

THE **FEDERAL RESERVE**
 Financial Services



*FedNow[®] Service Guide
to FedLine[®] Connectivity*

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Introduction

Welcome to the *FedNow Service Guide to FedLine Connectivity*, which provides an overview of connectivity options for financial institutions and service providers responsible for deploying and supporting connectivity to facilitate the exchange of instant payment messages with the Federal Reserve. Topics covered in this document include:

- An overview of FedNow Service connection scenarios and options
- Descriptions of each FedLine Solutions connectivity option for the FedNow Service
- Implementation considerations associated with each option
- Access levels for managing FedNow Service participant profiles

The FedNow Service is an instant payment infrastructure that will operate around the clock, 365 days a year. Visit FedNowExplorer.org for additional information about the FedNow Service, including the *FedNow Service Readiness Guide*, or contact your *Account Executive*.

Why FedNow Service Connectivity Is Important

Establishing connectivity to the FedNow Service is important because it will allow financial institutions or service providers acting on their behalf to perform key functions related to the service, such as:

1. Accessing FedNow Service interface via FedLine Solutions to manage profile configurations, access reports, run ad-hoc queries and more. See the [FedLine Subscribers for FedNow Service Access](#) section for more details.
2. Sending and receiving FedNow ISO 20022 messages (including payments) and other data exchanges (such as sending API requests to exchange data with the FedNow Service).

Before an organization can send and receive messages with the FedNow Service, it must identify and implement the appropriate connection option and complete the enrollment and testing process. The following information is intended to help you understand the connection options available and considerations for each.

Overview of Connection Scenarios and Options

To help financial institutions and service providers determine which FedLine Solution will best meet their needs, it may be helpful to understand the ways financial institutions and service providers can participate in the FedNow Service to exchange messages and manage profiles:

- **Scenario 1: Connecting directly.** Financial institution connects directly to perform FedNow Service administration, send API requests and exchange FedNow ISO 20022 messages with the Federal Reserve using their FedLine Solutions.
- **Scenario 2: Connecting on behalf of others.** Third-party service provider uses its connection to manage FedNow Service activities on behalf of participating financial institutions.
- **Scenario 3: Connecting through a third-party service provider.** Participating financial institution that processes messages through a service provider's connection.

Note: Some participating financial institutions may decide to do a combination of scenarios 1 and 2. For example, they may use a service provider's connection to process messages, but use their own direct connection to manage their profile configurations. Financial institutions may also choose to work with more than one service provider.

Depending on your organization's connectivity scenario, current connectivity setup and plans for using the FedNow Service, you'll want to determine which of the following connectivity options is right for you:

- **Option 1:** Install a new FedLine Direct (WAN connection(s)) exclusively for FedNow Service activities.
- **Option 2:** Configure an existing FedLine Direct (WAN connection(s)) to support FedNow Service activities and other Federal Reserve services (current FedLine Direct customers only).
- **Option 3:** Install a new FedLine Advantage or FedLine Command (VPN connection(s)) exclusively for FedNow Service activities.
- **Option 4:** Configure an existing FedLine Advantage or FedLine Command (VPN connection(s)) for FedNow Service activities and other Federal Reserve services (current FedLine Advantage or FedLine Command customers only).

Keep reading for more details about connection scenarios and options, including a [comparison chart](#) and considerations.

Details on FedNow Service Connection Scenarios

The following provides more details on connection scenarios and considerations for each.

Scenario

1

Financial institutions that perform FedNow Service administration and exchange messages directly with the Federal Reserve using their FedLine Solutions.

To exchange FedNow ISO 20022 messages, IBM® MQ client middleware and a FedNow Service server certificate must be installed on a local server, and the FedLine Direct (WAN router) or FedLine Advantage or FedLine Command (VPN device) must be configured to send and receive FedNow Service traffic.

To send API calls and receive responses from the FedNow Service, an API certificate will need to be issued by the Federal Reserve Banks and installed on the FedNow participant's API client. All system preparation requirements, as detailed within the Operating Procedures, must be implemented and integrated into Participant applications before sending messages. FedNow APIs can be accessed using FedLine VPN or FedLine WAN devices.

FedNow Service participants who fall under Scenario 1 will need a secure network connection with the Federal Reserve to access their FedNow Service profile, send API requests and exchange ISO 20022 messages (which includes payment traffic). Among the Federal Reserve's FedLine Solutions, participants must choose a connection that is compatible with the FedNow Service: FedLine Direct, FedLine Command or FedLine Advantage.

Differences among FedLine Solution options

For the purposes of participating in the FedNow Service, the most important difference between FedLine Direct, FedLine Advantage and FedLine Command is the way an organization connects to the Federal Reserve. FedLine Direct uses a private WAN connection, separating FedNow Service traffic from the public internet. FedLine Advantage and FedLine Command use hardware VPN devices to create an encrypted tunnel for FedNow Service traffic when traversing the public internet. The choice of connection depends on the participant's anticipated requirements.

FedLine Direct ([Option 1](#) and [Option 2](#)) offers the highest level of resiliency and network monitoring available with dedicated bandwidth to support an organization's anticipated traffic volume.

Financial institutions that intend to exchange ISO 20022 message traffic or send API requests over a FedLine Advantage or Command (connection [Option 3](#) or [Option 4](#)) should bear in mind that network bandwidth is dependent upon their local internet service provider (ISP).

Establishing an additional connection

If an organization uses other Federal Reserve services such as Fedwire®, FedACH®, Central Bank services, etc., they should consider whether to establish a separate connection with the Federal Reserve, reserved only for FedNow Service traffic, or configure their current FedLine Solution to support FedNow Service traffic and other services.

Note: It's important to exercise caution when considering using one connection for multiple services, particularly for FedLine Advantage or FedLine Command ([Option 4](#)) as they do not receive dedicated bandwidth from the organization's ISP.

Financial institutions that intend to perform all FedNow Service activities directly with the Federal Reserve over a FedLine Direct connection can choose to use an additional FedLine Advantage or FedLine Command connection as a backup to their FedLine Direct connection for additional resiliency. For example, in the event of a contingency in one geographic location, maintaining a backup FedLine Advantage or FedLine Command connection at a geographically separated site allows the organization to continue processing FedNow ISO message traffic until their primary site is back online. Under this scenario, an organization would choose [Option 3](#) in addition to [Option 1](#) or [Option 2](#).

Scenario**2****Third-party service providers acting on behalf of participating financial institutions to perform FedNow Service activities.**

Third-party service providers will need to understand which FedNow Service activities their customers intend to manage themselves, and which activities the service provider will be responsible for performing on behalf of their customers. For example, the service provider will likely be responsible for sending and receiving ISO 20022 messages, but their customers may choose to manage their own FedNow Service participant profile — or they may choose to have their service provider manage their participant profile on their behalf. Customers that choose to manage their own participant profile, will need their own FedLine Advantage or higher connection.

Third-party service providers must establish a FedLine Advantage or higher connection to exchange ISO 20022 message traffic and access their FedNow Service profile (if applicable).

Additionally, to send or receive FedNow ISO 20022 messages, IBM MQ client middleware and a FedNow Service server certificate must be installed on a local server, and the FedLine Direct or FedLine Advantage connection device must be configured to send and receive FedNow Service traffic.

To send API calls and receive responses from the FedNow Service, an API certificate will need to be issued by the Federal Reserve Banks and installed on the FedNow participant's API client. All system preparation requirements, as detailed within the Operating Procedures, must be implemented and integrated into Participant applications before sending messages. FedNow APIs can be accessed using FedLine VPN or FedLine WAN devices.

Considering resiliency and bandwidth

Service providers will need to anticipate additional FedNow Service traffic over their FedLine connection. Because the FedNow Service is a 24x7x365 service with instant settlement, service providers should assess their current solution and determine whether they require additional resiliency. Service providers currently connecting with FedLine Advantage and FedLine Command may benefit from the added resiliency and dedicated bandwidth of a FedLine Direct connection.

A FedLine Direct connection ([Options 1 and 2](#)) offers the highest level of resiliency and network monitoring available with dedicated bandwidth to support an organization's anticipated traffic volume.

Service providers that choose to exchange ISO 20022 message traffic or API requests over a FedLine Advantage or FedLine Command ([Option 3](#)) should bear in mind that network bandwidth is dependent upon their local ISP.

Additionally, if offering other Federal Reserve services to their customers such as Fedwire, FedACH, Central Bank services, etc., service providers must consider whether to establish a separate connection with the Federal Reserve, reserved only for FedNow Service traffic, or use an existing connection for FedNow Service traffic and other services. Service providers should use care when considering exchanging ISO 20022 messages over a single connection with multiple services, particularly with a FedLine Advantage or FedLine Command connection ([Option 4](#)) that does not receive dedicated bandwidth from the organization's ISP.

Scenario**3****Financial institutions that participate in the FedNow Service by using a third-party service provider's connection.**

Financial institutions that participate in the FedNow Service through a third-party service provider may delegate some or all FedNow Service activities to their chosen service provider or providers. In this scenario, a financial institution will likely have a service provider exchange ISO 20022 messages with the Federal Reserve on their behalf. But the financial institutions will also need to determine whether they want to retain responsibility for administering their FedNow Service profile or also designate that activity to their service provider.

Financial institutions that will administer their own FedNow Service profile need to establish a connection directly with the Federal Reserve. The FedNow Service profile is accessible with a FedLine Advantage, FedLine Command or FedLine Direct connection. FedNow Service profile administration is a manual, attended activity and requires login to the FedNow Service interface. In this scenario, using an existing FedLine connection ([Options 2](#) and [Option 4](#)) may meet the needs of most organizations.

Financial institutions that do not currently have a FedLine connection and will establish one to manage their participant profile should consider what other Federal Reserve services they wish to use directly with the Federal Reserve Bank versus through their service provider. Financial institutions that will designate ISO 20022 message exchange, APIs, and participant profile management to their third-party service provider will not need to establish a direct connection with the Federal Reserve Banks. Contact your [Account Executive](#) to better understand what solutions are available.

Details on Connectivity Options

The following pages outline the connectivity options your organization can implement to participate in the FedNow Service.

Option	1 New FedLine Direct Connection(s)	2 Existing FedLine Direct Connection(s)	3 New FedLine Advantage/Command Connection(s)	4 Existing FedLine Advantage/Command Connection(s)
Description	Install a new FedLine Direct connection exclusively for FedNow Service activity	Configure an existing FedLine Direct connection to support FedNow Service activity and other Federal Reserve services	Install a new FedLine Advantage or FedLine Command connection exclusively for FedNow Service transactions	Configure an existing FedLine Advantage or FedLine Command connection to support FedNow Service activity and other Federal Reserve services

Who this might be a good option for	Organizations with an existing FedLine Direct connection that want to separate FedNow Service traffic from other Federal Reserve services on a private network/WAN connection. Or for customers that do not have a FedLine connection and would like to leverage FedLine Direct	Current FedLine Direct customers who would like to exchange data for multiple Federal Reserve services over a single private network/WAN connection	Existing FedLine Advantage or FedLine Command customers who would like to install an additional VPN connection to separate FedNow Service traffic from other Federal Reserve services. Or for customers that do not currently have a FedLine connection and would like to leverage FedLine Advantage or Command	FedLine Advantage or Command customers who would like to leverage that same connection for participating in the FedNow Service OR FedLine Direct customers who wish to add a FedLine Advantage or FedLine Command connection as a contingency solution
FedNow messaging utility	MQ Client; API Client	MQ Client; API Client	MQ Client; API Client	MQ Client; API Client
Network use	WAN private network connection to the Federal Reserve for FedNow Service traffic only	WAN private network connection for multiple Federal Reserve services	VPN connection over public internet used for FedNow Service traffic	VPN connection over public internet with access to multiple Federal Reserve services
Monitoring and alerts	<ul style="list-style-type: none"> Each WAN connection status is actively monitored by the Federal Reserve on behalf of customers Customers receive alerts when status of connection changes 	<ul style="list-style-type: none"> Each WAN connection status is actively monitored by the Federal Reserve on behalf of customers Customers receive alerts when status of connection changes 	<ul style="list-style-type: none"> Federal Reserve provides general availability of VPN connectivity Organization must monitor and maintain their own individual VPN connectivity to the Federal Reserve 	<ul style="list-style-type: none"> Federal Reserve provides general availability of VPN connectivity Organization must monitor and maintain their own individual VPN connectivity to the Federal Reserve

Timing estimates for devices*	Installation of a new circuit requires a lead time of 90-120 days	Allow 30 days for reconfiguration of existing FedLine Direct WAN router and connection	Allow 7-14 days for delivery and installation of VPN hardware	Timing for the modification of an existing VPN device is dependent on the organization's ability to complete requested changes within the Connection Management Center
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* Timing is not inclusive of the entire device installation/modification and onboarding process.

OPTION 1: Install a new FedLine Direct connection exclusively for FedNow Service activities

FedLine Direct provides a private IP network connection via a WAN device so that an organization's FedNow Service traffic does not rely on their local ISP or the quality of the public internet. For more information on FedLine Direct, please visit the [FedLine Direct](#) page at [FRBservices.org](#) and the [FedLine Direct Product Sheet](#).

Organizations using FedLine Direct can choose a connection bandwidth to best suit their needs. Network and vendor diversity is available for further resiliency, connections are actively monitored by the Federal Reserve in case of an outage, and the relevant contacts at the organization are informed when issues arise. For more information on FedLine Direct solutions and pricing, contact your [Account Executive](#).

Organizations using connectivity Option 1 should consider the benefits of additional WAN or VPN connections for disaster recovery and continuity. Learn more about contingency connections on the [FedLine Solutions Education](#) page at [FRBservices.org](#).

Implementation considerations when selecting Option 1

1. Bandwidth and location assessments need to occur as early in the process as possible to determine a preliminary schedule for deployment.
2. Resiliency needs — including additional backup FedLine Direct (WAN), FedLine Advantage or FedLine Command (VPN) connections — should be considered, as well as where each will be placed.
3. Installation of a new circuit requires a lead time of 90 to 120 days and should be considered in scheduling deployment of the FedNow Service.

For more information on setting up a FedLine Direct connection, please review the [FedLine Direct Setup](#) page on [FRBservices.org](#) or contact your [Account Executive](#).

OPTION 2: Configure an existing FedLine Direct connection to support FedNow Services in addition to other Federal Reserve services

Like Option 1, in this option an organization uses a FedLine Direct connection for transmitting FedNow Service traffic directly with the Federal Reserve. However, unlike Option 1, which establishes a new connection reserved for FedNow Service traffic only, Option 2 configures an existing FedLine Direct connection to support new FedNow Service traffic in addition to the other services already running over that connection. This connection may support multiple payment types, depending upon how it is configured (e.g., Fedwire Funds, FedACH, etc.). For more information on FedLine Direct, please visit the [FedLine Direct](#) page at FRBservices.org and review the [FedLine Direct Product Sheet](#).

Organizations should compare the ability to segregate traffic and dedicate bandwidth specifically to the FedNow Service provided with Option 1 against the potential efficiency and cost savings of bundling services on a single circuit in Option 2. Bear in mind that although all FedLine Direct connections dedicate bandwidth, it is important to ensure sufficient bandwidth is available to the FedNow Service while concurrently transferring the messaging and large file transfer traffic associated with other services.

FedLine Direct connections are available at different bandwidths to meet an organization's needs. Organizations may also choose to upgrade their current bandwidth to support additional volume. Visit the [fee schedule](#) on FRBservices.org to review available bandwidth tiers. For more information on FedLine Direct solutions and pricing, contact your [Account Executive](#).

Key consideration

Organizations that choose connectivity Option 2 should consider the benefits of additional FedLine Direct (WAN) or FedLine Advantage/FedLine Command (VPN) connections for disaster recovery and continuity. Learn more about contingency connections on the [FedLine Solutions Education](#) page at FRBservices.org.

Additional implementation considerations when selecting Option 2

1. Bandwidth assessments need to occur as early in the process as possible to determine a preliminary schedule for deployment.
2. Allow 30 days for reconfiguration of existing FedLine Direct connection — Lead time should be considered in scheduling deployment of the FedNow Service.
3. Resiliency needs — including additional backup FedLine Direct (WAN) or FedLine Advantage/FedLine Command (VPN) connections — should be considered, as well as where each will be placed.

For more information on reconfiguring a FedLine Direct connection, please review the [FedLine Direct Setup page](#) on FRBservices.org or contact your [Account Executive](#).

OPTION 3: Install a new FedLine Advantage or FedLine Command connection exclusively for FedNow Service activity

FedLine Advantage and FedLine Command uses a VPN connection between an organization's network and the Federal Reserve that is used exclusively for the FedNow Service.

VPN traffic is encrypted for secure transmission over the public internet. Connectivity speed, availability, bandwidth and outage support is controlled by the organization's internet service provider. When connecting to the Federal Reserve with a VPN, the organization is responsible for monitoring their own connection and

re-establishing it when necessary. For more information, visit the [FedLine Advantage](#) and [FedLine Command](#) pages on FRBservices.org or review the [FedLine Advantage](#) and [FedLine Command](#) product sheets.

Key consideration

Organizations that intend to use a FedLine Direct (WAN) connection should consider the benefits of a secondary FedLine Advantage or FedLine Command contingency (VPN) connection for disaster recovery and continuity. Learn more about contingency VPN connections on the [FedLine Solutions Education](#) page at FRBservices.org.

Additional implementation considerations when selecting Option 3

1. Allow 7-14 days for delivery and installation of VPN hardware. Lead time should be considered in scheduling deployment of the FedNow Service.
2. Coordination with your local ISP may be needed to provision an internet connection to support the VPN device.
3. Network and firewall changes may be necessary and connectivity testing will be required.
4. Additional backup VPN connections should be considered for resiliency, as well as where each will be placed.

For more information on setting up a FedLine Advantage or FedLine Command connection, please review the [FedLine Advantage Setup](#) page on FRBservices.org or contact your [Account Executive](#).

OPTION 4: Configure an existing FedLine Advantage or FedLine Command connection to support FedNow Service activity and other Federal Reserve services

Organizations that already use FedLine Advantage or FedLine Command to connect with the Federal Reserve through a VPN can use this same connection to participate in the FedNow Service.

Like Option 3, this option uses a VPN which encrypts traffic for secure transmission over the public internet. However, Option 4 leverages an existing connection that is already being used to support other services. Similar to Option 3, connectivity speed, availability, bandwidth and outage support are controlled by the organization's internet service provider, but available bandwidth to support the FedNow Service is further constrained by other network traffic associated with other Federal Reserve services.

When connecting to the Federal Reserve with a VPN, the organization is responsible for monitoring their own connection and re-establishing it when necessary. For more information, visit the [FedLine Advantage](#) page on FRBservices.org or review the [FedLine Advantage Product Sheet](#).

Key consideration

Organizations that wish to use Option 4 to participate in the FedNow Service should take care to understand their current network use and scope their network resource needs for supporting their FedNow Service setup. FedNow Service payment messages must be acknowledged before the payment timeout clock expires or they will be rejected. For more information about the FedNow Service and their requirements, please review the [FedNow Service Readiness Guide](#).

Additional implementation considerations when selecting Option 4

1. Connectivity testing will be required.

2. Additional backup FedLine Advantage/FedLine Command (VPN) connections should be considered for resiliency, as well as where each will be placed.

3. Allow several days to accomplish reconfiguration through a self-serve activity.

FedLine Subscribers for FedNow Service Access Levels

Once connectivity is established, organizations will need to determine FedNow Service access levels within their organization or service provider(s). Access levels provide authorization to log into the FedNow Service interface via FedLine Solutions to:

- View and manage settings for accounts with FedNow Service profile(s)
- Access reports, such as Activity Totals, Activity Details and Account Balance
- View and manage fraud settings and negative lists

FedNow Service participants administering their own FedNow Service profile and service providers administering profiles on behalf of other organizations will assign FedNow Service access levels. The FedNow Service provides six service access levels:

Access Level	Description
Supervisor	Provides the ability to view and update certain profile and connection settings, view reports, provide dual verification/approval of profile updates and download the client channel definition table (CCDT) file.
Manager	Provides the ability to view and update certain profile and connection settings, view reports and give verification/approval of profile updates.
Read-Only User	Provides the ability to view profile settings, connection settings, negative list and reports.
Technical User	Provides the ability to view and initiate the upload of the initial public key for message signing and to download the CCDT file.
Resource User	Provides access to FedNow DevRel, which contains technical resources, including MQ and ISO® messaging specifications, operating procedures and other materials for use by application developers.
Risk Mitigation	Provides the ability to view and update risk mitigation functionalities, including correspondent limits and fraud mitigation tools.

Organizations need to consider whether any new FedLine subscribers are needed to perform the FedNow Service roles.

Learn more

For more information about the FedNow Service, including features, functionality and readiness considerations, view the [FedNow Service Readiness Guide](#) on [FedNowExplorer.org](#).

To learn more about FedLine Solutions and pricing, review the [fee schedule](#) on [FRBservices.org](#).

If you have questions about FedNow Service connectivity or would like to discuss options for your organization, please contact your [Account Executive](#).

Legal Notices

FedNow Service Terms and Conditions

The terms and conditions applicable to the Federal Reserve Banks' FedLine Solutions and FedNow Services are contained in the Federal Reserve Banks' Operating Circular 5 and Operating Circular 8. This circular may be accessed via the Federal Reserve Financial Services website at [FRBservices.org](#).

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