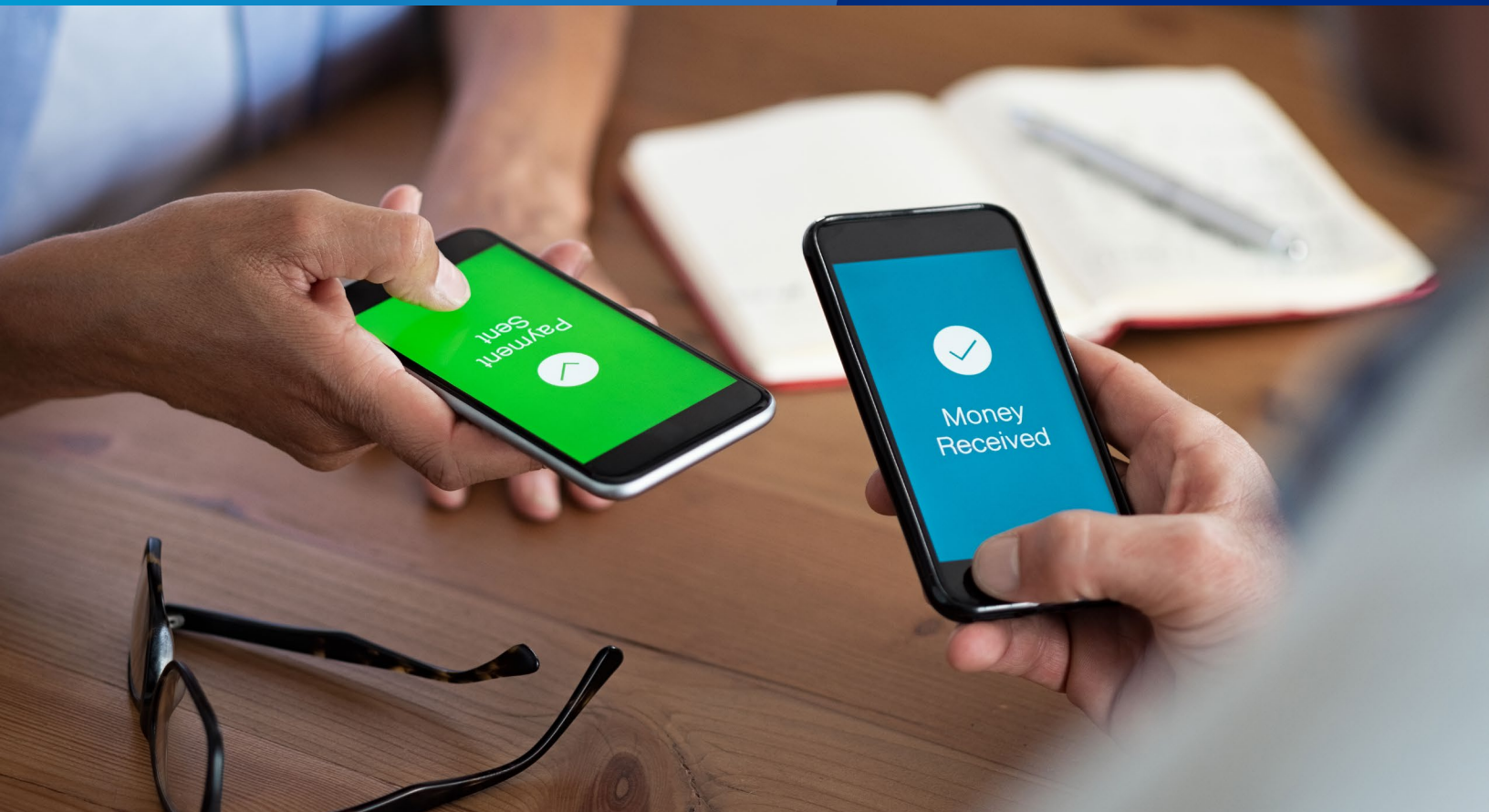


**FedNow<sup>®</sup>**  
**24/7**  
**INSTANT PAYMENTS**

**THE FEDERAL RESERVE**  
*Financial Services*

*FedNow<sup>®</sup> Service  
Guide to Liquidity  
Management Transfers*



## An introduction

The Federal Reserve's FedNow® Service allows U.S. financial institutions (FIs) of all sizes to enable their customers to send and receive money immediately. With instant payments, FIs can create and deliver new payment solutions that offer their customers speed, convenience and more control over cash flow. And, since transactions settle between FIs in real time, there's no interbank credit risk.

It's clear that instant payments provide many benefits, but they also require preparation. For example, because instant payments are processed and settled individually and continuously on a 24x7x365 basis, FIs that support these payments need adequate funds (liquidity) in their accounts. FIs that send credit transfers or provide settlement or funding services to other FIs need a strategy to maintain sufficient liquidity at all times to support instant payment activity.

### Enabling FIs to transfer funds to each other

The FedNow Service's liquidity management transfer (LMT) feature enables FIs to send funds to each other — either directly or through service providers — to support instant payment liquidity needs. These transfers settle in an FI's Federal Reserve Bank master account — or the master account of its correspondent, or a joint account held at a Federal Reserve Bank backing a private sector instant payment service.

The Federal Reserve Banks anticipate implementing specific controls for LMTs. These include limiting hours of availability, transaction limits and more.

## Supporting LMTs with the FedNow Service

While LMTs may be sent between FedNow participants for purposes of supporting FedNow instant payment activity, this document is intended for FIs that use the FedNow Service for the sole purpose of supporting LMTs and addresses the following scenarios:

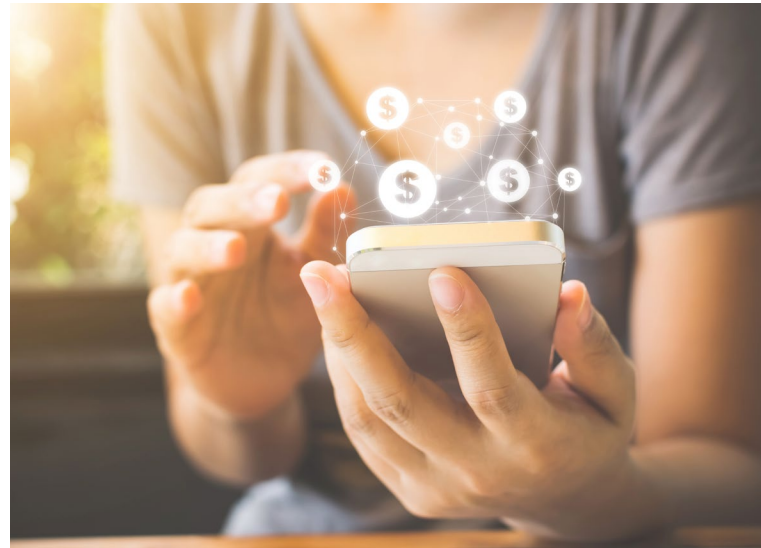
- Transfers between the Federal Reserve Bank master accounts of participants in a private sector instant payment service and a Federal Reserve Bank joint account backing a private sector instant payment service.
- Transfers initiated by FIs who have arranged to provide funding to participants in the FedNow Service or a private sector instant payment service.

Topics covered in this document are designed to help FIs and other organizations prepare for LMTs and include:

- The basics of LMTs
- ISO® 20022 messages required to support LMTs
- How LMTs work
- Settlement
- Reporting and reconciliation
- Information security expectations

## The basics of LMTs

FIs acting on their own behalf, correspondent institutions supporting respondents, funding agents, and agents of joint accounts that back private sector payment systems are able to use LMTs to transfer funds between master accounts, or between master accounts and joint accounts backing a private sector instant payment service.



### Correspondent-respondent model

Correspondent institutions may choose to settle LMTs on behalf of respondents. For each respondent enabled on the FedNow Service, correspondents determine if the respondent is allowed to:

1. Send LMTs, which are debited from the correspondent's master account
2. Receive LMTs, which are credited to the correspondent's master account

### Funding agents model

A funding agent may use an LMT to fund a joint account, and agents for joint accounts may disburse funds from a joint account on behalf of participants in the private sector instant payment service (provided that the operator of the private sector service has granted permission to the funding agent to do so).

### Enabling LMTs

To send or receive LMTs, FIs need to have a connection to the FedNow Service via a FedLine® Solution and establish a FedNow customer profile. FIs have the opportunity to select "send and receive" or "receive only" when they elect to support liquidity management transfers.

FIs that only enable LMT capabilities are not included in the FedNow Service directory of participants that process instant payments. However, they receive the daily list of participants automatically distributed by the service.



### LMT controls

The following controls and capabilities are in place for LMTs through the FedNow Service:

- LMTs have a per-transaction value limit established by the Federal Reserve Banks that is higher than the FedNow customer credit transfer limit. FIs can set a limit for their own outbound transactions that is lower than the maximum allowable limit.
- In addition to per-transaction value limits, the Federal Reserve Banks established a cumulative daily value limit on LMTs. This limit is set at the FI level.
- LMTs are available for a limited set of hours per day.
- As part of the respondent onboarding process, correspondent institutions are able to opt out their respondents from LMTs, or only permit respondents to receive LMTs (and not initiate).
- FedNow participants can route LMTs to master account/primary routing transit numbers (RTNs), subaccount RTNs or other secondary RTNs, as long as the receiving RTNs are enabled in the FedNow Service.
- FIs are able to direct the Federal Reserve Banks to disable sending or receiving liquidity transfers. The FedNow Service rejects liquidity transfers that include either a Sender FI or Receiver FI who is disabled for the feature.

### Connecting to the FedNow Service

FIs can connect directly to the FedNow Service using FedLine Solutions and/or by working with a third-party service provider. To send LMTs and other messages directly, participants require a FedLine Advantage, FedLine Command or FedLine Direct solution with a VPN or WAN connection and need to integrate their payment processing systems with the FedNow Service using IBM® MQ Client.

### Availability expectations

FIs and their service providers who solely implement LMT capabilities on the FedNow Service are expected to be capable of sending and receiving messages as close to the duration of LMT hours of availability as possible. As FIs begin their instant payment journey, the Federal Reserve Banks understand that planned and unplanned maintenance windows will occur for FIs, which may result in the need to sign off from the service for a period of time.

## ISO 20022 messages supporting FI credit transfers

Below are the ISO 20022 messages needed to support LMTs. These messages facilitate not only the FI liquidity transfers, but also reports and system messages.

Liquidity Management Transfers	
<b>pacs.009</b> – Financial Institution Credit Transfer	Instructs payment between financial institutions in support of instant payment liquidity needs. Also serves as advice of credit to the Receiver FI.
<b>pacs.002</b> – Payment Status Report	Used by the FedNow Service to indicate the processing status of a previously sent LMT message to send acknowledgements in connection with payment orders the Federal Reserve Banks have settled.
<b>pacs.028</b> – Payment Status Request	Sender FI or Receiver FI requests the processing status of a previously sent LMT message (pacs.009).
Account Reporting	
<b>camt.060</b> – Account Reporting Request	Participants request an account balance, activity totals or activity details report.
<b>camt.052</b> – Account Balance Report	FedNow Service provides account balance information to requesting FI.
<b>camt.052</b> – Account Activity Totals Report	FedNow Service provides summary account activity information by RTN to requesting FI and/or at end of each cycle date. Available for direct participant or its correspondent.
<b>camt.052</b> – Account Activity Details Report	FedNow Service provides detailed account activity information to requesting FI and/or at end of each cycle date, if enabled. Available for direct participant or its correspondent.
<b>camt.054</b> – Account Debit/Credit Notification	FedNow Service provides a correspondent, if enabled for these messages, with a notification of respondent debit or credit entries to the correspondent's master account.
System Messages	
<b>admi.002</b> – Message Reject	FedNow Service or Receiver FI indicates a message was rejected for technical reasons (e.g., invalid XML, exceeds allowable file size, digital signature issues).
<b>admi.004</b> – FedNow Broadcast	FedNow Service network notification to participants of system events (e.g., cycle date changes or RTNs that are signed off of the service).
<b>admi.004</b> – Participant Broadcast	Participant request to sign off or sign on or to ping the service to ensure connectivity is working as expected.
<b>admi.011</b> – FedNow System Response	FedNow Service response to a participant requesting to sign off or sign on.
<b>admi.006</b> – Retrieval Request	Participant FI requests a copy of previously sent or received LMT messages from the FedNow Service.
<b>admi.998</b> – FedNow Participant File	FedNow Service informs participants of RTNs enabled for capabilities associated with customer credit transfer message, payment return message, and/or requests for payment message.
Business Application Header	
<b>head.001</b> – Business Application Header	Message accompanying all ISO 20022 messages sent through the FedNow Service.



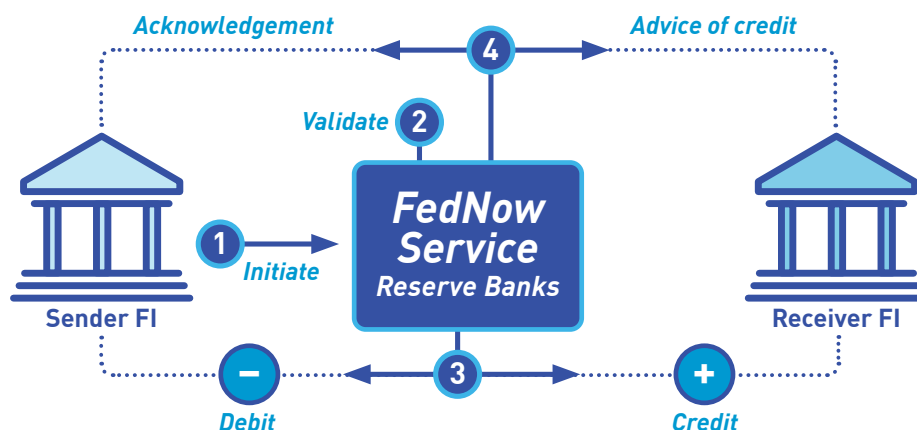
### Additional Resources on MyStandards®

The MyStandards platform houses current supported ISO 20022 message specifications, an implementation guide and message flows for the FedNow Service. It's easy to set up a free account and available to anyone who registers.

	LMT Receive Only		LMT Send/Receive	
	Send	Receive	Send	Receive
<b>Liquidity Management Transfers</b>				
pacs.009 – Financial Institution Credit Transfer	Prohibited	Mandatory	Mandatory	Mandatory
pacs.002 – Payment Status Report	N/A	N/A	N/A	Mandatory
pacs.028 – Payment Status Request	Prohibited	N/A	Optional	N/A
<b>Account Reporting</b>				
camt.060 – Account Reporting Request	Optional	N/A	Optional	N/A
camt.052 – Account Balance Report	N/A	Optional	N/A	Optional
camt.052 – Account Activity Totals Report	N/A	Optional	N/A	Optional
camt.052 – Account Activity Details Report	N/A	Optional	N/A	Optional
<b>System Messages</b>				
admi.002 – Message Reject	Mandatory	Mandatory	Mandatory	Mandatory
admi.004 – FedNow Broadcast	N/A	Mandatory	N/A	Mandatory
admi.004 – Participant Broadcast	Mandatory	N/A	Mandatory	N/A
admi.011 – FedNow System Response	N/A	Mandatory	N/A	Mandatory
admi.006 – Retrieval Request	Optional	N/A	Optional	N/A
admi.998 – FedNow Participant File	N/A	Mandatory	N/A	Mandatory

## How LMTs work

The following is a basic step-by-step look at how FIs transfer liquidity to one another using LMTs.



**STEP 1:** The Sender FI initiates an LMT through a FedLine Solutions channel and sends a payment message (ISO 20022 message pacs.009) to the FedNow Service.

**STEP 2:** The FedNow Service validates the payment message — for example, by verifying the message meets format specifications.

**STEP 3:** The FedNow Service debits and credits the designated master accounts of the Sender and Receiver FIs. **Note:** The FedNow Service does not seek confirmation from the Receiver FI — as it does with instant payments — before settling the LMT. For FIs using a correspondent for settlement, the debit or credit settles in the correspondent’s master account.

**STEP 4:** The FedNow Service sends an advice of credit to the Receiver FI (pacs.009) and sends an acknowledgement to notify the Sender FI that the settlement is complete (ISO 20022 message pacs.002).

### Identifying FIs in an LMT and use case scenarios

While the above example shows an LMT in its simplest form, LMT transactions support different use cases. These transactions may involve other parties such as a correspondent or a funding agent. There may also be scenarios that involve only the FedNow Sender FI and the FedNow Receiver FI.

If the message identifies a receiver different from the FedNow Receiver FI then the FedNow Receiver needs to make the liquidity available to the receiver as soon as is practicable.

### EXAMPLE SCENARIO 1: Funding a participant in a private sector instant payment system using a funding agent

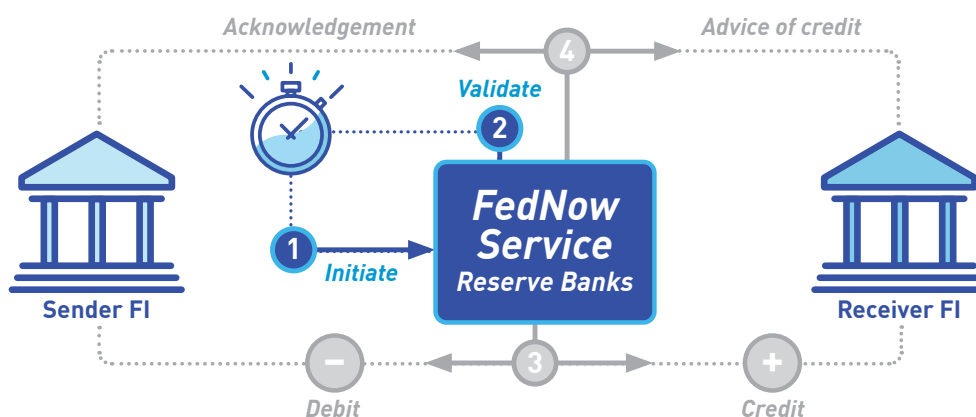
Let’s say that AnyBank wants to initiate a transfer through its correspondent bank to fund AnyBank’s position in a joint account backing a private sector instant payment system. To do this, it would need to instruct its correspondent bank acting as a funding agent to send an LMT to fund the joint account. The agent for the joint account would need to be able receive and process the message to know which position to adjust in its system. The pacs.009 will identify the applicable FI so that the operator can reflect the position in their ledger.

## EXAMPLE SCENARIO 2: Defunding a participant in a private sector instant payment system

Now, let's say AnyCreditUnion would like to defund its position in the private sector solution by instructing the agent for that system to transfer an amount from the joint account at a Federal Reserve Bank to their master account at the Federal Reserve Bank. To do this, the agent for the joint account would initiate the pacs.009 to the FedNow Service. The FedNow Service would settle against the joint account and the master account of AnyCreditUnion, and send the pacs.009 to AnyCreditUnion advising them of the credit.

## Understanding the Payment Timeout Clock

The FedNow Service uses a payment timeout clock to provide predictability that payments will complete (or reject) within a specified time period. LMTs are subject to the same 20-second (or less) payment timeout clock as standard customer transfers received by the FedNow Service.



The payment timeout clock starts based on the “creation date” timestamp included by the FedNow Sender FI in the business application header of this message **regardless of when the FedNow Service receives the message**. The FedNow Service validates the payment message — for example, by verifying that the message meets proper format specifications and complies with applicable controls. If the elapsed time between the creation date timestamp and receipt timestamp by the FedNow Service exceeds the clock limit, the message is rejected.

The **clock stops and the payment settles** if the FedNow Service successfully completes validations and begins the settlement process before the timeout clock has expired. Where messages are rejected because they exceeded the timeout clock, the Sender FI needs to initiate a new payment instruction with a unique identifier if it wishes to resend transfer.

### Requesting a status of LMT

If the Sender FI does not receive an acknowledgement (pacs.002) or a rejection (admi.002/pacs.002) before the payment timeout clock expires, it must submit a request for payment status (ISO message pacs.028) prior to resending the payment message. Receiver FIs who do not receive the pacs.009 advice of credit may request an Activity Totals report or account balance to see if a LMT has settled, or they may request a copy of the pacs.009 via the ISO message admi.006 message retrieval request.

The Federal Reserve Banks recommend that each FI waits a few seconds longer than the stated timeout clock before inquiring about a message that may have been processed. For example, with a 20-second timeout clock limit, an FI should wait until 25 seconds have passed to submit a payment status request to allow time to finish processing and deliver the applicable messages.

FIs that submit request for payment status messages (pacs.028) before resending a payment message through the service are able to avoid initiating duplicate payments.



# Settlement

During the onboarding process, FIs can designate the specific RTN(s) enabled to send messages and the RTN(s) enabled to receive messages, including the master account RTN, primary RTN (for those who do not maintain a master account) or secondary RTNs (either subaccount RTN or other secondary RTN). Each LMT-enabled RTN is mapped to a single settlement point — the master account of either the FI or that of a correspondent — based on instructions from the FI (and agreement by its correspondent, if any) and using the Federal Reserve Banks' accounting applications.

## Managing account balances and reconciling liquidity management activity

FIs are expected to manage their accounts in compliance with Federal Reserve policies, including the Payment System Risk (PSR) Policy on intra-day credit and avoiding negative balances at the close of the FedNow cycle date.

Near real-time reconciliation may be accomplished using the acknowledgement message (pacs.002) for the Sender FI, the advice of credit (pacs.009) for the Receiver FI or the notification of debit/credit message (ISO message camt.054) for correspondents who have enabled the feature within their FedNow profile.

FIs can perform balance inquiries at the master account RTN or subaccount RTN levels. Other secondary RTNs are ineligible for balance inquiries.

## Liquidity expectations

There are a few key points to keep in mind when thinking about liquidity management:

- FIs should not expect the FedNow Service, at initial launch, to reject an LMT message if a participant does not have a sufficient balance or overdraft capacity, even if the Federal Reserve Banks do so for other services. Standard intra-day and overnight overdraft fees still apply.
- The Federal Reserve Banks do not intend to open the Discount Window outside of standard hours. During its business day, the Federal Reserve Banks provide intra-day credit to FedNow participants under the same terms and conditions as its other services.

## Compliance with applicable laws

FIs that use LMTs should consult with their legal counsel for further guidance about their obligations under applicable law. In addition, they should review fraud mitigation solutions and Office of Foreign Asset Control (OFAC) and anti-money laundering (AML) solutions to determine if these capabilities can support LMTs.

# Reporting and reconciliation

For accounting and reporting purposes, the FedNow cycle date differs from the calendar date for a period of time (from close until midnight) because it aligns with the Fedwire® Funds Service business day, which generally has a closing time of 7:00:59 p.m. ET. If the Fedwire Funds Service business day is extended, the FedNow cycle date extends along with it. For consistency, the FedNow Service aligns to the same timeframe for weekends and holidays.

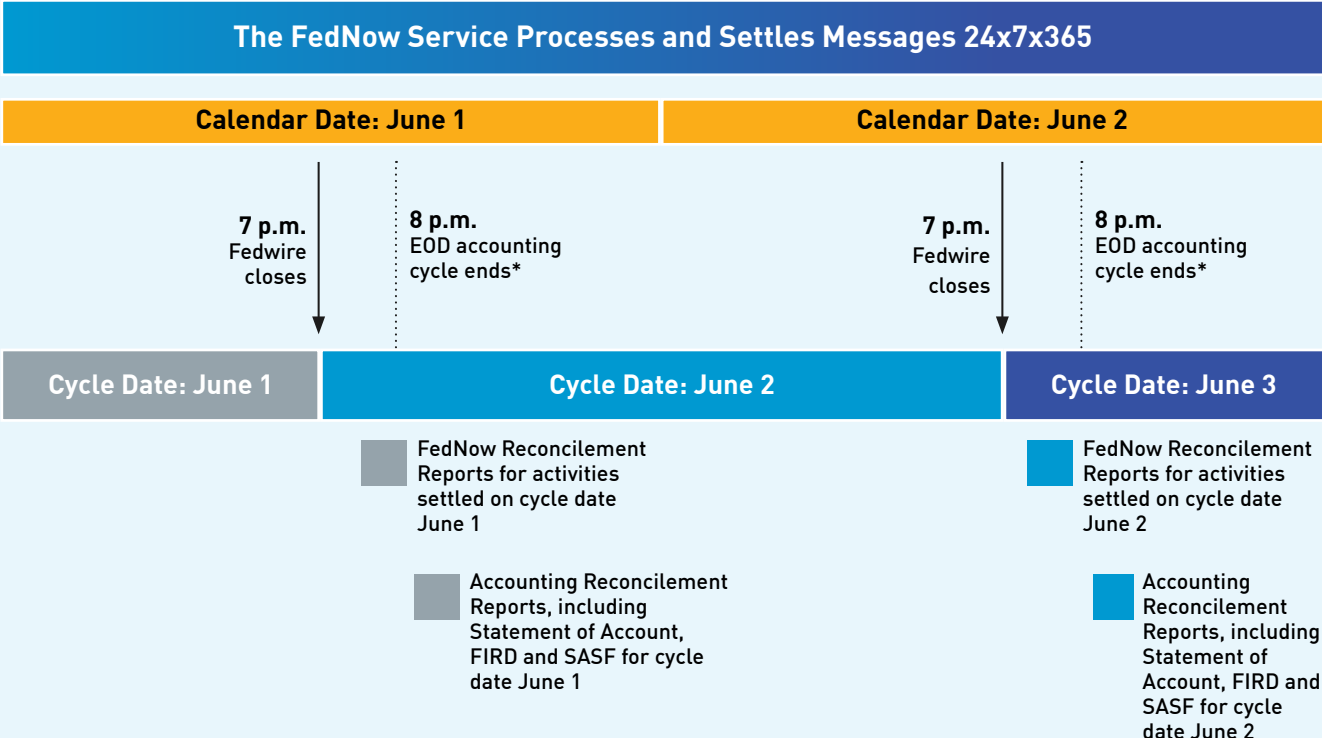
### Cycling forward to the next cycle date

Transactions continue to process and settle in real time during the cycle date rollover. Upon rolling, payments are processed on the new cycle date even though that date differs from the calendar date until midnight ET. For example, a payment that is received on June 1 at 7:00:55 p.m. and settles on June 1 at 7:01:00 p.m. ET, would have a cycle date of June 2. LMTs are assigned the applicable cycle date and included in the acknowledgement message (pacs.002), advice (pacs.009) and notifications (camt.054).

A daily broadcast message (ISO message admi.004) is sent to participants advising them of the change in cycle date. This broadcast message creates awareness for participants and their service providers on those relatively rare instances when the closing time might be extended.

### Understanding FedNow cycle dates

All times are based on a typical day, but subject to change if the cycle date is extended.



\*FedNow participants are able to retrieve Account Balances at any time. At the start of a new cycle date, if the final balance has not been calculated, the provisional balance will be provided.

Note: Participants have the ability to view Account Balances via AMI or FedNow Service.







## FedNow reports and information

While settlement only occurs within master accounts, any enabled RTN may be identified within the payment messages. The FedNow Service provides reports containing information about service activities. These include transactions at the master/primary RTN, subaccount RTN and other secondary RTN levels. These reports are distinct from reports and statements that other Federal Reserve applications (e.g., AMI balance inquiries) generate.

Activity Totals and Details reports are available on demand or automatically provided end of day, if desired. The current approach allows Details reports to be requested at any time for a previous cycle date. The Totals report can be requested for prior cycle dates as well as for current cycle date (i.e. intra-day).

Current cycle date reports show current activity up to the last minute of processing. FedNow reports are accessible using ISO 20022 messages (camt.060 to request and camt.052 returned report) or the FedNow interface via FedLine Solutions.

The Federal Reserve Banks anticipate offering 90 days of historical available content for these reports.

<b>FedNow Reports</b>	 <b>Account Balance</b>	 <b>Activity Totals</b> <i>summary level</i>	 <b>Activity Details</b> <i>detail level</i>
<b>Standard Reports</b>	 <b>Daily Statement of Account</b> <i>summary level</i>	 <b>Financial Institution Reconciliation Data (FIRD)</b> <i>detail level</i>	 <b>Statement of Account in Spreadsheet File (SASF)</b> <i>detail level</i>

## Activity Totals report for LMT

The Activity Totals report contains the FedNow Service summary at the RTN level for payments. By default, this is automatically sent at the end of each cycle date via ISO 20022 messages (camt.052). The graphic below shows the details within this report applicable to FIs who only enable LMT on the service:



- Total amount of successful debit transactions
- Total amount of successful credit transactions
- Total number of successful debit transactions
- Total number of successful credit transactions
- Total number of debit transactions rejected

## Activity Details report

The Activity Details report lists individual FedNow Service transactions and non-value messages. For a full list of content, please see the FedNow ISO 20022 Implementation Guide on the [MyStandards® site](#). Select content for this report is as follows:

ACTIVITY DETAILS REPORT	
Account	Routing number used to determine information in the report
<b>Total Credit Entries</b>	Specifies the total number and sum of successfully processed value messages received by the participant.
<b>Total Debit Entries</b>	Specifies the total number and sum of successfully processed value messages sent by the participant.
<b>Total Entries Per Bank Transaction Code</b>	Non-value messages sent by participant, non-value messages received by participant, value messages received from participant that were rejected, value messages sent by participant but rejected by FedNow Service.
<b>Message Identification</b>	Unique message identification assigned by the sending party (e.g., FI, service provider or FedNow Service).
<b>Message Name Identification</b>	Message identification that defines the business message using ISO 20022 identifiers (e.g., pacs.008, pacs.004, pain.014, etc.).
<b>Message Create Date/Time</b>	The calendar date and time the message was created (ET).
<b>Acceptance Date/Time</b>	The calendar date/time the message was settled within the FedNow Service.
<b>Cycle Date</b>	The FedNow cycle date (funds transfer business day) the message was settled in.
<b>Sender RTN</b>	The RTN of the account which is debited.
<b>Receiver RTN</b>	The RTN of the account which is credited.
<b>Amount</b>	The transaction dollar amount. If it is a non-value message which does not have any amount associated to a transaction, then the amount will be left blank. If there is an amount in the transaction or non-value message, this value will be reflected here.
<b>Bank Transaction Code</b>	Codes which indicate type of message and ultimate status of the message.

## Standard reports updated with FedNow information

The Federal Reserve Banks generate end-of-day accounting statements and include FedNow Service detail activity for master and subaccount RTNs in the FIRD file (an end-of-day report). To help automate reconciliation functions, a FIRD file can be provided in a machine-readable format and is available through AMI. With the AMI application, FIs can get a Daily Statement of Account in PDF format or in spreadsheet format using SASF.

## Balance inquiries available from the FedNow Service and AMI

Master account balance reports (camt.052) may be requested via the ISO 20022 message camt.060. or can be accessed through the FedNow interface.

The AMI application, available via FedLine Web®/FedLine Advantage® Solutions, may also be used to view real-time account balance information.

## Information security

Establishing and maintaining strong information security practices for the FedNow Service is a collaborative effort. In addition to implementing best practices in the design and processes of the service, the Federal Reserve Banks provide participating FIs information on security standards and requirements, including:

- Operating Circulars
- Operational documents and technical specifications
- Message signing and public/private key pairs
- Data encryption and authentication expectations
- Information access prerequisites

The Federal Reserve Banks also provide participants with requirements related to information security.

### Operating circular compliance

All FedNow Service participating FIs and their service providers need to comply with security obligations generally outlined in the operating circulars applicable to the service. These circulars include information about accessing Federal Reserve Financial Services and sending and receiving transfer messages through the FedNow Service and other data.

### Participant system security framework

Because participants access the FedNow Service using FedLine Solutions, they are expected to have an information security program for physical and logical system components. As part of the **FedLine Solutions Security and Resiliency Assurance Program**, participants are expected to conduct and attest to the completion of an annual assessment of compliance with the Federal Reserve's FedLine security requirements.

### Message signing and key pairs

The FedNow Service uses message signatures as one of multiple layers of security controls to help verify the integrity and authenticity of messages sent and received through the service. Message signing occurs point-to-point (between the FedNow Service and participants) and not end-to-end between participants. All messages exchanged through the FedNow Service require a digital signature, which participating FIs, their service providers or the service can generate.

Participants or their service providers are required to use public/private key pairs to support digital message signing. During onboarding, participants receive tools and instructions on message signing, including details on how to create and manage a key pair.

### Encryption and authentication

FedNow data is encrypted at rest within the Federal Reserve Banks and in transit, requiring participants to manage multiple encryption keys and digital certificates. These requirements may differ based on several factors, including the connectivity method and features being leveraged. Credentials for the service are provisioned as part of the FedNow onboarding process.

### Information access

The FedNow Service's user interface is accessible via FedLine Solutions. The FedNow interface leverages FedLine token credentials for authentication and authorization processes to enable a consistent user experience across the suite of Federal Reserve Financial Services.

To find out more details about the FedNow Service, visit [FedNowExplorer.org](https://FedNowExplorer.org).

*This guide may and is likely to change from time to time, including as the Federal Reserve Banks obtain feedback from various stakeholders. The Readiness Guide is not an agreement with the Federal Reserve Banks and is not necessarily reflective of the final terms, operating procedures, or other documentation for the FedNow Service.*

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