

# Basic NATS Clients operations

Basic NATS client operations include publish/subscribe for asynchronous messaging and request/reply for synchronous messaging. Here's how each operation works:

## 1. Publish/Subscribe (Pub/Sub):

- Publish: A publisher sends a message to a specific subject.
- Subscribe: Subscribers express interest in receiving messages from one or more subjects.

### Workflow:

- Publishers publish messages to specific subjects.
- Subscribers subscribe to subjects they are interested in.
- When a message is published to a subject, all subscribers interested in that subject receive a copy of the message.

### Example:

- Publisher: Publishes a message to subject "weather.updates" containing weather data.
- Subscribers: Subscribe to "weather.updates" to receive real-time weather information.

## 2. Request/Reply:

- Request: A client sends a request message to a subject, expecting a response.
- Reply: Another client receives the request, processes it, and sends a response back to the requester.

### Workflow:

- The requester sends a request message to a specific subject.

- A responder is listening on that subject and receives the request.
- The responder processes the request and sends a response back to the requester.
- The requester receives the response.

**Example:**

- Requester: Sends a request for stock prices to subject "stocks.NASDAQ".
- Responder: Listens for requests on "stocks.NASDAQ", processes the request, and sends back the current stock prices as a response.

In both cases, NATS provides a simple and efficient messaging system where clients can communicate asynchronously (pub/sub) or synchronously (request/reply) over subjects. These operations form the basis for building distributed systems, microservices architectures, and other scalable applications with NATS.