



mBlox Premium Transaction Tracking Technical Guide

USA – Version 2.2

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1. Change History

Version	Date	Author	Comments
1.0	2 Mar 05	Damian Cowell	First release.
1.1	4 Apr 05	Damian Cowell	Updated interpretation of reason code 3, "Acked".
1.2	8 Apr 05	Damian Cowell	Added extra business logic for reason code 23.
1.3	29 Apr 05	Ariela Freed	Modified name of service to mBlox Premium Transaction Tracking (mPTT)
1.4	21 Apr 06	Damian Cowell	Added new codes 32, 37, 38 & 75. Added coverage for Cingular Orange SRM, Nextel/Boost, Dobson, Alltel and Sprint. Amended recommended retry logic for reason codes 30, 31. Added section on billing success.
1.5	25 Apr 06	Damian Cowell	Amended recommended retry logic for reason code 32.
1.6	2 Jun 06	Damian Cowell	Added coverage for Verizon.
1.7	14 Jul 06	Damian Cowell	Amended reason code support for T-Mobile.
1.8	8 Sept 06	Damian Cowell	Added new codes 50, 51 & 52 and included code support on Verizon for binary WAP Push messages.
1.9	5 April 07	Stefan Hok	Added new code 40 (for Sprint). Added Virgin Mobile.
2.0	10 Apr 07	Stefan Hok	Added retry schedule to error code 22 (Out of Credit) on Virgin Mobile
2.1	20 July	Ben Carter	Consolidated AT&T. Made modifications based on AT&T OPPC support
2.2	04 December 07	Lilia Martinez-Coburn	Added duplicate subscriptions for AT&T Added codes for VZW content filtering and wholesale blocking Added codes for Interim Blacklisting for Verizon Added new codes to support Sprint errors Added new code for Verizon Opt-In Opt-Out Added additional information for Virgin lack of funds message

2. Introduction

This guide describes mBlox Premium Transaction Tracking (mPTT), as available on mBlox's US PSMS service, and provides technical information to assist the client in its use. The guide provides detailed descriptions of the mPTT reason codes, the carrier support of each code and guidelines on the real time logic which the client should implement within their application to handle the codes correctly.

3. Overview of mPTT

Delivery status information related to individual MT messages (returned to the mBlox platform from the carrier network) is submitted to the client via delivery receipts. As a standard, the mBlox US platform supports delivery receipts containing a basic set of reason codes, which describe the message status. With mPTT activated, a broader set of reason codes is defined, which describes the reason for a message billing or delivery failure in more detail. This allows the client to implement real time logic which responds differently according to reason code. Examples of such business logic include:

- Retry strategy for failed messages, ranging from "do not retry" to retry mechanisms with different schedules, as appropriate to the failure reason
- Non-premium MT responses to subscribers who have requested services but are unable to be premium billed
- Removal/clean-up of subscriber phone number databases, where failure is due to a permanently invalid destination number
- Implementation of specific business rules which carriers may require

Note that the support of each reason code will vary from carrier to carrier, as the reason codes provided to the client are dependent on the information which mBlox receives from the carrier. Hence, not all reason codes are applicable for all carriers.

! As carriers improve their supported error codes, mBlox will endeavour to map these into the mPTT code set. As far as is practical, the set of mPTT reason codes has been designed to allow future carrier expansion of their error code support.

mBlox has developed mBlox Premium Transaction Tracking to simplify the interpretation of diverse and changing carrier error codes, whilst retaining sufficient depth of real time reporting to allow the client to implement meaningful and effective business logic.

4. mBlox Premium Transaction Tracking Codes

Reason codes are passed back in delivery receipts on all three mBlox interfaces (Java API, SMPP, XML). The client should refer to the relevant interface technical manual for details on where to find the reason code parameter within the protocol. The information in this section applies to all interface types.

4.1. Activation of mPTT

A client account may be configured to use one of two reason code regimes, either the standard reason codes described in the interface documentation, or the mPTT codes described in this guide. The activation of mPTT is set by mBlox and held within the configuration information for the client account, on the mBlox platform.

4.2. Status description

The status parameter provides a high level description of the delivery status of the message. The set of status codes is the same regardless of whether mPTT is activated on an account or not, and is as follows:

- **acked:** accepted by the carrier / successfully billed (only on some carriers; please refer to Section 4.6 for further information)
- **delivered:** delivered to the recipient's handset / successfully billed (only on some carriers; please refer to Section 4.6 for further information)
- **buffered:** queued in the SMSC
- **failed:** message has not been delivered
- **unknown:** the SMSC has failed to deliver notification about the delivery success

These statuses will be accompanied by a reason code as described in Section 4.3.

4.3. mBlox Premium Transaction Tracking reason codes

The following table provides a full list of the reason codes which exist for mPTT. mPTT extends the standard reason code set by providing a far larger number of reason codes associated with the Failed and Buffered states. Please note that not all codes are supported on the US platform. Section 4.4 details the support of codes for each carrier and the recommended response logic which the client should implement.

The table includes an indication of whether each status is:

- **Intermediate** – this is not the final status for this message and a further delivery receipt should be expected.
- **Permanent** – this message is in the final state "Failed" and the failure reason is permanent, i.e. would affect the same message submission in the future.
- **Temporary** – this message is in the final state "Failed" and the failure reason is temporary, i.e. would not necessarily affect the same message submission in the future.

Status Desc	mPTT Reason Code	Reason Description	Intermediate / Permanent/ Temporary	Explanation
Buffered	1	Phone related	Intermediate	Intermediate state notification that the message has not yet been delivered due to a phone related problem but is being retried.
Buffered	2	Deliverer related: message within carrier	Intermediate	Used to indicate that the message has not yet been delivered due to some carrier related problem but is being retried within the network.
Acked	3	Accepted by carrier	Intermediate	Used to indicate that the message has been accepted by the carrier. For certain carriers, this may be interpreted that the carrier has reported successful billing of the subscriber (Section 4.4).
Delivered	4	Delivered to mobile device	n/a	The message was delivered.
Failed	5	Message failed – detailed reason unknown	Unknown	The message has been confirmed as undelivered but no detailed information related to the failure is known.
Unknown	6	Final status of message is unknown	Unknown	mBlox cannot determine whether this message has been delivered or has failed due to lack of final delivery state information from the carrier.
Buffered	7	Credit related – message may be being retried	Intermediate	Used to indicate to the client that the message has not yet been delivered due to insufficient subscriber credit but is being retried within the network.
Failed	8	Message expired within the carrier and failure reason is unknown	Temporary	Used when a message expired (could not be delivered within the life time of the message) within the carrier SMSC but is not associated with a reason for failure.
Failed	20	Permanent carrier error	Permanent	Used when a message in its current form is undeliverable.

Failed	21	Credit related: message has been retried by carrier	Temporary	Only occurs where the carrier accepts the message before performing the subscriber credit check. If there is insufficient credit then the carrier will retry the message until the subscriber tops up or the message expires. If the message expires and the last failure reason is related to credit then this error code will be used.
Failed	22	Credit related: message has NOT been retried by carrier	Temporary	Only occurs where the carrier performs the subscriber credit check before accepting the message and rejects messages if there are insufficient funds available. For Virgin USA subscribers only, the client should respond with the following message "You do not have enough funds to participate in this program. Please visit www.virginmobileusa.com to top up your account."
Failed	23	Absent subscriber permanent	Permanent	Used when the message is undeliverable due to an incorrect / invalid / blacklisted / permanently barred MSISDN for this carrier. This MSISDN should not be used again for message submissions to this carrier.
Failed	24	Absent subscriber temporary	Temporary	Used when a message is undeliverable because the subscriber is temporarily absent, e.g. their phone is switch off, they cannot be located on the network.
Failed	25	Carrier network failure	Temporary	Used when the message has failed due to a temporary condition in the carrier network. This could be related to the SS7 layer, SMSC or gateway.

Failed	26	Phone related error	Temporary	Used when a message has failed due to a temporary phone related error, e.g. SIM card full, SME busy, memory exceeded etc. This does not mean the phone is unable to receive this type of message/content (refer to error code 27).
Failed	27	Permanent phone related error	Permanent	Used when a handset is permanently incompatible or unable to receive this type of message (e.g. MMS compatibility).
Failed	28	Anti-spam	Permanent	Used if a message fails or is rejected due to suspicion of SPAM on the carrier network. This could indicate in some geographies that the carrier has no record of the mandatory MO required for an MT.
Failed	29	Content related error	Permanent	Used when this specific content is not permitted on the network/short code.
Failed	30	Subscriber spend limit exceeded	Temporary	Used when message fails or is rejected because the subscriber has reached the predetermined spend limit for the current billing period.
Failed	31	Subscriber unable to be billed	Temporary	Used when the MSISDN is for a valid subscriber on the carrier but the message fails or is rejected because the subscriber is unable to be billed, e.g. the subscriber account is suspended (either voluntarily or involuntarily), the subscriber is not enabled for bill-to-phone services, the subscriber is not eligible for bill-to-phone services, etc.
Failed	32	Subscriber Wallet not provisioned	Temporary	Specific to Nextel/Boost: Subscribers are not eligible to be premium billed unless they have enrolled with the carrier for a Wallet. This error is returned if the subscriber has not set up a Wallet or is not a subscriber on the network.

Failed	37	Subscription related failure/Duplicate request	Permanent	Used where the carrier platform supports subscription management and a message has failed because it has been submitted against a subscription which is invalid / closed. In the case of AT&T this code is returned if the request is a duplicate of an active purchase request that has not yet been confirmed by the end-user. The opt-in has been re-sent to the subscriber.
Failed	38	Invalid subscription operation	Permanent	Used where the carrier platform supports subscription management and an operation has failed because it is invalid e.g. it is not supported on the particular subscription.
Failed	40	Message delivered – billing failed	Temporary	Used in the rare occurrence of a message being delivered but the billing event failing due to a temporary problem within the operator network.
Failed	43	Message was rejected because the MSISDN is blacklisted	Permanent	Used specifically for Verizon for blacklisted numbers: MSISDN has been rejected. Please REMOVE this number from database for Verizon Wireless as it is a deactivated number and will not be billable.
Failed	48	Message was blocked because the content rating of the subscriber is lower than that of the PSMS application	Permanent	Used specifically for Verizon Content Filtering, and applicable to PSMS. The client must cancel the subscriber's subscription
Failed	49	Service Denied for this Wholesale subscriber	Permanent	Used specifically for Verizon Wholesale Blocking, and applicable to both SMS and MMS. Client must cancel all of the subscriptions for the subscriber

Failed	50	Invalid WAP Push	Permanent	Used specifically for Verizon WAP Push messages. Returned when the WAP Push binary message could not be fully decoded by the mBlox platform because of one or more invalid elements.
Failed	51	Content could not be retrieved	Temporary	Used specifically for Verizon WAP Push messages. Returned when the client's server could not be accessed to retrieve the content.
Failed	52	Content file not available	Permanent	Used specifically for Verizon WAP Push messages. Returned when the specific content file was not found on the client's server. Typically this occurs where the content format requested for the specific mobile device is not supported.
Failed	53	Message was blocked because the content rating of the subscriber is lower than that of the PSMS application	Permanent	Used specifically for Verizon Content Filtering, and applicable to MMS. The client must cancel the subscriber's subscription
Failed	55	Subscription failed because it was a duplicate subscription	Permanent	Used specifically for AT&T duplicate subscriptions. This code is returned after an attempt to set-up a duplicate subscription. i.e. a subscription with the same combination of MSISDN, Product Id and Instance Id.
Failed	71	Message failed because of missing product description for billing literal	Permanent	Used specifically for Alltel. The client must retry with product description information
Failed	75	Refund denied	Permanent	Used where the carrier platform supports refunds on subscription cancellation and the refund request was denied.
Failed	82	Subscription failed due to internal error	Permanent	Used specifically for Verizon Opt-In Opt-Out. Subscription failed due to internal system error

4.4. Carrier support of codes and recommended logic

The following table indicates the carriers for which each code is supported and the recommended business logic which the client should implement. Section 4.7 explains the recommended business logic abbreviated in the table.

mPTT Reason Code and Description		Recommended Client Business Logic (code not supported where shaded)						
		AT&T	T-mobile	Nextel/Boost	Alltel, Dobson	Sprint	Virgin Mobile	Verizon
1	Phone related	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Deliverer related: message within carrier	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Accepted by carrier	Inter-med. state	Inter-med. state	Inter-med. state	Inter-med. state	Inter-med. state	Inter-med. state	Inter-med. state
4	Delivered to mobile device	N/A	DNR	N/A	N/A	DNR ¹	N/A	DNR
5	Message failed – detailed reason unknown	DNR	DNR	DNR	DNR	DNR	DNR	DNR
6	Final status of message is unknown	DNR	DNR	DNR	DNR	DNR	DNR	DNR
7	Credit related – message may be being retried	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Message expired within the carrier and failure reason is unknown	N/A	Sched C	N/A	N/A	N/A	N/A	N/A
20	Permanent carrier error	N/A	DNR	N/A	N/A	DNR	DNR	DNR
21	Credit related: message has been retried by carrier	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	Credit related: message has NOT been retried by carrier	N/A	Sched B	N/A	N/A	N/A	Sched C ²	Sched B ³

¹ Due to the fact that Sprint requires Content Aggregators to perform billing transaction based on successful messaging transaction, a Delivery Notification means that the message has been Confirmed by the Sprint SMSC AND a successful Billing Receipt has been received from the Sprint billing gateway.

23	Absent subscriber permanent	DNR, RDB	DNR, RDB	DNR, RDB	DNR, RDB	DNR, RDB	DNR, RDB	DNR, RDB
24	Absent subscriber temporary	N/A	N/A	N/A	N/A	N/A	N/A	Sched B
25	Carrier network failure	Sched A	Sched A	Sched A	Sched A	Sched A	Sched A	Sched A
26	Phone related error	N/A	N/A	N/A	N/A	N/A	N/A	N/A
27	Permanent phone related error	N/A	N/A	N/A	N/A	N/A	N/A	DNR ⁴
28	Anti-spam	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Content related error	N/A	DNR	N/A	N/A	N/A	N/A	N/A
30	Subscriber spend limit exceeded	Sched C, INF	N/A	Sched C, INF	Sched C ⁵ , INF	N/A	N/A	N/A
31	Subscriber unable to be billed	Sched C, INF	N/A	Sched C, INF ⁶	Sched C, INF	N/A	N/A	N/A
32	Subscriber Wallet not provisioned		N/A	NEXTEL		N/A	N/A	N/A
37	Subscription related failure/Duplicate request	DNR	N/A	N/A	N/A	N/A	N/A	N/A
40	Message delivered – billing failed	N/A	N/A	N/A	N/A	DNR ⁷	N/A	N/A

² Virgin Mobile has agreed to allow mBlox clients to retry according to Retry Schedule C (once a day for 7 days) instead of their standard allowance, which is once in 7 days.

³ This code may also indicate that the subscriber MSISDN is invalid on the network, as Verizon returns a code which can have two different interpretations. The client should follow the retry logic in Section 4.7, which in some cases will result in a message failing with this reason code after multiple retries. In this instance, the MSISDN should be considered as invalid and removed from the client's database.

⁴ This code is returned when a WAP Push message is submitted to a Verizon mobile device which is incapable of receiving MMS messages.

⁵ For Alltel, error code 30 means either "Spend limit exceeded" (post pay) or "Out of Credit" (prepay). Since Alltel group these two errors into one error code, mBlox is not able to distinguish between the two errors.

⁶ Nextel/Boost subscribers require a credit card to be registered with the carrier to access premium services. Messages which fail because the registered credit card is invalid will fail with this reason code.

⁷ Due to the fact that Sprint requires Content Aggregators to perform billing transaction based on successful messaging transaction, there is circumstances where the MT message has been Confirmed by Sprint's SMSC but subsequent Billing Request fails. Clients shall not retry even though it is temporary error.

43	Message was rejected because the MSISDN is blacklisted	N/A	N/A	N/A	N/A	N/A	N/A	DNR
48	Message was blocked because the content rating of the subscriber is lower than that of the PSMS application	N/A	N/A	N/A	N/A	N/A	N/A	DNR
49	Service Denied for this Wholesale subscriber	N/A	N/A	N/A	N/A	N/A	N/A	DNR
50	Invalid WAP Push	N/A	N/A	N/A	N/A	N/A	N/A	DNR
51	Content could not be retrieved	N/A	N/A	N/A	N/A	N/A	N/A	Sched A
52	Content file not available	N/A	N/A	N/A	N/A	N/A	N/A	DNR
53	Message was blocked because the content rating of the subscriber is lower than that of the PSMS application	N/A	N/A	N/A	N/A	N/A	N/A	DNR
55	Subscription failed because it was a duplicate subscription	DNR	N/A	N/A	N/A	N/A	N/A	N/A
71	Message failed because of missing product description for billing literal	N/A	N/A	N/A	Retry with complete params	N/A	N/A	N/A
82	Subscription failed due to internal system error	N/A	N/A	N/A	N/A	N/A	N/A	Sched B

4.5. Codes and retry logic for AT&T solution

For clients who are using the AT&T solution, the following table lists codes which will apply for MT messages only (please refer to the AT&T Implementation Guidelines for more information on AT&T MT messages). These are additional to the general reason codes supported for AT&T, as provided in Section 4.4.

mPTT Reason Code	Reason Description	Recommended Client Business Logic
4 ⁸	Delivered to mobile device ⁸	DNR
37	Subscription related failure/Duplicate request	DNR
38	Invalid subscription operation	DNR
75	Refund denied	DNR

4.6. Carrier indication of successful billing

A number of carriers do not provide full delivery receipt information and hence messages will not reach the final state "Delivered to the mobile device", as indicated in Section 4.4. The following table specifies which reason code may be interpreted as reported billing success for each carrier. Note that this only applies to delivery notifications related to premium billed MT messages.

Carrier	Reason Indicating Billing Success	
	Reason Description	Reason Code
AT&T	Delivered to mobile device ⁸	4
Verizon	Delivered to mobile device	4
Sprint	Delivered to mobile device ⁹	4
T-Mobile	Delivered to mobile device	4
Nextel	Accepted by carrier	3
Boost	Accepted by carrier	3
Dobson	Accepted by carrier	3
Alltel	Accepted by carrier	3
Virgin Mobile	Accepted by carrier	3

⁸ This code is returned to indicate the success of subscription or purchase request submitted by the client. Note that in this case an actual SMS message has not been delivered to the mobile device.

⁹ See footnote 1.

4.7. Notes on retry/business logic

The recommended business logic in Section 4.4 should be implemented as follows:

- **DNR (Do Not Retry)** – the message submission has failed with a permanent failure reason. The message should not be resubmitted in its current form.
 - **Schedule A (Immediate Retry)** – The failed message can be retried immediately as there is high probability the message will be successfully delivered in this case. If the same message generates this error five times in a row, the client should attempt to retry on Schedule B.
 - **Schedule B (Incremental Retry)** – The message requires a change in the status of the subscriber (e.g. switching the phone on, topping up a pre-pay account) for the message to be delivered. A medium frequency retry schedule is appropriate to maximize chances of delivery, whilst not creating unnecessary traffic. It is suggested to retry the message after 5 minutes, 10 minutes and then every 30 minutes. If the situation persists after 24 hours, the client should attempt to retry on Schedule C.
 - **Schedule C (Long Condition Retry)** – The message has failed to be delivered for a reason which is unlikely to be resolved in a short time frame, although this is not necessarily a permanent reason for failure. The message may be resubmitted if it is still appropriate (i.e. the content and charge is still valid). It is suggested to retry once every 24 hours for up to 7 days. If the message is still failed after this, it should not be retried further.
 - **RDB (Remove From Database)** – The subscriber number used is invalid for submissions to this carrier. It should be removed from all database records held by the client to avoid further attempts to use it.
 - **INF (Information Message)** – The client may choose to send a standard rate MT message to inform the subscriber that the requested service is not available.
 - **NEXTEL (Nextel/Boost Specific Wallet Enrolment Message)** – The client should send a standard rate MT message to the subscriber to advise them to register for a Wallet online on the carrier's website. The client should not attempt to retry the premium MT message unless the subscriber reinitiates the purchase request. Note that Nextel/Boost also returns this error code for subscribers who are unknown on their network.
- ! The client must make their application configurable to allow the retry logic to be modified in future. mBlox will update the logic recommended in this guide to meet carrier requirements as they arise.**