

## GUIDANCE ON QUEUEING AND HANDLING MESSAGES DURING OUTAGES

### Introduction

This guidance has been written by the Industry Process Group to provide additional guidance on queueing messages in the event of an outage, following queries from users.

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### Failure to successfully deliver messages between RCP/MAP and TOTSCo Hub

There are several reasons why it might not be possible to successfully deliver messages from a Retail Communication Provider (RCP) or Managed Access Provider (MAP) to the TOTSCo Hub, or vice versa. These include:

- Outage of the TOTSCo Hub or RCP/MAP systems, whether planned or unplanned.
- Expiry of certificates or any other failure of authentication.
- Lack of working IP connectivity, whether at the RCP/MAP end or TOTSCo end.

This document uses the term “delivery outage” as a collective term for any failure to successfully deliver and successfully process OTS related messages between RCPs via the TOTSCo Hub.

### Match requests v order requests

Matching is a real-time activity, performed whilst the customer is interacting with the gaining retail communication provider (GRCP). The OTS Industry Process documents an SLA of 95% response with 60 seconds. The TOTSCo Hub will attempt delivery every 5 seconds to the LRCP and will return a message delivery failure notification if not delivered in 30 seconds.

There is thus little point in any party using any extended queuing mechanism for match request and response messages. For instance, if there was a delivery outage for say an hour and the GRCP has queued all match requests, the question would be whether any late match responses would ever be utilised – if not, the requests should not be queued beyond any period where the responses could be used (hence the effective 30 seconds max of the Hub queue).

In contrast, order processing is generally a long-lived process for RCPs, with lead times measured in days. OTS supports messages for switch orders, updates, triggers and cancellations. The SLA for responding to such messages is 95% within 1 hour, 99% within 2 hours. The TOTSCo Hub will attempt delivery for 12 days before returning a message delivery failure notification.

Many RCPs will already use queuing technologies to and from other suppliers (e.g. Openreach). Unlike OTS matching messages, each RCP / MAP should consider if and how they wish to queue order related OTS messages in the event of a delivery outage for sending messages to the TOTSCo Hub and should also understand how the TOTSCo Hub will behave if it sees a delivery outage in the other direction.

## First in, first out (FIFO) processing

For order related OTS messages, it is important that the losing retail communication provider (LRCP) processes messages in the same sequence as generated by the GRCP, and in line with the sequence in the Industry Process.

For example, a GRCP may send a switch order request and follow it shortly by a switch order update (e.g. their supply chain commits to a date different to their requested date), without waiting for any acceptance of the switch order. If the LRCP was to process the update first, they would reject it as an update to a switch order that had never been placed, even though the GRCP had sent a switch order. Thus, the TOTSCo Hub applies strict first in, first out (FIFO) processing to messages destined for an RCP.

While RCPs systems may not allow processing to the next step of the industry process without a confirmation or failure message being received or generated in response to a specific message, if you do allow messages to be processed without acknowledgement you will need to consider the impact of the sequence in sending.

## User Agreement rate limits

Schedule F of the TOTSCo User Agreement limits users to sending 50 messages per second. RCPs and MAPs should consider this limit in the design of any outage recovery or queuing solution – e.g. when recovering from a delivery outage they should ensure that they do not exceed the usage limits.

## Message acceptance (or non-acceptance)

If you have provided a 202 response to the TOTSCo Hub, this creates an expectation with the switching counterparty that you will be processing/responding to their message in accordance with the industry process.

This means that if you experience a delivery outage, you have two options:

- have an adequate process to recover from the outage and process all messages that have been accepted with a 202 response – you now have responsibility for processing them, and another RCP should not be expected to resend messages which you have accepted.
- or let the TOTSCo Hub queue the messages for you, either by sending an http 503 (Service unavailable), or by not providing any response at all (not even 202), during your outage.

## Date handling & switch order expiry

Following a delivery outage, order related messages may be processed on a date after the creation date. RCPs should be aware of this and make every attempt to not unreasonably reject messages. Further guidance around date handling has already been provided on date handling in Bulletin 73.

## Recommendations for RCPs

### 1. Identification and Categorization of Delivery Outages

- a. Monitor systems for potential causes of message delivery failures, including:
  - i. Outages (planned or unplanned) of TOTSCo Hub or RCP/MAP systems.
  - ii. Authentication failures due to expired certificates.
  - iii. IP connectivity issues at either RCP/MAP or TOTSCo ends.
- b. Define and implement monitoring and alerting mechanisms to promptly identify delivery outages and consider the response code used in the event of an internal outage.

### 2. Real-time matching versus order processing and queuing

- a. Avoid queuing of match requests, as late match responses are unlikely to be utilised. Follow the TOTSCo Hub's behaviour:
  - i. Avoid retrying delivery of match requests, unless you intend to contact the customer after the outage.
  - ii. Discard requests if undeliverable within the 30-second Hub queue duration.
- b. Queuing for order related messages:
  - i. Implement a queuing system for order-related messages (switch orders, updates, triggers, cancellations) with handling of delayed responses.
  - ii. If you cannot implement a queuing mechanism, understand that the TOTSCo Hub will queue the message for you if you return no response, and will retry delivery for up to 12 days before marking messages as failed.
- c. Ensure that queuing solutions are capable of managing and recovering from delivery outages without exceeding SLA timelines (95% within 1 hour, 99% within 2 hours).

### 3. FIFO (First In, First Out) Message Processing

- a. Maintain strict FIFO processing for order-related messages to ensure alignment with the Industry Process:
  - i. Avoid processing updates or subsequent messages before the preceding messages in the sequence have been acknowledged.

- ii. Ensure internal systems respect FIFO even in outage recovery scenarios to prevent order rejection or misalignment.

#### 4. Rate Limiting During Outage Recovery

- a. Adhere to the TOTSCo User Agreement limit of 50 messages per second:
  - i. Design recovery systems to throttle message retries to avoid breaching rate limits.
  - ii. Implement a staged recovery mechanism to gradually process backlogged messages.

#### 5. Message Acceptance and Error Handling

- a. 202 Response Commitment:
  - i. Treat messages accepted with a 202 response as your responsibility to process/respond. Ensure these are processed according to the Industry Process, even in outage recovery.
  - ii. If unable to process (e.g. you have an outage and have not implemented a queuing mechanism), do not send any response, allowing the TOTSCo Hub to queue messages.
  - iii. Be aware that the TOTSCo reporting via the Account Management Portal gives visibility to the GRCP that you have sent a 202 response, or if the TOTSCo Hub had to queue the message for you.
- b. Error Management:
  - i. Develop error-handling workflows to prevent unnecessary retransmission or loss of messages during recovery.

#### 6. Date Handling and Switch Order Expiry

- a. Be prepared for scenarios where Switch Orders may be processed after their intended date or post-expiry due to outages.
- b. Validate and handle expired orders gracefully, ensuring minimal disruption to customer services.
- c. Refer to Bulletin 73 for additional guidance on managing dates, and how this may be an impact during delivery outages.

