PREPARING FOR REAL-TIME PROCESSING

Understanding the Payment Timeout Clock

The FedNow Service uses a payment timeout clock to provide predictability to participants and their end-customers that payments will complete (or reject) within a specified time period.

While the Federal Reserve Banks expect most payment messages to settle in just a few seconds, well below the maximum allowable limit configured by the FedNow Service, the payment timeout clock sets expectations for financial institutions (FIs) and service providers that credit transfers submitted to the service are settled or rejected within a defined time frame.

This section provides details on the payment timeout clock. Topics covered include:

- **An overview of the timeout clock including when it starts and stops**
- **A step-by-step explanation of how the timeout clock fits into the overall FedNow payment flow**
- **Payment rejections — what happens when the timeout clock is exceeded**
- **Submitting a request to check on the status of a payment after the timeout clock expires**

An Overview of How the Payment Timeout Clock Operates

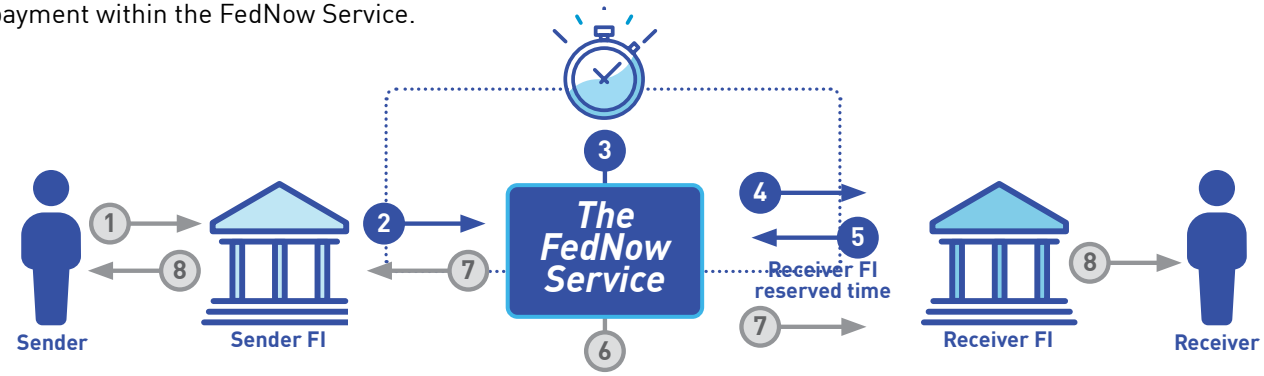
The timeout clock creates a defined process for each step in a transaction that clears and settles through the FedNow Service. This establishes clarity on how settlement is completed and outlines expectations for processing speed and capability for both the Sender and Receiver FIs.

The timeout clock applies to credit transfers — customer payments (ISO® message pacs.008), customer return of funds (ISO message pacs.004) — and FI liquidity management transfers (ISO message pacs.009). The timeout clock has two main features:

- First, the timeout clock is 20 seconds in length. It is configurable within the FedNow Service by the Federal Reserve Banks and stops counting down just before settlement takes place.
- Second, the timeout clock expires prematurely if, based on a setting configured by the Receiver FI, there is insufficient time (i.e., "reserved" time) remaining for the Receiver FI to provide a response to a request for confirmation from the service. A Receiver FI can reserve up to five seconds of the clock that will be guaranteed to them as part of the flow. FIs are able to configure this reserved response time downward from five seconds in increments of one second, with one second being the lowest setting.

A Look at the Payment Timeout Clock Within the Payment Flow

Below is a step-by-step examination of how the timeout clock fits into the overall flow of a settled customer payment within the FedNow Service.



Step 1: The sender (an individual or business) initiates a payment with their FI.

Step 2: Start of clock: The Sender FI or their service provider submits the validated payment message (pacs.008) to the FedNow Service. The payment timeout clock starts based on the "creation date" timestamp included in the business application header of this message ***regardless of when the FedNow Service receives the message.***

Step 3: The FedNow Service authenticates 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 or does not allow sufficient reserved time for the Receiver FI, the message will be rejected.

For example, given a timeout clock of 20 seconds and a default reserved time of five seconds, if 16 seconds have passed, the message would be rejected.

Step 4: If there is sufficient time, the FedNow Service sends the contents of the message to the Receiver FI to seek confirmation that the Receiver FI intends to accept the payment message. At this point, the Receiver FI determines how it will handle the message — accept, reject or accept without posting (ACWP).

Step 5: Stop of clock: The Receiver FI sends an "accept" response to the FedNow Service, confirming it intends to accept the payment message. If the positive response is received by the FedNow Service before the clock has expired, the clock will stop when the FedNow Service receives this message and just before the service's settlement processes begin.

For customer credit transfers, if the FedNow Service receives a positive response — either accept or ACWP — from the Receiver FI before the timeout clock has expired, the **clock will stop** just before the service's settlement processes begin.

Step 6: The FedNow Service settles the payment, debiting and crediting the designated master accounts of the Sender FI and Receiver FI (or of their correspondents), respectively.

Step 7: The FedNow Service sends an advice to the Receiver FI and an acknowledgement to the Sender FI, executing the payment order and notifying each that the Federal Reserve Banks settled the payment message.

Step 8: Funds availability and notification to customer: As a term of participation in the FedNow Service, the Federal Reserve Banks anticipate requiring the Receiver FI to make funds available to the recipient immediately after step 7.

For a more complete overview of the flow process, refer to the **Customer Payment Flow** topic.

A few things to note:

- At each step in the payment flow, the FedNow Service determines whether processing should continue. This is done by validating that the seconds elapsed since the time included in the message timestamp has not exceeded the timeout clock's allowable limit.
- The timeout clock is solely based on a set number of seconds. Therefore, changes to the calendar day or the FedNow Service cycle date are irrelevant.
- In order to support accurate tracking of time, the Federal Reserve Banks recommend that FIs refer to a reliable time server.

When the Payment Timeout Clock Runs Out Before Settlement Begins

If the process outlined on the previous page exceeds the timeout clock's time limit prior to settlement — for example, if 20 seconds lapse without a response from the Receiver FI — the FedNow Service rejects the payment message with the applicable reason indicated. Below are essential points to know about payment rejection scenarios in connection with the timeout clock:

- If a payment is rejected, the FedNow Service sends a message (ISO message pacs.002) to the Sender FI notifying it that the payment was rejected.
- If the Receiver FI has received the contents of a payment message in a request for confirmation but does not respond before the timeout clock expires, the Receiver FI also receives a notice that the payment has been rejected.
- If the Sender FI resubmits a payment message that the FedNow Service already received, it needs to include a new unique message identification number. Otherwise, the service rejects the message based on the duplicate identification number.

Where messages are rejected because they exceeded the timeout clock, participants need to initiate a new payment request if they wish to complete the transfer of funds.

Requesting a Status of Payment

If an FI does not receive an advice (pacs.002), an acknowledgement (pacs.002) or a rejection message (ISO message admi.002/pacs.002), it must submit a request for payment status (ISO message pacs.028).

The Federal Reserve Banks recommend that each FI wait a few seconds longer than the stated timeout clock limit. For example, with a 20-second timeout clock limit, an FI should wait until 25 seconds have passed to submit a status request. This provides time for the FedNow Service 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 limit their risk of sending duplicate payments.