

Visibility Timeout

The **visibility timeout** is the period during which a message retrieved from the SQS queue becomes "invisible" to other consumers while being processed by the Lambda function. This prevents the same message from being picked up by another instance of Lambda while it's still being handled.

In our system:

- We relied on visibility timeout to prevent **duplicate processing** of the same order.
- If Lambda failed to process a message (e.g., due to a temporary DynamoDB issue), the message would reappear in the queue after the timeout for another retry.

This mechanism adds a **safe retry mechanism** without data loss or duplication.

Dead-Letter Queue (DLQ)

The **DLQ** is a secondary SQS queue configured to receive messages that fail repeatedly (in our case, after 3 failed attempts).

In our system:

- Messages that failed 3 times (due to logic errors, missing fields, or permission issues) were **redirected to the DLQ**.
- This allowed us to inspect and debug problematic messages without affecting the main flow or losing them.
- It **isolates errors**, improving system stability and observability.

Together, visibility timeout and DLQ ensured that our Lambda function had multiple safe chances to process a message, and if it ultimately failed, the system could recover gracefully without losing data or crashing.