three primary Risk Management Controls for processing securities:

- Collateralization (Collateral Monitor)
- Net Debit Cap
- Issuer/Participant Number (IPN) Collateral Control.

Collateralization

Collateralization ensures that your account has sufficient collateral for DTC to liquidate if you fail to pay your settlement obligation and become insolvent. DTC's collateralization procedures prevent the completion of transactions that would cause your net debit to exceed the total available collateral in your account.

DTC operates on a fully collateralized basis. You are required to have sufficient collateral in your account to support net settlement debits you incur. Transactions that would cause your net debit to exceed the total value of collateral in your account are held in a recycle (pend) queue until sufficient collateral is available.

Your primary sources of collateral are:

- Cash deposited to the Participants Fund
- Proprietary or firm positions (such as dealer, investment, or margin positions) that you designate as collateral
- Securities received (and not paid for) versus payment
- Securities added to your account and not received versus payment (such as deposits, free deliveries, free pledge releases, release of segregated securities) that you designate as collateral.

Collateral Valuation of Securities

The value of securities designated as collateral is based on the prior business day's closing market price, less a haircut. Haircuts are used to protect DTC and its Participants from price fluctuations if DTC is required to liquidate collateral of an insolvent Participant. Furthermore, because DTC may have to finance a Participant's failure overnight, DTC's haircut structure takes into consideration haircuts imposed by our line-of-credit banks. The full market value of securities is not normally obtainable from a bank that accepts securities as collateral to support a loan; banks generally consider the relative price volatility of the collateral and impose a haircut on the market value of securities. Securities that are not acceptable to DTC's line-of-credit banks do not receive collateral value in our system; therefore, a 100 percent haircut is applied to these securities.

DTC employs haircuts ranging from 2 to 100 percent. Because the collateral value of securities is based on their prior day's closing market prices, these haircuts may not be sufficient in cases where prices fall dramatically intraday. DTC can reprice and modify haircuts of selected issues intraday and can systemically revalue the collateral of Participants holding these securities.

Using the Collateral Monitor to Measure Available Collateral

DTC tracks collateral in your account by a control position called the Collateral Monitor (CM). At the opening of each business day, your CM is credited with your Participants Fund deposit. At all times, the CM reflects the amount by which the collateral in your account exceeds the net debit in your settlement account. In other words, the CM equals the sum of the value of your collateral and net settlement obligation.

For example, if you have collateral securities with a market value of \$10,000 and a 10 percent haircut, the value of your collateral is \$9,000. If you also incurred a debit of \$8,000, your CM is \$1,000 $\{(10,000 - [0.1 \times 10,000]) + (-\$8,000)\}$.

Conceptually, every transaction translates into a collateral flow and a cash flow, one a credit and the other a debit. The net value of these two flows is used to update the CM. Since the value of securities as collateral is subject to a haircut on the market value, the cash component (for settlement value) of each transaction is generally greater in value than its securities component. Thus, the completion of a delivery versus payment generally results in an increase in the deliverer's CM and a decrease in the receiver's CM, based on the difference between the collateral value of the securities and the settlement value of the transaction. Transactions that do not have a cash component, such as deposits and "free" deliveries, are considered to have a zero cash component.

When processing a transaction, DTC verifies that the deliverer's and receiver's CMs will not become negative when the transaction completes. If the transaction would cause either party to have a negative CM and thereby be undercollateralized, the transaction will recycle until the deficient account has sufficient collateral to complete (see Recycle Processing).

Controlling Collateral

Securities received versus payment are automatically designated as net additions (NA) because the receiver has not yet paid for these securities. Your CM is credited the collateral value (market value minus the applicable haircut) of all positions designated NA. Conversely, your CM is not affected by positions designated as minimum amount (MA). You can manage your collateral in the following ways:

- **Opening (start-of-day) securities positions as collateral:** You can give DTC standing instructions to designate as collateral all securities in your account at the opening of each day. All start-of-day positions are then designated NA, and your CM is credited the collateral value of the start-of-day positions. Contact your Relationship Manager to change your standing instructions.
- **Unvalued additional securities:** You can give DTC standing instructions to designate all unvalued additions of securities to your account (such as deposits and free DOs received) as either NA or MA. Contact your Relationship Manager to change your standing instructions.

Warning! Consider the implications of classifying your securities as collateral. Collateral can be used to support your debt and therefore can be liquidated by DTC if you are unable to pay your settlement obligation.

- **Intraday reclassification of securities:** You can submit instructions to DTC using the DYMA Collateral Moves (MA/NA) function to reclassify an issue as collateral or non-collateral.

Note- A Collateral Moves instruction will not execute if the removal of the collateral from your account would cause your CM or simulated CM to become negative.

- **Settlement Progress Payments (SPPs):** You can increase your CM by wiring Settlement Progress Payments (SPPs) to DTC's account at the Federal Reserve Bank of New York (FRBNY). Your CM and your settlement account will be credited for the amount of the SPP; thus, SPPs also reduce your actual net debit. See Wire Instructions for more information.)

To view your CM balance, use the Risk Management Controls Inquiry function.

Net Debit Caps

Net Debit Caps help ensure that DTC can complete settlement, even if a Participant fails to settle. They are based on your net debit history at DTC and automatically rise or fall relative to the average of your highest intraday net debit peaks in accordance with the calculation described below (in "Calculating Your Net Debit Cap"). A Net Debit Cap, recalculated daily, is applied to your account to limit the settlement net debit you could incur at any point during a processing day.

Your Net Debit Cap is limited by DTC's established maximum Net Debit Cap, the value of which is always set lower than DTC's total available liquidity. Currently, the maximum Net Debit Cap you can have is \$1.8 billion.

Before completing a transaction in which you are the receiver, DTC calculates the resulting effect the transaction would have on your account, and determines whether your resulting Net Debit Balance would exceed your Net Debit Cap. Any transaction that would cause your net settlement debit to exceed your Net Debit Cap is placed on a pending (recycling) queue until another transaction creates credits in your account (see Recycle Processing for more information). Most credits are generated when you deliver securities versus payment; pledge securities for value; receive principal, dividend or interest allocations; or wire funds (SPPs) to DTC's account at the FRBNY.

Calculation of Participant Net Debit Caps

Net Debit Caps for a Participant are calculated daily as follows:

1. The system records the Participant's collateral group's three highest intraday net debit peaks over a rolling 70-business-day period, using net debit peaks. If the Participant has elected to group its accounts into separate families (see Grouping Accounts into Collateral Families) , the system first calculates the average net debit peak of each family, and adds together the average net debit peaks of all of the Participant's families to obtain the Participant's overall average net debit peak.
2. The system multiplies the Participant's average net debit peak by a factor to determine the Participant's Net Debit Cap, which cannot exceed DTC's established maximum of \$1.8 billion. (Factors are based on a sliding scale, between 1 and 2, where smaller average peaks are multiplied by larger factors and larger average peaks are multiplied by smaller factors.)

The established minimum Net Debit Cap is equal to twice the sum of *all* Participants' minimum deposits to the Fund.

Note- Your Settling Bank can set your maximum Net Debit Cap. However, the maximum amount set by a Settling Bank cannot exceed the Net Debit Cap calculated by DTC's system. DTC may also limit your Net Debit Cap to any amount regardless of your intraday net debit peaks.

Although most transactions are subject to Risk Management Controls, the following activities override collateralization and Net Debit Cap controls:

- Mutual funds purchases through DTC's Fund/SERV system
- DTC-generated activity (such as monthly billing charges)
- Deposit or settlement adjustments
- Short position charges
- Principal and income charges
- Participants Fund charges.

To view your Net Debit Cap and net settlement balance, use the Risk Management Controls Inquiry function.

As an added measure DTC has also established limits on the maximum settlement obligation that a financial family of affiliated DTC Participants can incur. An Affiliated Family means each Participant that controls or is controlled by another Participant and each Participant that is under the common control of any Person. For purposes of this definition, "control" means the direct or indirect ownership of more than 50% of the voting securities or other voting interests of any Person. The maximum "Aggregate Affiliated Family Net Debit Cap" for the Participants comprising an Affiliated Family is currently set at \$2.85 billion.

So that DTC will be able to complete settlement each day in the event of a Participant's inability to settle, DTC currently maintains liquidity resources of \$3.05 billion, including \$1.15 billion cash in the Participants Fund and a committed line of credit in the amount of \$1.9 billion with a consortium of banks.

Batch Processing

During the Night Batch Process, DTC evaluates each Participant's available positions, transaction priority and risk management controls, and identifies the transaction processing order that optimizes the number of transactions processed for settlement. The Night Batch Process allows DTC to run multiple processing scenarios until it identifies an optimal processing scenario.

At approximately 8:30 p.m. on S-1, DTC will subject all transactions eligible for processing to the Night Batch Process. The Night Batch Process will be run in an "off-line" batch that will not be visible to Participants, allowing DTC to run multiple processing scenarios until the optimal processing scenario is identified. Once the optimal scenario is identified, the results of the Night Batch Process will be incorporated back into DTC's core processing environment on a transaction-by-transaction basis, and Participant output will be produced using existing DTC output facilities.
