

IBonus Terminal™

POS Communication Protocol Specification.

Version 2.2

Written By: Tony Siu

Table of Content

1	Change History	4
2	POS Command Common Format in Raw Data	4
2.1	Command Type	6
3	Terminal Return Common Format in Raw Data.....	6
3.1	POS Result.....	7
4	Command Implementation Detail.....	9
4.1	Common Feature of All Return	9
4.2	ReadMemberCard	10
4.2.1	Mandatory Fields In POS Command.....	10
4.2.2	Return from Terminal when the operation is done successfully	10
4.2.3	Possible Exceptions	10
4.3	ReadStaffCard.....	10
4.3.1	Mandatory Fields In POS Command.....	10
4.3.2	Return from Terminal When the Member Card is read successfully 11	
4.3.3	Possible Exceptions	11
4.4	CardPurchase.....	11
4.4.1	Mandatory Fields In POS Command.....	11
4.4.2	Optional Field	11
4.4.3	Return from Terminal when the operation is done successfully	11
4.4.4	Possible Exceptions	11
4.5	Reload	12
4.5.1	Mandatory Fields In POS Command.....	12
4.5.2	Optional Field	12
4.5.3	Return from Terminal when the operation is done successfully	12
4.5.4	Possible Exceptions	12
4.6	UndoCardPurhcase	13
4.6.1	Mandatory Fields In POS Command.....	13
4.6.2	Optional Field	13
4.6.3	Return from Terminal when the operation is done successfully	13
4.6.4	Possible Exceptions	13
4.7	UndoReload.....	13
4.7.1	Mandatory Fields In POS Command.....	14
4.7.2	Optional Field	14
4.7.3	Return from Terminal when the operation is done successfully	14
4.7.4	Possible Exceptions	14
4.8	QuickReload.....	14
4.8.1	Mandatory Fields In POS Command.....	14
4.8.2	Optional Field	15
4.8.3	Return from Terminal when the operation is done successfully	15
4.8.4	Possible Exceptions	15
4.9	CarryForward.....	15
4.9.1	Mandatory Fields In POS Command.....	15
4.9.2	Optional Field	15
4.9.3	Return from Terminal when the operation is done successfully	16

4.9.4	Possible Exceptions	16
4.10	CashPurchase	16
4.10.1	Mandatory Fields In POS Command	16
4.10.2	Optional Field	16
4.10.3	Return from Terminal when the operation is done successfully	16
4.10.4	Possible Exceptions	16
4.11	ManualRedeem	17
4.11.1	Mandatory Fields In POS Command	17
4.11.2	Optional Field	17
4.11.3	Return from Terminal when the operation is done successfully	17
4.11.4	Possible Exceptions	17
4.12	UndoCashPurchase	18
4.12.1	Mandatory Fields In POS Command	18
4.12.2	Optional Field	18
4.12.3	Return from Terminal when the operation is done successfully	18
4.12.4	Possible Exceptions	18
4.13	UndoManualRedeem.....	19
4.13.1	Mandatory Fields In POS Command	19
4.13.2	Optional Field	19
4.13.3	Return from Terminal when the operation is done successfully	19
4.13.4	Possible Exceptions	19
4.14	RequestRenew	19
4.14.1	Mandatory Fields In POS Command	20
4.14.2	Optional Field	20
4.14.3	Return from Terminal when the operation is done successfully	20
4.14.4	Possible Exceptions	20
4.15	DoRenew.....	20
4.15.1	Mandatory Fields In POS Command	20
4.15.2	Optional Field	20
4.15.3	Return from Terminal when the operation is done successfully	20
4.15.4	Possible Exceptions	21
4.16	RequestRepair.....	21
4.16.1	Mandatory Fields in POS Command	21
4.16.2	Optional Field	21
4.16.3	Return from Terminal when the operation is done successfully	21
4.16.4	Possible Exceptions	21
4.17	DoRepair	22
4.17.1	Mandatory Fields in POS Command	22
4.17.2	Optional Field	22
4.17.3	Return from Terminal when the operation is done successfully	22
4.17.4	Possible Exceptions	22
4.18	RequestReplace.....	22
4.18.1	Mandatory Fields in POS Command	22
4.18.2	Optional Field	22
4.18.3	Return from Terminal when the operation is done successfully	23
4.18.4	Possible Exceptions	23

4.19	DoReplace.....	23
4.19.1	Mandatory Fields in POS Command	23
4.19.2	Optional Field	23
4.19.3	Return from Terminal when the operation is done successfully	23
4.19.4	Possible Exceptions	23
4.20	SetCustomerID	24
4.20.1	Mandatory Fields In POS Command	24
4.20.2	Optional Field	24
4.20.3	Return from Terminal when the operation is done successfully	24
4.20.4	Possible Exceptions	24
4.21	Abort.....	25
4.21.1	Mandatory Fields In POS Command.....	25
4.21.2	Return from Terminal when the operation is done successfully	25
4.22	Ping	25
4.22.1	Mandatory Fields In POS Command.....	25
4.22.2	Return from Terminal when the operation is done successfully	25
5	How to use iBonus API.....	25
5.1	Related Files.....	25
5.1.1	Library	25
5.1.2	Header files	25
5.2	Functions.....	25
5.3	How to send a command and receive result.....	26
6	Appendix 1: List of Transaction Types.....	27

1 Change History

Version	Change Detail
2.1	Added This Change History Added POS_RESULT_INVALID_VERSION.
2.2	Added POS API Specification.

2 POS Command Common Format in Raw Data

Common format of command sent from POS machine to Terminal. The POS command is in plain text mode. All POS commands start with dollar sign '\$' and end with new line '\n'. Between '\$' and '\n' There are many parameters separated by commas ','. Some fields can be left blank if the parameter is not required.

The quotation marks are not sent.

Data in <> means that they are sent in text mode

Data in () means that they are sent in binary mode

```
'<' (len) (checksum) <Version>, <commandType>, <transactionID>, <sequenceNo>,
<amount>, <quickReloadAmount>, <requiredCardID>, <bonusPoint>, <customerID>
, <dateOfBirth>, <requiredStaffID>, <referenceCode>'>'
```

Len	Format: 1 byte binary
-----	-----------------------

	Len is the length of data which counts the number of bytes from version to reference code + 2 (including commas “,”)
checksum	Format: 1 byte binary The check sum sums up the data from <version> to <referenceCode> Sum of every BYTE of Data
Version	Format: dd* Range: 0-65535 inclusive The version number of the protocol. The version number should equal the version of this specification.
commandType	Format: {a-z, A-Z, _}[1,20] case insensitive The action that the POS is asking Terminal to do.
transactionID	Format: {a-z, A-Z, 0-9, _}[0,20] case sensitive The transaction ID included in the transaction that the terminal will send back to server. This field can be left blank.
sequenceNo	Format: d* Numeric range: 0-65535 inclusive The number that will be included in the reply so the POS know the reply corresponds to the particular POS command.
Amount	Format: d*.[dd]? Numeric range: 0 – 8388607.00 inclusive The amount involved in the transaction. In some particular command type e.g. manual redeem, the decimal place must be either .00 or omitted.
quickReloadAmount	Format: d*.[dd]? The minimum value is 0, maximum value is 8388607.00 inclusive The amount which will be reloaded during quick reload.
requiredCardID	Format: d* Numeric range: 0 – 4294967295 inclusive The card ID of the member card which is expected at the terminal. If it is not zero. Only the card with the designated card ID is accepted.
bonusPoint	Format: d* Numeric range: 0 – 16777215 inclusive The bonus point value added in carry forward.
customerID	Format: d[0-16] Numeric range: 0-9999999999999999 inclusive
dateOfBirth	Format: yyymmdd
requiredStaffID	Format: d* Numeric range: 0 – 4294967295 inclusive The staff ID required in the staff login session.
referenceCode	Format: d* Numeric range: 0 – 65535 inclusive

2.1 Command Type

The commandTyped is exactly of the following spellings.

Name	Meaning
ReadMemberCard	Read the content of member card and return it to POS
ReadStaffCard	Read the content of staff card and return it to POS
CardPurchase	Perform card purchase operation
ReLoad	Perform reload operation
UndoCardPurchase	Perform undo card purchase operation
UndoReLoad	Perform undo card reload operation
QuickReLoad	Perform quick reload operation
CarryForward	Perform carry forward operation
CashPurchase	Perform cash purchase operation
ManualRedeem	Perform manual redeem operation
UndoCashPurchase	Perform undo cash purchase operation
UndoManualRedeem	Perform undo manual redeem operation
RequestRenew	Perform request renew operation
DoRenew	Perform do renew operation
RequestRepair	Perform request repair operation
DoRepair	Perform do repair operation
RequestReplace	Perform request replace operation
DoReplace	Perform do replace operation
SetCustomerID	Perform set customer ID operation
Abort	Ask the Terminal to abort the current operation
Ping	Ask the Terminal to reply the ping immediately for testing the connection.

3 Terminal Return Common Format in Raw Data

Terminal Return has a common format. It sends from Terminal back to POS. The Terminal return is in plain text mode. All Terminal returns start with dollar sign '\$' and end with new line '\n'. Between '\$' and '\n' There are many parameters separated by commas ','. Some fields can be left blank if the parameter is not required.

```
'<'<posResult>,<sequenceNo>,<cardID>,<customerID>,<balPrepaid>,<balBonus>,<amountPrepaid>,<amountBonus>,<accSpending>,<quickReloadAmount>,<dateOfBirth>,<expiryDate>,<insufficientValue>,<referenceCode>'>'
```

posResult	Format: d* Range : 0 – 65535 inclusive The error code which shows if the transaction is successful or not.
sequenceNo	Format: d* Numeric range: 0-65535 inclusive The number that will be included in the reply so the POS know the reply corresponds to the particular POS command.
cardID	Format: d* Numeric range: 0 – 4294967295 inclusive The card ID of the card which is detected in the transaction.
customerID	Format: d[0-16] Numeric range: 0 – 9999999999999999 The customer ID of the card which is detected in the transaction. This value reflects its latest value.
balPrepaid	Format: dd* [.dd]? Numeric range: 0 – 8388607.00 inclusive The prepaid balance of the card which is detected in the transaction. This value reflects its latest value.
balBonus	Format: d* Numeric range: 0 – 16777215 inclusive The bonus point balance of the card which is detected in the transaction. This value reflects its latest value.
amountPrepaid	Format: d* [.dd]? Numeric range: 0 – 8388607.00 inclusive The absolute change of balPrepaid during the transaction.
amountBonus	Format: d* Numeric range: 0 – 16777215 inclusive The absolute change of balBonus during the transaction.
accSpending	Format: dd* [.dd]? Numeric range 0 – 42949672.95 inclusive The accumulated spending balance of the card which is detected in the transaction. This value reflects its latest value.
quickReloadAmount	Format: d* [.dd]? The minimum value is 0, maximum value is 8388607.00 The amount which will be reloaded during quick reload.
dateOfBirth	Format: yyyyymmdd The date of birth of the card which is detected in the transaction. This value reflects its latest value.
expiryDate	Format: yyyyymmdd The expiry date of the card. If the card expiry mode is

	fixed, dd = 99. If the card expiry mode is last visit, yyyyymmdd reflects the last date when the card is still valid. If the card has no expiry date, expiryDate is 0.
insufficientValue	Format: d*[.dd]? Numeric range: 0 – 8388607.00 inclusive The amount which should be top up for the prepaid balance before the transaction with the same prepaid amount can be performed.
referenceCode	Format: d* Numeric range: 0 – 65535 inclusive The reference code returned during card control operation request. (e.g. request replace)

3.1 POS Result

The numeric return value in the posResult field is defined as follows:

Symbol	Value	Remarks
POS_RESULT_SUCCESS	0	The transaction is successful
POS_RESULT_BUSY	1	Another transaction is in progress
POS_RESULT_USER_ABORT	2	User has abort the transaction
POS_RESULT_POS_ABORT	3	POS has successfully aborted the transaction
POS_RESULT_TIMEOUT	4	Operation time out
POS_RESULT_INVALID_CARD	5	An unexpected Card is detected. The cardID of the card does not match that of requiredCardID
POS_RESULT_EXPIRED_CARD	6	Member card is expired
POS_RESULT_CARD_BLACKLISTED	7	Member card/ staff card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	8	Terminal is not in staff card login mode.
POS_RESULT_INSUFFICIENT_PREPAID	9	Insufficient prepaid balance for deduction.
POS_RESULT_INSUFFICIENT_BONUS	10	Insufficient bonus balance for deduction.
POS_RESULT_INSUFFICIENT_ACC_SPENDING	11	Insufficient accumulated spending balance for

		deduction.
POS_RESULT_EXCEED_STAFF_LIMIT	12	The amount of the transaction is larger than staff limit.
POS_RESULT_OVER_BONUS_LIMIT	13	The bonus balance could have overflown if the transaction was done.
POS_RESULT_OVER_PREPAID_LIMIT	14	The prepaid balance could have overflown if the transaction was done.
POS_RESULT_OVER_ACC_SPENDING_LIMIT	15	The accumulated spending could have overflown if the transaction was done.
POS_RESULT_INVALID_REQUEST	16	The request command is invalid.
POS_RESULT_BUFFER_FULL	17	The transaction buffer/ request buffer in the terminal is full.
POS_RESULT_REQUEST_FAILED	18	The request for card control operation was failed.
POS_RESULT_INVALID_STAFFID	20	The staff card ID of the current staff login session was different form the requiredStaffID.
POS_RESULT_INVALID_VERSION	21	The protocol version is not match.

4 Command Implementation Detail

4.1 Common Feature of All Return

sequenceNo matches that of the corresponding POS Command.

posResult = POS_RESULT_SUCCESS when the command is done successfully.

In all member card transaction operations, which include:

CardPurchase
 ReLoad
 UndoCardPurchase
 UndoReLoad
 QuickReLoad
 CarryForward
 CashPurchase
 ManualRedeem

UndoCashPurchase
UndoManualRedeem
RequestRenew
DoRenew
DoRepair
DoReplace

The field: cardID, customerID, balPrepaid, balBonus, accSpending, dateOfBirth, expiryDate reflects the detail of the member card detected. If the transaction is done successfully, the field will reflect the updated information of the member card. If the transaction failed, the field will reflect the member card information before update.

4.2 ReadMemberCard

This command reads the content of member card and returns it to POS. When the Terminal receives this command. It prompts for a member card. As soon as a member card is detected, the information of the membercard is sent back to POS.

4.2.1 Mandatory Fields In POS Command

version, sequenceNo, commandType

4.2.2 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, accSpending, expiryDate, dateOfBirth

4.2.3 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.3 ReadStaffCard

This command returns the staff card information of the current staff login session. When Terminal receives this command, it send back to POS about the staff card information immediately.

4.3.1 Mandatory Fields In POS Command

version, sequenceNo, commandType

4.3.2 Return from Terminal When the Member Card is read successfully

sequenceNo, posResult, cardID
cardID is the cardID of the staff card.

4.3.3 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then staff card is presented. When there is any thing wrong with the staff card.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.4 CardPurchase

This command sends an amount to Terminal. The terminal will perform a card purchase operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.4.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount

4.4.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.4.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.4.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	

POS_RESULT_INSUFFICIENT_PREPAID	InsufficientValue is returned.
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_OVER_BONUS_LIMIT	
POS_RESULT_OVER_ACC_SPENDING_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.5 Reload

This command sends an amount to Terminal. The terminal will perform a reload operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.5.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount

4.5.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.5.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus = 0, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.5.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_OVER_PREPAID_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.6 UndoCardPurchase

This command sends an amount to Terminal. The terminal will perform an undo card purchase operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.6.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount

4.6.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.6.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.6.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_INSUFFICIENT_BONUS	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_OVER_PREPAID_LIMIT	
POS_RESULT_INSUFFICIENT_ACC_SPENDING_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.7 UndoReload

This command sends an amount to Terminal. The terminal will perform an undo card purchase operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.7.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount

4.7.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.7.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus=0, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.7.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_INSUFFICIENT_PREPAID_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.8 QuickReload

This command sends an amount to Terminal. The terminal will perform a quick reload operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result. Effectively the member card is reloaded by quickReloadAmount and done card purchase with amount.

This operation guarantees that both reload and card purchase can be performed correctly before anything is written to the card.

4.8.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount, quickReloadAmount

4.8.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.8.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.8.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the memeber card. When the cardID of the card doesn't match that of requi redCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_INSUFFICIENT_PREPAID	The prepaid balance in the card is still not enough even after the card is reloaded by quick reload amount.
POS_RESULT_EXCEED_STAFF_LIMIT	Either quickReloadAmount or amount exceed the staff max transaction limit.
POS_RESULT_OVER_BONUS_LIMIT	
POS_RESULT_OVER_PREPAID_LIMIT	The prepaid limit overflown when it is reloaded by quick reload limit.
POS_RESULT_OVER_ACC_SPENDING_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.9 CarryForward

This command sends an amount to Terminal. The terminal will perform a carry forward operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.9.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount, bonusPoint

4.9.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.9.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.9.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID When there the card presented is not a new member card or a brand new card.
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_EXCEED_STAFF_LIMIT	Either quickReloadAmount or amount exceed the staff max transaction limit.
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.10 CashPurchase

This command sends an amount to Terminal. The terminal will perform a cash purchase operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.10.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount

4.10.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.10.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid=0, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.10.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	

POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the staff card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_OVER_BONUS_LIMIT	
POS_RESULT_OVER_ACC_SPENDING_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.11 Manual Redeem

This command sends an amount to Terminal. The terminal will perform a manual redeem operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.11.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, bonusPoint

4.11.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.11.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.11.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the staff card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is

	blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_INSUFFICIENT_BONUS	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.12 UndoCashPurchase

This command sends an amount to Terminal. The terminal will perform an undo cash purchase operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.12.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, amount

4.12.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.12.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.12.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_INSUFFICIENT_BONUS	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_INSUFFICIENT_ACC_SPENDING	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	

POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.13 UndoManualRedeem

This command sends an amount to Terminal. The terminal will perform an undo manual redeem operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.13.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, bonusPoint

4.13.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.13.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, amountPrepaid, amountBonus, accSpending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.13.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_EXCEED_STAFF_LIMIT	
POS_RESULT_OVER_BONUS_LIMIT	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.14 RequestRenew

This command sends a command to Terminal. The terminal will perform a request renew operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.14.1 Mandatory Fields In POS Command

version, sequenceNo, commandType

4.14.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.14.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, accSpending, dateOfBirth, expiryDate, referenceCode
cardID is the that of the member card.

4.14.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_REQUEST_FAILED	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.15 DoRenew

This command sends a command to Terminal. The terminal will perform a do renew operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.15.1 Mandatory Fields In POS Command

version, sequenceNo, commandType

4.15.2 Optional Field

transactionID, requiredCardID, requiredStaffID

4.15.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, accSpending, dateOfBirth, expiryDate

cardID is the that of the member card.

4.15.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other then member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_REQUEST_FAILED	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.16 Request Repair

This command sends a command to Terminal. The terminal will perform a request repair operation on the member card.

4.16.1 Mandatory Fields in POS Command

version, sequenceNo, commandType

4.16.2 Optional Field

transactionID, requiredStaffID

4.16.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, referenceCode

4.16.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_REQUEST_FAILED	
POS_RESULT_INVALID_VERSION	

POS_RESULT_INVALID_REQUEST	
----------------------------	--

4.17 DoRepair

This command sends a command to Terminal. The terminal will perform a do repair operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.17.1 Mandatory Fields in POS Command

version, sequenceNo, commandType

4.17.2 Optional Field

transactionID, requiredStaffID

4.17.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, accSpending, dateOfBirth, expiryDate

4.17.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_REQUEST_FAILED	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.18 RequestReplace

This command sends a customer ID or card ID to Terminal. The terminal will perform a request replace operation.

4.18.1 Mandatory Fields in POS Command

version, sequenceNo, commandType, dateOfBirth, (customerID or requiredCardID)

requiredCardID is used in request replace by card ID

customerID and requiredCardID is mutually exclusive

if customerID exists, request replace card by customer ID is performed.

if cardID exists, request replace card by card ID is performed.

4.18.2 Optional Field

transactionID, requiredStaffID

4.18.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, referenceCode

4.18.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other than member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_REQUEST_FAILED	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.19 DoReplace

This command sends an reference code, customer ID or card ID to Terminal. The terminal will perform a do replace operation.

4.19.1 Mandatory Fields in POS Command

version, sequenceNo, commandType, dateOfBirth, (referenceCode, customerID or requiredCardID)

requiredCardID is used in request replace by card ID

referenceCode, customerID and requiredCardID is mutually exclusive

if customerID exists, do replace card by customer ID is performed.

if cardID exists, do replace card by card ID is performed.

if referenceCode exist, do replace card by reference code is performed.

4.19.2 Optional Field

transactionID, requiredStaffID

4.19.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, accSpending, dateOfBirth, expiryDate

4.19.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	

POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other than member card is presented. When there is any thing wrong with the member card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_STAFF_NOT_LOGIN	
POS_RESULT_BUFFER_FULL	
POS_RESULT_INVALID_STAFFID	
POS_RESULT_REQUEST_FAILED	
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.20 SetCustomerID

This command sends a customer ID to Terminal. The terminal will perform a set customer ID operation on the member card. If a member card is presented to the Terminal, the member card data will be sent back to POS along the POS Result.

4.20.1 Mandatory Fields In POS Command

version, sequenceNo, commandType, customerID

4.20.2 Optional Field

transactionID, requiredCardID

4.20.3 Return from Terminal when the operation is done successfully

sequenceNo, posResult, cardID, customerID, balPrepaid, balBonus, accspending, dateOfBirth, expiryDate
cardID is the that of the member card.

4.20.4 Possible Exceptions

POS_RESULT_BUSY	
POS_RESULT_USER_ABORT	
POS_RESULT_POS_ABORT	
POS_RESULT_TIMEOUT	
POS_RESULT_INVALID_CARD	When a card other than member card is presented. When there is any thing wrong with the staff card. When the cardID of the card doesn't match that of requiredCardID
POS_RESULT_CARD_BLACKLISTED	Returned when member card is blacklisted.
POS_RESULT_INVALID_VERSION	
POS_RESULT_INVALID_REQUEST	

4.21 Abort

This command sends an abort signal to Terminal. The terminal will try to stop the POS operation when it is in progress. The POS operation in progress will therefore return POS_RESULT_POS_ABORT.

4.21.1 Mandatory Fields In POS Command

version, commandType

4.21.2 Return from Terminal when the operation is done successfully

No return is expected in this operation.

4.22 Ping

This command sends a signal to Terminal. Terminal is supposed to reply immediately. This function can be used for testing the connection.

4.22.1 Mandatory Fields In POS Command

version, commandType, sequenceNo

4.22.2 Return from Terminal when the operation is done successfully

sequenceNo, posResult

posResult always equals POS_RESULT_SUCCESS, POS_RESULT_BUSY or POS_RESULT_STAFF_NOT_LOGIN.

5 How to use iBonus API

5.1 Related Files

5.1.1 Library

iBonus.dll - The Library that you would call from the development tools.

5.1.2 Header files

Type.h – contains structures that send to the terminal and receive from the terminal, what type of transaction to send and receive.

iBonus.h – contains all the functions for accessing the iBonus Terminal.

5.2 Functions

iBonus_GetDllVersion – iBonus.dll current version

iBonus_InitializePort – Which COM port to use

iBonus_Send – Sending command to Terminal

iBonus_ClosePort – Release the COM port
iBonus_SetMessageHandle – Use Windows Message method to receive response from terminal
iBonus_SetCallbackHandle – Use Callback method to receive response from terminal

5.3 How to send a command and receive result

1. Call `iBonus_InitializePort` when program start.
2. Call the method to receive response according to your choice. Choose either `iBonus_SetMessageHandle` or `iBonus_SetCallbackHandle`.
3. Create a method to receive windows message or callback message
4. Send a command. Please refer to the appendix for transaction type and the protocol specification.
5. The terminal would have respond.
6. If there is response on card or terminal, the windows process method or callback method should be fired automatically.

Please refer to the example attached in the iBonus Server installation package for detail.

6 Appendix 1: List of Transaction Types

READ_MEMBER_CARD = 1001
READ_STAFF_CARD = 1002
CARD_PURCHASE = 2001
RELOAD = 2002
UNDO_CARD_PURCHASE = 2003
UNDO_RELOAD = 2004
QUICK_RELOAD = 2005
CARRY_FORWARD = 2006
CASH_PURCHASE = 3001
MANUAL_REDEEM = 3002
UNDO_CASH_PURCHASE = 3003
UNDO_MANUAL_REDEEM = 3004
REQUEST_RENEW = 4001
DO_RENEW = 4002;
REQUEST_REPAIR = 5001
DO_REPAIR = 5002
REQUEST_REPLACE = 6002
DO_REPLACE = 6005
SET_CUSTOMER_ID = 7001
POS_ABORT = 8002
PING = 9001
PROTOCOL_VERSION = 20