3M™ Standard Interchange Protocol

Describes 3M Standard Interchange Protocol Version 2.00
Reformatted and SIP notes added by SirsiDynix Support

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Messages in Numerical Order

01 Block Patron Request

This message requests that the patron card be blocked by the ACS. This is, for example, sent when the patron is detected tampering with the SC or when a patron forgets to take their card. The ACS should invalidate the patron's card and respond with a Patron Status Response message. The ACS could also notify the library staff that the card has been blocked.

01<card retained><transaction date><institution id><blocked card msg><patron identifier><terminal password>

Field	ID	Format
card retained		1-char, fixed-length required field: Y or N.
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
blocked card msg	AL	variable-length required field
patron identifier	AA	variable-length required field
terminal password	AC	variable-length required field

Block Patron Response (See Patron Status Response 24)

09 Checkin Request

This message is used by the SC to request to check in an item, and also to cancel a Checkout request that did not successfully complete. The ACS must respond to this command with a Checkin Response message.

09<no block><transaction date><return date><current location><institution id><item identifier><terminal password><item properties><cancel>

	Field	ID	Format
	no block		1-char, fixed-length required field: Y or N.
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	return date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	current location	AP	variable-length required field
	institution id	AO	variable-length required field
	item identifier	AB	variable-length required field
	terminal password	AC	variable-length required field
2.00	item properties	CH	variable-length optional field
2.00	cancel	BI	1-char, optional field: Y or N

10 Checkin Response

This message must be sent by the ACS in response to a SC Checkin message.

10<ok><resensitize><magnetic media><alert><transaction date><institution id><item identifier><permanent location><title identifier><sort bin><patron identifier><media type><item properties><screen message><print line>

	Field	ID	Format
	ok		1-char, fixed-length required field: 0 or 1.
	resensitize		1-char, fixed-length required field: Y or N.
	magnetic media		1-char, fixed-length required field: Y or N or U.
	alert		1-char, fixed-length required field: Y or N.
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	item identifier	AB	variable-length required field
	permanent location	AQ	variable-length required field
	title identifier	AJ	variable-length optional field
2.00	sort bin	CL	variable-length optional field
2.00	patron identifier	AA	variable-length optional field, ID of the patron who had the item checked out
2.00	media type	CK	3-char, fixed-length optional field
2.00	item properties	CH	variable-length optional field
2.EX	*collection identifier*	*CR*	*variable-length optional field, item type*
2.EX	*call number*	*CS*	*variable-length optional field*
2.EX	*destination institution id*	*CT*	*variable-length optional field*
2.EX	*alert type*	*CV*	*2-char, fixed-length optional field: 00 - 99*
2.EX	*hold patron id*	*CY*	*variable-length optional field*
2.EX	*hold patron name*	*DA*	*variable-length optional field*
2.EX	*author name*	*EA*	*variable-length optional field*
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

The OK, and Resensitize fields should be set according to the following rules:

OK	should be set to 1 if the ACS checked in the item.
	should be set to 0 if the ACS did not check in the item.
Resensitize	should be set to Y if the SC should resensitize the article.
	should be set to N if the SC should not resensitize the article (for example, a closed reserve book, or the checkin was refused).

11 Checkout Request

This message is used by the SC to request to check out an item, and also to cancel a Checkin request that did not successfully complete. The ACS must respond to this command with a Checkout Response message.

11<SC renewal policy><no block><transaction date><NB due date><institution id><patron identifier><item identifier><terminal password><patron password><item properties><fee acknowledged><cancel>

	Field	ID	Format
	SC renewal policy		1-char, fixed-length required field: Y or N.
	no block		1-char, fixed-length required field: Y or N.
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS. The date and time that the patron checked out the item at the SC unit.
	NB due date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	item identifier	AB	variable-length required field
	terminal password	AC	variable-length required field
2.00	item properties	CH	variable-length optional field
2.00	patron password	AD	variable-length optional field
2.00	fee acknowledged	BO	1-char, optional field: Y or N
2.00	cancel	BI	1-char, optional field: Y or N

12 Checkout Response

This message must be sent by the ACS in response to a Checkout message from the SC.

12<ok><renewal ok><magnetic media><desensitize><transaction date><institution id><patron identifier><item identifier><title identifier><due date><fee type><security inhibit><currency type><fee amount><media type><item properties><transaction id><screen message><print line>

	Field	ID	Format
	ok		1-char, fixed-length required field: 0 or 1
	renewal ok		1-char, fixed-length required field: Y or N
	magnetic media		1-char, fixed-length required field: Y or N or U
	desensitize		1-char, fixed-length required field: Y or N or U
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	item identifier	AB	variable-length required field
	title identifier	AJ	variable-length required field
	due date	AH	variable-length required field
2.00	fee type	BT	2-char, fixed-length optional field (01 thru 99). The type of fee associated with checking out this item
2.00	security inhibit	CI	1-char, fixed-length optional field: Y or N
2.00	currency type	BH	3-char fixed-length optional field
2.00	fee amount	BV	variable-length optional field. The amount of the fee associated with checking out this item.
2.00	media type	CK	3-char, fixed-length optional field
2.00	item properties	CH	variable-length optional field
2.00	transaction id	BK	variable-length optional field, may be assigned by the ACS when checking out the item involves a fee.
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

The OK, Renewal OK, Desensitize, Magnetic Media, and Fee Amount fields should be set according to the following rules:

OK   should be set to 1 if the ACS checked out the item to the patron.
                should be set to 0 if the ACS did not check out the item to the patron.
Renewal OK   should be set to Y if the patron requesting to check out the item already has the item checked out
                should be set to N if the item is not already checked out to the requesting patron. Desensitize
            should be set to Y if the SC should desensitize the article.
                should be set to N if the SC should not desensitize the article (for example, a closed reserve book, or the checkout was refused).
Fee Amount   should be set to the value of the fee associated with checking out the item
                should be set to 0 if there is no fee associated with checking out the item.

15 Hold Request (2.00)

This message is used to create, modify, or delete a hold. The ACS should respond with a Hold Response message. Either or both of the "item identifier" and "title identifier" fields must be present for the message to be useful.

15<hold mode><transaction date><expiration date><pickup location><hold type><institution id><patron identifier><patron password><item identifier><title identifier><terminal password><fee acknowledged>

	Field	ID	Format
2.00	hold mode		1-char, fixed-length required field '+'/'-'/'*'/'?' Add, delete, change, list
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	expiration date	BW	18-char, fixed-length optional field: YYYYMMDDZZZZHHMMSS
2.00	pickup location	BS	variable-length, optional field
2.00	hold type	BY	1-char, optional field
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	patron password	AD	variable-length optional field
	item identifier	AB	variable-length optional field
	title identifier	AJ	variable-length optional field
	terminal password	AC	variable-length optional field
2.00	fee acknowledged	BO	1-char, optional field: Y or N
2.EX	*request identifier*	*NL*	*variable-length optional field*

16 Hold Response (2.00)

The ACS should send this message in response to the Hold message from the SC.

16<ok><available><transaction date><expiration date><queue position><pickup location><institution id><patron identifier><item identifier><title identifier><screen message><print line>

	Field	ID	Format
	ok		1-char, fixed-length required field: 0 or 1.
2.00	available		1-char, fixed-length required field: Y or N.
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	expiration date	BW	18-char, fixed-length optional field: YYYYMMDDZZZZHHMMSS
2.00	queue position	BR	variable-length optional field
2.00	pickup location	BS	variable-length optional field
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	item identifier	AB	variable-length optional field
	title identifier	AJ	variable-length optional field
2.EX	*request identifier*	*NR*	*variable-length optional field*
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

17 Item Information (2.00)

This message may be used to request item information. The ACS should respond with the Item Information Response message.

17<transaction date><institution id>< item identifier ><terminal password>

Field	ID	Format
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
item identifier	AB	variable-length required field
terminal password	AC	variable-length optional field

18 Item Information Response (2.00)

The ACS must send this message in response to the Item Information message.

18<circulation status><hold queue length><security marker><fee type><transaction date><due date><recall date><hold pickup date><item identifier><title identifier><owner><currency type><fee amount><media type><permanent location><current location><item properties><screen message><print line>

	Field	ID	Format
2.00	circulation status		2-char, fixed-length required field (00 thru 99)
2.00	security marker		2-char, fixed-length required field (00 thru 99)
2.00	fee type		2-char, fixed-length required field (01 thru 99). The type of fee associated with checking out this item.
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	hold queue length	CF	variable-length optional field
	due date	AH	variable-length optional field
2.00	recall date	CJ	18-char, fixed-length optional field: YYYYMMDDZZZZHHMMSS
2.00	hold pickup date	CM	18-char, fixed-length optional field: YYYYMMDDZZZZHHMMSS
	item identifier	AB	variable-length required field
	title identifier	AJ	variable-length required field
2.00	owner	BG	variable-length optional field
2.00	currency type	BH	3 char, fixed-length optional field
2.00	fee amount	BV	variable-length optional field. The amount of the fee associated with this item
2.00	media type	CK	3-char, fixed-length optional field
2.00	permanent location	AQ	variable-length optional field
2.00	current location	AP	variable-length optional field
2.00	item properties	CH	variable-length optional field
2.EX	*collection identifier*	*CR*	*variable-length optional field*
2.EX	*call number*	*CS*	*variable-length optional field*
2.EX	*destination institution id*	*CT*	*variable-length optional field*
Hz	*language code*	*LG*	*variable-length optional field, ISO 639.2 language code*
2.EX	*hold patron id*	*CY*	*variable-length optional field*
2.EX	*hold patron name*	*DA*	*variable-length optional field*
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

19 Item Status Update Request (2.00)

This message can be used to send item information to the ACS, without having to do a Checkout or Checkin operation. The item properties could be stored on the ACS's database. The ACS should respond with an Item Status Update Response message.

19<transaction date><institution id><item identifier><terminal password><item properties>

	Field	ID	Format
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	item identifier	AB	variable-length required field
	terminal password	AC	variable-length optional field
2.00	item properties	CH	variable-length required field

20 Item Status Update Response (2.00)

The ACS must send this message in response to the Item Status Update message.

20<item properties ok><transaction date><item identifier><title identifier><item properties><screen message><print line>

	Field	ID	Format
2.00	item properties ok		1-char, fixed-length required field: 0 or 1
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	item identifier	AB	variable-length required field
	title identifier	AJ	variable-length optional field
2.00	item properties	CH	variable-length optional field
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

23 Patron Status Request

This message is used by the SC to request patron information from the ACS. The ACS must respond to this command with a Patron Status Response message.

23<language><transaction date><institution id><patron identifier><terminal password><patron password>

Field	ID	Format
language		3-char, fixed-length required field
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
patron identifier	AA	variable-length required field
terminal password	AC	variable-length required field
patron password	AD	variable-length required field

24 Patron Status Response

The ACS must send this message in response to a Patron Status Request (23) message as well as in response to a Block Patron message (01).

24<patron status><language><transaction date><institution id><patron identifier><personal name><valid patron><valid patron password><currency type><fee amount><screen message><print line>

	Field	ID	Format
	patron status		14-char, fixed-length required field
	language		3-char, fixed-length required field
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	personal name	AE	variable-length required field
2.00	valid patron	BL	1-char, optional field: Y or N
2.00	valid patron password	CQ	1-char, optional field: Y or N
2.00	currency type	BH	3-char, fixed-length optional field
2.00	fee amount	BV	variable-length optional field. The amount of fees owed by this patron
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

25 Patron Enable Request (2.00)

This message can be used by the SC to re-enable canceled patrons. It should only be used for system testing and validation. The ACS should respond with a Patron Enable Response message.

25<transaction date><institution id><patron identifier><terminal password><patron password>

Field	ID	Format
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
patron identifier	AA	variable-length required field
terminal password	AC	variable-length optional field
patron password	AD	variable-length optional field

26 Patron Enable Response (2.00)

The ACS should send this message in response to the Patron Enable message from the SC.

26<patron status><language><transaction date><institution id><patron identifier><personal name><valid patron><valid patron password><screen message><print line>

	Field	ID	Format
	patron status		14-char, fixed-length required field
	language		3-char, fixed-length required field
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	personal name	AE	variable-length required field
2.00	valid patron	BL	1-char, optional field: Y or N
2.00	valid patron password	CQ	1-char, optional field: Y or N
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

29 Renew Request (2.00)

This message is used to renew an item. The ACS should respond with a Renew Response message. Either or both of the "item identifier" and "title identifier" fields must be present for the message to be useful.

29<third party allowed><no block><transaction date><NB due date><institution id><patron identifier><patron password><item identifier><title identifier><terminal password><item properties><fee acknowledged>

	Field	ID	Format
2.00	third party allowed		1-char, fixed-length required field: Y or N
	no block		1-char, fixed-length required field: Y or N
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	NB due date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	patron password	AD	variable-length optional field
	item identifier	AB	variable-length optional field
	title identifier	AJ	variable-length optional field
	terminal password	AC	variable-length optional field
2.00	item properties	CH	variable-length optional field
2.00	fee acknowledged	BO	1-char, optional field: Y or N

30 Renew Response (2.00)

This message must be sent by the ACS in response to a Renew message by the SC.

30<ok><renewal ok><magnetic media><desensitize><transaction date><institution id><patron identifier><item identifier><title identifier><due date><fee type><security inhibit><currency type><fee amount><media type><item properties><transaction id><screen message><print line>

	Field	ID	Format
	ok		1-char, fixed-length required field: 0 or 1
	renewal ok		1-char, fixed-length required field: Y or N
	magnetic media		1-char, fixed-length required field: Y or N or U
	desensitize		1-char, fixed-length required field: Y or N or U
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	item identifier	AB	variable-length required field
	title identifier	AJ	variable-length required field
	due date	AH	variable-length required field
2.00	fee type	BT	2-char, fixed-length optional field (01 thru 99). The type of fee associated with renewing this item
2.00	security inhibit	CI	1-char, fixed-length optional field: Y or N.
2.00	currency type	BH	3-char fixed-length optional field
2.00	fee amount	BV	variable-length optional field. The amount of the fee associated with this item
2.00	media type	CK	3-char, fixed-length optional field
2.00	item properties	CH	variable-length optional field
2.00	transaction id	BK	variable-length optional field. May be assigned by the ACS when renewing the item involves a fee
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

See the description of the Checkout Response message for how the ok, renewal ok, desensitize, and fee amount fields will be interpreted.

35 End Patron Session Request (2.00)
This message will be sent when a patron has completed all of their transactions. The ACS may, upon receipt of this command, close any open files or deallocate data structures pertaining to that patron. The ACS should respond with an End Session Response message.

35<transaction date><institution id><patron identifier><terminal password><patron password>

Field	ID	Format
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
patron identifier	AA	variable-length required field
terminal password	AC	variable-length optional field
patron password	AD	variable-length optional field

36 End Session Response (2.00)
The ACS must send this message in response to the End Patron Session message.

36<end session>< transaction date >< institution id >< patron identifier ><screen message><print line>

	Field	ID	Format
2.00	end session		1-char, fixed-length required field: Y or N
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

37 Fee Paid Request (2.00)
This message can be used to notify the ACS that a fee has been collected from the patron. The ACS should record this information in their database and respond with a Fee Paid Response message.

37<transaction date><fee type><payment type><currency type><fee amount><institution id><patron identifier><terminal password><patron password><fee identifier><transaction id>

	Field	ID	Format
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	fee type		2-char, fixed-length required field (01 thru 99). Identifies a fee type to apply the payment to.
2.00	payment type		2-char, fixed-length required field (00 thru 99)
2.00	currency type		3-char, fixed-length required field
2.00	fee amount	BV	variable-length required field; the amount paid.
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	terminal password	AC	variable-length optional field
	patron password	AD	variable-length optional field
2.00	fee identifier	CG	variable-length optional field; identifies a specific fee to apply the payment to
2.00	transaction id	BK	variable-length optional field; a transaction id assigned by the payment device

38 Fee Paid Response (2.00)
The ACS must send this message in response to the Fee Paid message.

38<payment accepted><transaction date><institution id><patron identifier><transaction id><screen message><print line>

	Field	ID	Format
2.00	payment accepted		1-char, fixed-length required field: Y or N.
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
2.00	transaction id	BK	variable-length optional field. May be assigned by the ACS to acknowledge that the payment was received.
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

39 Transaction Status Request (2.EX)

This message is used by the SC to request transaction information from the ACS. The ACS must respond to this command with a Transaction Status Response message.

39<transaction mode><transaction date><institution id><transaction identifier><terminal location><terminal password>

	Field	ID	Format
	transaction mode		3-char, fixed-length required field
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
2.00	transaction identifier	BK	variable-length required field
	terminal location	AN	variable-length optional field
	terminal password	AC	variable-length optional field

40 Transaction Status Response (2.EX)

The ACS must send this message in response to the patron notification response message.

40<status of transaction><transaction date><date transaction occurred><date transaction resolved><transaction id><transaction institution id><patron id><item identifier><screen message><print line>

	Field	ID	Format
2.EX	*status of transaction*		*1-char, fixed-length required field: 0=unknown, 1=active, 2=inactive*
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	date transaction occurred		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	date transaction resolved		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	transaction id	BK	variable-length required field
	transaction institution id	AO	variable-length required field
	patron id	AA	variable-length required field
	item identifier	AB	variable-length optional field
	transaction type code	DF	variable-length optional field
2.EX	*comment*	*DE*	*variable-length optional field*
2.00	fee type	BT	2-char, fixed-length optional field (01 thru 99)
	currency type	BH	3-char fixed-length optional field
	transaction amount	BV	variable-length optional field
	fee limit	CC	variable-length optional field
	related transactions	CG	variable-length optional field
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

41 Patron Notification Request (2.EX)

This message may be used to request information about a patron that the ACS wants the SC to contact. The ACS should respond with the Patron Notification Response message.

    41<transaction date><notification type><notice type><institution id><patron class><terminal location><terminal password>

	Field	ID	Format
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.EX	notification medium		3-char, fixed-length required field.
2.EX	notice type		3-char, fixed-length required field.
	institution id	AO	variable-length required field
2.00	patron loan lass	PC	variable-length optional field
	terminal location	AN	variable-length optional field
	terminal password	AC	variable-length optional field

41 Deposit Account Activity Request (2.EX)

This message can be used to notify the ACS that patron's Deposit Account should be debited or credited. The ACS should record this information in their database and respond with a Deposit Account Activity Response message.

41<transaction date><currency type><transaction type><amount><patron identifier><patron password><account identifier>

Field	ID	Format
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
currency type		3-char, fixed-length required field
transaction type		1-char, fixed-length required field; D to debit funds or C to credit funds
amount	UA	variable-length required field; the amount to deduct/deposit
patron identifier	AA	variable-length required field
patron password	AD	variable-length optional field
account identifier	ID	variable-length optional field

42 Patron Notification Response (2.EX)

The ACS must send this message in response to the patron notification response message.

    42<transaction date><notification type><institution id><patron class><terminal location><terminal password>

	Field	ID	Format
2.EX	*notice status*		*2-char, fixed-length required field*
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.EX	*notification medium*		*3-char, fixed-length required field*
2.EX	*notice type*		*3-char, fixed-length required field*
	institution id	AO	variable-length required field
	patron id	AA	variable-length optional field
	item identifier	AB	variable-length optional field
2.00	transaction id	BK	variable-length optional field
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

42 Deposit Account Activity Response (2.EX)

The ACS must send this message in response to the Fee Paid message.

    42<activity accepted><transaction date><patron identifier><deposit balance><screen message>

Field	ID	Format
activity accepted		1-char, fixed-length required field: Y or N
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
patron identifier	AA	variable-length required field
deposit balance	DB	variable-length required field; the updated amount on deposit
screen message	AF	variable-length optional field

43 Notice Sent Request (2.EX)

This message can be used to notify the ACS that a notice has been sent to a patron, or that a notice will be sent. The ACS should record this information in their database and respond with a Notice Sent Response message

43<notice result><transaction date><notice delivery date><notification medium><notice type><institution id><patron id><item identifier><comment>

	Field	ID	Format
	notice result		2-char, fixed-length required field: 00=no call, 01=call delivered
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	notice delivery date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.EX	*notification medium*		*3-char, fixed-length required field*
2.EX	*notice type*		*3-char, fixed-length required field*
	institution id	AO	variable-length required field
	patron id	AA	variable-length optional field
	item identifier	AB	variable-length optional field
2.EX	*comment*	*DE*	*variable-length optional field*
	ACS transaction id	CG	variable-length optional field, transaction id to update
	SC transaction id	BK	variable-length optional field, transaction id assigned by SC
	terminal location	AN	variable-length optional field
	terminal password	AC	variable-length optional field

44 Notice Sent Response (2.EX)

The ACS must send this message in response to the Fee Paid message.

44<update accepted><transaction date><institution id><patron identifier><item identifier>

	Field	ID	Format
2.EX	*update accepted*		*1-char, fixed-length required field: Y or N.*
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length optional field
	item identifier	AB	variable-length optional field
	ACS transaction id	BK	variable-length optional field, may be assigned by the ACS to acknowledge that the update was received.
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

45 Agency Information Request (2.EX)

This message may be used to request information about a particular agency. The ACS should respond with the Agency Information Response message.

45<agency mode><transaction date><institution id><institution hours request><terminal password>

	Field	ID	Format
2.EX	*agency mode*		*3-char, fixed-length required field*
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
2.EX	*institution hours request*	*DB*	*18-char, fixed-length optional field: YYYYMMDDZZZZHHMMSS*
	terminal password	AC	variable-length optional field

45 Accept Item Request (2.EX)

This message may be used to request item creation for the Horizon NCIP responder. The ACS should respond with the Accept Item Response message.

45<transaction date><institution id><item identifier><permanent location><collection identifier><item type><fee acknowledged><title><author><bibliographic identifier>

	Field	ID	Format
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	item identifier	AB	variable-length optional field
	permanent location	AQ	variable-length optional field
2.EX	*collection identifier*	*CR*	*variable-length optional field*
2.EX	*NCIP item type*	*NI*	*variable-length optional field*
2.00	fee acknowledged	BO	1-char, optional field: Y or N
2.EX	*NCIP title*	*NT*	*variable-length optional field*
2.EX	*NCIP author*	*NA*	*variable-length optional field*
2.EX	*bibliographic identifier*	*NB*	*variable-length optional field*

46 Agency Information Response (2.EX)

The ACS must send this message in response to the Agency Information message.

46<transaction date><institution id><institution name><institution address><institution phone><institution e-mail><institution open hours><institution next open day><screen message><print line>

	Field	ID	Format
	agency status		3-char, fixed-length required field
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	library name	AM	variable-length optional field
2.EX	*institution address*	*BD*	*variable-length optional field*
2.EX	*institution phone*	*BF*	*variable-length optional field*
2.EX	*institution e-mail*	*BE*	*variable-length optional field*
2.EX	*institution open hours*	*DC*	*36-char, fixed-length optional field*
2.EX	*institution next open day*	*DD*	*18-char, fixed-length optional field*
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

46 Accept Item Response (2.EX)

The ACS must send this message in response to the Accept Item message.

46<ok><transaction date><institution id><item identifier><permanent location><screen message>

	Field	ID	Format
	ok		1-char, fixed-length required field: 0 or 1
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	institution id	AO	variable-length required field
	item identifier	AB	variable-length optional field
	permanent location	AQ	variable-length optional field
	screen message	AF	variable-length optional field

63 Patron Information Request (2.00)

This message is a superset of the Patron Status Request message. It should be used to request patron information. The ACS should respond with the Patron Information Response message.

63<language><transaction date><summary><institution id><patron identifier><terminal password><patron password><start item><end item>

	Field	ID	Format
	language		3-char, fixed-length required field
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	summary		10-char, fixed-length required field
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	terminal password	AC	variable-length optional field
	patron password	AD	variable-length optional field
2.00	start item	BP	variable-length optional field
2.00	end item	BQ	variable-length optional field

64 Patron Information Response (2.00)

The ACS must send this message in response to the Patron Information message.

64<patron status><language><transaction date><hold items count><overdue items count><charged items count><fine items count><recall items count><unavailable holds count><institution id><patron identifier><personal name><hold items limit><overdue items limit><charged items limit><valid patron><valid patron password><currency type><fee amount><fee limit><items><home address><e-mail address><home phone number><screen message><print line>

	Field	ID	Format
	patron status		14-char, fixed-length required field
	language		3-char, fixed-length required field
	transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
2.00	hold items count		4-char, fixed-length required field
2.00	overdue items count		4-char, fixed-length required field
2.00	charged items count		4-char, fixed-length required field
2.00	fine items count		4-char, fixed-length required field
2.00	recall items count		4-char, fixed-length required field
2.00	unavailable holds count		4-char, fixed-length required field
	institution id	AO	variable-length required field
	patron identifier	AA	variable-length required field
	personal name	AE	variable-length required field
	permanent location	AQ	variable-length optional field
2.00	hold items limit	BZ	4-char, fixed-length optional field
2.00	overdue items limit	CA	4-char, fixed-length optional field
2.00	charged items limit	CB	4-char, fixed-length optional field
2.00	valid patron	BL	1-char, optional field: Y or N
2.00	valid patron password	CQ	1-char, optional field: Y or N
2.00	currency type	BH	3-char fixed-length optional field
2.00	fee amount	BV	variable-length optional field. The amount of fees owed by this patron
2.00	fee limit	CC	variable-length optional field. The fee limit amount
2.00	preferred patron address	BD	variable-length optional field
2.00	e-mail address	BE	variable-length optional field
2.00	preferred phone number	BF	variable-length optional field
2.EX	*patron prefix/title*	*DG*	*variable-length optional field*
2.EX	*patron first name*	*DH*	*variable-length optional field*
2.EX	*patron middle name*	*DI*	*variable-length optional field*
2.EX	*patron surname*	*DJ*	*variable-length optional field*
2.EX	*patron suffix*	*DK*	*variable-length optional field*
2.EX	*patron preferred name*	*DL*	*variable-length optional field*
2.EX	*patron loan class*	*PC*	*variable-length optional field. Patron type*
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

Item: zero or more instances of one of the following, based on the summary field of the Patron Information message:

2.00	hold items	AS	variable-length optional field (this field should be sent for each hold item)
2.00	overdue items	AT	variable-length optional field (this field should be sent for each overdue item.
2.00	charged items	AU	variable-length optional field (this field should be sent for each charged item)
2.00	fine items	AV	variable-length optional field (this field should be sent for each fine/fee item)

| **2.00** | recall items | BU | variable-length optional field (this field should be sent for each recall item) |
| **2.00** | unavailable hold items | CD | variable-length optional field (this field should be sent for each unavailable hold item) |

*NOTE the AV field is used to return both fee and fine information depending on what was requested in the summary field of the 63 message

Custom: Custom fields used in Horizon and Symphony in the 64 response message

Sym	*patron expiration date*	*PA*	*variable-length optional field, YYYYMMDDZZZZHHMMSS*
Hz	*patron expiration date*	*PE*	*variable-length optional field, YYYYMMDDZZZZHHMMSS XXXXX*
Sym	*patron birth-date*	*PD*	*variable-length optional field, YYYYMMDD*
Hz	*patron birth-date*	*PB*	*variable-length optional field, YYYYMMDD (Deprecated)*
Hz	*patron pac access type*	*PA*	*variable-length optional field, (Deprecated)*
Hz	*patron expiration date*	*PS*	*variable-length optional field, YYYYMMDDZZZZHHMMSS XXXXX*
Hz	*patron loan type (btype)*	*ZY*	*variable-length optional field, (Deprecated)*
Sym	*patron user category1*	*PE*	*variable-length optional field*
Sym	*patron user category2*	*PF*	*variable-length optional field*
Sym	*patron user category3*	*PG*	*variable-length optional field*
Sym	*patron user category4*	*PH*	*variable-length optional field*
Sym	*patron user category5*	*PI*	*variable-length optional field*
Sym	*alternate/previous id*	*PJ*	*variable-length optional field*
Sym	*deposit balance*	*DB*	*variable-length optional field*
Sym	*deposit maximum*	*DM*	*variable-length optional field*
Hz	*language code*	*LG*	*variable-length optional field, ISO 639.2 language code*

65 Renew All Request (2.00)

This message is used to renew all items that the patron has checked out. The ACS should respond with a Renew All Response message.

65<transaction date><institution id><patron identifier><patron password><terminal password><fee acknowledged>

Field	ID	Format
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
patron identifier	AA	variable-length required field
patron password	AD	variable-length optional field
terminal password	AC	variable-length optional field
2.00 fee acknowledged	BO	1-char, optional field: Y or N

66 Renew All Response (2.00)

The ACS should send this message in response to a Renew All message from the SC.

66<ok ><renewed count><unrenewed count><transaction date><institution id><renewed items><unrenewed items><screen message><print line>

Field	ID	Format
ok		1-char, fixed-length required field: 0 or 1
2.00 renewed count		4-char fixed-length required field
2.00 unrenewed count		4-char fixed-length required field
transaction date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
institution id	AO	variable-length required field
2.00 renewed items	BM	variable-length optional field (this field sent for each renewed item)
2.00 unrenewed items	BN	variable-length optional field (this field sent for each unrenewed item)
screen message	AF	variable-length optional field
print line	AG	variable-length optional field

93 Login Request (2.00)

This message can be used to login to an ACS server program. The ACS should respond with the Login Response message. Whether to use this message or to use some other mechanism to login to the ACS is configurable on the SC. When this message is used, it will be the first message sent to the ACS.

93<UID algorithm><PWD algorithm><login user id><login password><location code>

Field	ID	Format
2.00 UID algorithm		1-char, fixed-length required field; the algorithm used to encrypt the user id
2.00 PWD algorithm		1-char, fixed-length required field; the algorithm used to encrypt the password
2.00 login user id	CN	variable-length required field
2.00 login password	CO	variable-length required field
2.00 location code	CP	variable-length optional field; the SC location

94 Login Response (2.00)

The ACS should send this message in response to the Login message. When this message is used, it will be the first message sent to the SC.

94<ok>

Field	ID	Format
ok		1-char, fixed-length required field: 0 or 1

96 Request SC Resend

This message requests the SC to re-transmit its last message. It is sent by the ACS to the SC when the checksum in a received message does not match the value calculated by the ACS. The SC should respond by re-transmitting its last message, This message should never include a "sequence number" field, even when error detection is enabled, (see "Checksums and Sequence Numbers" below) but would include a "checksum" field since checksums are in use.

    96

97 Request ACS Resend

This message requests the ACS to re-transmit its last message. It is sent by the SC to the ACS when the checksum in a received message does not match the value calculated by the SC. The ACS should respond by re-transmitting its last message. This message should never include a "sequence number" field, even when error detection is enabled, (see "Checksums and Sequence Numbers" below) but would include a "checksum" field since checksums are in use.

    97

99 SC Status Request

The SC status message sends SC status to the ACS. It requires an ACS Status Response message reply from the ACS. This message will be the first message sent by the SC to the ACS once a connection has been established (exception: the Login Message may be sent first to login to an ACS server program). The ACS will respond with a message that establishes some of the rules to be followed by the SC and establishes some parameters needed for further communication.

    99<status code><max print width><protocol version>

Field	ID	Format
status code		1-char, fixed-length required field: 0 or 1 or 2
max print width		3-char, fixed-length required field
protocol version		4-char, fixed-length required field: x.xx

98 ACS Status Response

The ACS must send this message in response to a SC Status message. This message will be the first message sent by the ACS to the SC, since it establishes some of the rules to be followed by the SC and establishes some parameters needed for further communication (exception: the Login Response Message may be sent first to complete login of the SC).

    98<on-line status><checkin ok><checkout ok><ACS renewal policy><status update ok><off-line
        ok><timeout period><retries allowed><date / time sync><protocol version><institution id><library
        name><supported messages ><terminal location><screen message><print line>

	Field	ID	Format
	on-line status		1-char, fixed-length required field: Y or N.
	checkin ok		1-char, fixed-length required field: Y or N.
	checkout ok		1-char, fixed-length required field: Y or N.
	ACS renewal policy		1-char, fixed-length required field: Y or N.
	status update ok		1-char, fixed-length required field: Y or N.
	off-line ok		1-char, fixed-length required field: Y or N.
	timeout period		3-char, fixed-length required field
	retries allowed		3-char, fixed-length required field
	date / time sync		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS
	protocol version		4-char, fixed-length required field: x.xx
	institution id	AO	variable-length required field
	library name	AM	variable-length optional field
2.00	supported messages	BX	variable-length required field
	terminal location	AN	variable-length optional field
Hz	*ACS server version*	*VN*	*variable-length optional field. (build number of the server)*
	screen message	AF	variable-length optional field
	print line	AG	variable-length optional field

Field Definitions

Field Name	Field ID	Field Description
account identifier	ID	variable-length field. This is the deposit account to be used.
ACS renewal policy		1-char, fixed-length field: Y or N. A Y indicates that the SC is allowed by the ACS to process patron renewal requests as a policy. This field was called "renewal ok" in Version 1.00 of the protocol.
ACS server version	VN	variable-length field. This field is an information field that contains build or version information about the ACS server.
ACS transaction id	CG	variable-length field. This is the transaction id to be updated.
ACS transaction id	BK	variable-length field. ID may be assigned by the ACS to acknowledge that the update was received.
activity accepted		1-char, fixed-length field: Y or N. This field indicates whether the deposit message was accepted.
agency mode		3-char, fixed-length field (000 thru 999). This field identifies the type of data that the SC wishes to know about the agency. The following modes are defined: ValueStatus 000 basic information
agency status		3-char, fixed-length field (000 thru 999). This field identifies the status of the requested agency.
alert		1-char, fixed-length field: Y or N. A Y in the alert field will generate an audible sound at the SC. The alert will indicate conditions like articles on hold, articles belonging to another library branch, or other alert conditions as determined by the ACS. The alert signal will alert the library staff to special article handling conditions during discharging operations.

alert type	CV	2-char, fixed-length field (00 thru 99). This field identifies the type of alert for a specific item. The following statuses are defined:
		ValueStatus
		  00 unknown
		  01 hold for this library
		  02 hold for other branch
		  03 hold for ILL
		  04 send to other branch
		  99 Other

alternate/previous id	PJ	variable-length field. The patron's alternate ID and previous IDs will be returned in successive PJ fields when the RETURN_ALTERNATE_PATRON_IDS option is enabled in Symphony.
amount	UA	variable-length field. This field contains the amount to deduct/deposit into the deposit account.
author name	EA	variable-length field. This field contains the author of the item.
available		1-char, fixed-length field: Y or N. A Y indicates that the item is available; it is not checked out or on hold.
bibliographic identifier	NB	variable-length field. The identifier used by any ILS; can be ISBN or OCLC number.
blocked card msg	AL	variable-length field. This field indicates the reason the patron card was blocked.
call number	CS	variable-length field. This field indicates the item call number.
cancel	BI	1-char field: Y or N. This field should be set to Y for a Checkout command being used to cancel a failed Checkin command, or for a Checkin command being used to cancel a failed Checkout command. It should be set to N for all other Checkout or Checkin commands.
card retained		1-char, fixed-length field: Y or N. This field notifies the ACS that the patron's library card has been retained by the SC. The ACS may ignore this field or notify the library staff that the patron's card has been retained by the SC.
charged items	AU	variable-length field. This field should be sent for each charged item.
charged items count		4-char, fixed-length field. This field should contain the number of charged items for this patron, from 0000 to 9999. If this information is not available or unsupported this field should contain four blanks (code $20).

charged items limit	CB	4-char, fixed-length field. This field should contain the limit number of charged items for this patron from 0000 to 9999.
checkin ok		1-char, fixed-length field: Y or N. A Y indicates that the SC is allowed to check in items.
checkout ok		1-char, fixed-length field: Y or N. A Y indicates that the SC is allowed to check out items.
checksum	AZ	4-char, fixed-length message checksum, used for checksumming messages when error detection is enabled.

circulation status — 2-char, fixed-length field (00 thru 99). The circulation status of an item. The following statuses are defined:

ValueStatus

1 other
2 on order
3 available
4 charged
5 charged; not to be recalled until earliest recall date
6 in process
7 recalled
8 waiting on hold shelf
9 waiting to be re-shelved
10 in transit between library locations
11 claimed returned
12 lost
13 missing

collection identifier	CR	variable-length field. This field indicated the item collection identifier.
comment	DE	Provides additional information about the transaction. For example, it could list the completion percentage of a phone notice.

currency type — BH — 3-char, fixed-length field. The value for currency type follows ISO Standard 4217:1995, using the 3-character alphabetic code part of the standard. A portion of the standard is provided here as examples:

ValueDefinition

USD	US Dollar
CAD	Canadian Dollar
GBP	Pound Sterling
FRF	French Franc
DEM	Deutsche Mark
ITL	Italian Lira
ESP	Spanish Peseta
JPY	Yen

current location	AP	variable-length field; the current location of the item. 3M SelfCheck system software could set this field to the value of the 3M SelfCheck system terminal location on a Checkin message.
date / time sync		18-char, fixed-length field: YYYYMMDDZZZZHHMMSS. May be used to synchronize clocks. The date and time should be expressed according to the ANSI standard X3.30 for date and X3.43 for time. 000000000000000000 indicates a unsupported function. When possible local time is the preferred format.
date transaction occurred		18-char, fixed-length field: YYYYMMDDZZZZHHMMSS
date transaction resolved		18-char, fixed-length field: YYYYMMDDZZZZHHMMSS
deposit balance	DB	variable-length field; the updated amount on deposit. Field shows the balance of the deposit account.
deposit balance	DM	variable-length field. Field shows the maximum amount allowed in the deposit account.
desensitize		1-char, fixed-length field: Y or N or (obsolete)U. A Y in this field indicates that the SC unit should desensitize the article. An N in this field indicates that the article will not be desensitized, i.e. some non-circulation books are allowed to be checked out, but not removed from the library. A U indicates that the ACS does not know if the item should or should not be desensitized, and will be treated by the SC the same as an N.
destination institution id	CT	variable-length field. This field indicates where the item should be sent after the item is checked in.

due date	AH	variable-length field. This date field is not necessarily formatted with the ANSI standard X3.30 for date and X3.43 for time. Since it is a variable-length field the ACS can send this date field in any format it wishes.
e-mail address	BE	variable-length field. The patron's e-mail address.
end item	BQ	variable-length field. The number of the last item to be returned. The Patron Information message allows the SC to request the ACS to send a list of items that a patron has checked out, or that are overdue, etc. This field specifies the number in that list of the last item to be sent to the SC. For instance, if the SC had requested - via the summary, start item, and end item fields of the Patron Information message - to have the seventh through twelfth items in the list of the patron's overdue items sent in the Patron Information response, this field would have the value "12". A numbering system that starts with 1 is assumed. This allows the requester to have control over how much data is returned at a time, and also to get the whole list in sequential or some other order using successive messages/responses.
end session		1-char, fixed-length field: Y or N. Y indicates that the ACS has ended the patron's session in response to the End Patron Session message. N would be an error condition.
expiration date	BW	18-char, fixed-length field: YYYYMMDDZZZZHHMMSS; the date, if any, that the hold will expire.
fee acknowledged	BO	1-char field: Y or N. If this field is N in a Checkout message and there is a fee associated with checking out the item, the ACS should tell the SC in the Checkout Response that there is a fee, and refuse to check out the item. If the SC and the patron then interact and the patron agrees to pay the fee, this field will be set to Y on a second Checkout message, indicating to the ACS that the patron has acknowledged the fee and checkout of the item should not be refused just because there is a fee associated with the item. One could say that use of the fee acknowledged field should not be necessary for renewals - the patron should already know that there is a fee associated with the item, having agreed to it when the item was initially checked out - but the field is provided as an optional field with the renewal messages for those systems that take the view that patrons should always acknowledge fees. Presumably, a Y value in the fee acknowledged field of a Renew All message would mean that the patron had agreed to all fees associated with all items being renewed. Fee acknowledged exists as an optional field on the Hold command to acknowledge a charge to put a hold on an item. Some libraries, under some conditions, levy a charge to put a hold on an item; fee acknowledged could be used in these situations to allow the hold charge to be agreed to before the hold was actually put on the item.
fee amount	BV	variable-length field. This contains a money amount in whatever currency type is specified by the currency type field of the same message. For example, "115.57" could specify $115.57 if the currency type was USD (US Dollars).
fee identifier	CG	variable-length field. Identifies a specific fee, possibly in combination with fee type. This identifier would have to be user-selected from a list of fees.
fee limit	CC	variable-length field. This field indicates that the limiting value for fines and fees that the patron is allowed to accumulate in their account. It is a money amount in whatever currency type is specified by the currency type field of the same message. For example, "50.00" could specify $50.00 if the currency type was USD (US Dollars).

fee type	BT	2-char, fixed-length field (01 thru 99). Enumerated type of fee, from the following table:
		ValueFee Type
		  01 other/unknown
		  02 administrative
		  03 damage
		  04 overdue
		  05 processing
		  06 rental
		  07 replacement
		  08 computer access charge
		  09 hold fee

fine items	AV	variable-length field. This field should be sent for each fine item.

fine items count		4-char, fixed length field. This field should contain the number of fine items for this patron, from 0000 to 9999. If this information is not available or unsupported this field should contain four blanks (code $20).
hold items	AS	variable-length field. This field should be sent for each hold item.
hold items count		4-char, fixed length field. This field should contain the number of hold items for this patron, from 0000 to 9999. If this information is not available or unsupported this field should contain four blanks (code $20).
hold items limit	BZ	4-char, fixed-length field. This field should contain the limit number of hold items for this patron, from 0000 to 9999.
hold mode		1-char, fixed-length field. If mode is :

       +   add patron to the hold queue for the item
       -     delete patron from the hold queue for the item
       *   change the hold to match the message parameters
       ?   list the hold info for the item and patron

hold patron id	CY	variable-length field. This field indicates the patron id of the patron assigned to the hold for a specific item.
hold patron name	DA	variable-length field. This field indicates the patron Name of the patron assigned to the hold for a specific item.
hold pickup date	CM	18-char, fixed-length field: YYYYMMDDZZZZHHMMSS. The date that the hold expires.
hold queue length	CF	variable-length field. Number of patrons requesting this item.
hold type	BY	1-char, fixed-length field (1 thru 9). The type of hold:

ValueHold Type
    1   other
    2   any copy of a title
    3   a specific copy of a title
    4   any copy at a single branch or sublocation

home address	BD	variable-length field; the home address of the patron.
home phone number	BF	variable-length field; the patron's home phone number.
institution address	BD	variable-length field; the address of the institution.
institution e-mail	BE	variable-length field; the e-mail address of the institution.
institution id	AO	variable-length field; the library's institution ID.
institution hours	DB	18-char, fixed-length field YYYYMMDDZZZZHHMMSS This field indicates that the SC wishes to know the operating hours for the institution on this particular day.
institution open hours	DC	36-char, fixed-length field YYYYMMDDZZZZHHMMSSYYYYMMDDZZZZHHMMSS The ACS sends this field in response to a DB field. Position 0-17 indicate the opening time of the library for a particular day in the YYYYMMDDZZZZHHMMSS format. Position 18-35 indicates the closing time of the library for a particular day in the YYYYMMDDZZZZHHMMSS format. If the institution is open for more than one block of time on the requested day, then the field should be returned multiple times, once for each block of time that the institution is open. If the library is not open on the requested day, then the response should contain blanks (code $20) in the open and close time position.
institution next open day	DD	18-char, fixed-length field YYYYMMDDZZZZHHMMSS. The ACS sends this field in response to a DB field. The field indicates the next opening time of the library after the day specified in the DB field.
institution phone	BF	variable-length field; the phone number of the institution.
item identifier	AB	variable-length field; the article bar-code. This information is needed by the SC to verify that the article that was checked in matches the article bar-code at the SC.
item properties	CH	variable-length field. This field may contain specific item information that can be used for identifying an item, such as item weight, size, security marker, etc. It may possibly be used for security reasons. ACSs are encouraged to store this information in their database.
item properties ok		1-char field. A '1' in this field indicates that the item properties have been stored on the ACS database. Any other value indicates that item properties were not stored.

language		3-char, fixed-length field. The ACS may use this field's information to format screen and print messages in the language as requested by the Patron. Code 000 in this field means the language is not specified.

Language	Code
Unknown (default)	000
English	001
French	002
German	003
Italian	004
Dutch	005
Swedish	006
Finnish	007
Spanish	008
Danish	009
Portuguese	010
Canadian-French	011
Norwegian	012
Hebrew	013
Japanese	014
Russian	015
Arabic	016
Polish	017
Greek	018
Chinese	019
Korean	020
North American Spanish	021
Tamil	022
Malay	023
United Kingdom	024
Icelandic	025
Belgian	026
Taiwanese	027

language code	LG	variable-length field. Generally this field should contain only one ISO 639.2 language code. In the Patron Information Response message this field indicates the primary language that a patron wishes to be corresponded with in. In the Item Information Response message this field indicates the language that the text is written or spoken in. In Marc21, this field corresponds to the 008 tag position 35-38 of the bibliographic record.
library name	AM	variable-length field; the library's name.
location code	CP	variable-length field; the location code of the SC unit. This code will be configurable on the SC.
login password	CO	variable-length field; the password for the SC to use to login to the ACS. It is possible for this field to be encrypted; see the "PWD algorithm" field's definition.
login user id	CN	variable-length field; the user id for the SC to use to login to the ACS. It is possible for this field to be encrypted; see the "UID algorithm" field's definition.
magnetic media		1-char, fixed-length field: Y or N or U. A 'Y' in this field indicates that this article is magnetic media and the SC will then handle the security discharge accordingly. A 'N' in this field indicates that the article is not magnetic media. A 'U' indicates that the ACS does not identify magnetic media articles. ACS vendors are encouraged to store and provide article magnetic media identification.
max print width		3-char, fixed-length field. This is the maximum number of characters that the SC printer can print in one line. If the ACS wants to print longer messages it can send them in another print line field.
media type	CK	3-char, fixed-length field; enumerated media type, from the following table:

Value	Media Type
000	other
001	book
002	magazine
003	bound journal
004	audio tape
005	video tape
006	CD/CDROM
007	diskette
008	book with diskette

		009 book with CD
		010 book with audio tape

NB due date		18-char, fixed-length field: YYYYMMDDZZZZHHMMSS. This is the no block due date that articles were given during off-line (store and forward) operation.
NCIP author	NA	variable-length field. This is the title author to be created in the NCIP Accept Item message.
NCIP item type	NI	variable-length field. This is the item type to be created in the NCIP Accept Item message.
NCIP title	NT	variable-length field. This is the item title to be created in the NCIP Accept Item message.
no block		1-char, fixed-length field: Y or N. This field notifies the ACS that the article was already checked in or out while the ACS was not on-line. When this field is Y, the ACS should not block this transaction because it has already been executed. The SC can perform transactions while the ACS is off-line. These transactions are stored and will be sent to the ACS when it comes back on-line.
notice delivery date		18-char, fixed-length required field: YYYYMMDDZZZZHHMMSS. This identifies the date at which the notice call was delivered.
notice status		2-char, fixed length field. This field shows the status of the notice.
notice type		This identifies the type of notice to be sent.
notice result		2-char, fixed-length field: 00=no call, 01=call delivered. This field shows if a notice call was delivered.
notification medium		This identifies the medium used for the notification.
off-line ok		1-char, fixed-length field: Y or N. This field should be Y if the ACS supports the off-line operation feature of the SC. The ACS must also support no block charge requests from the SC when it comes back on-line.
ok		1-char, fixed-length field: 0 or 1. A '1' in this field indicates that the requested action was allowable and completed successfully. A '0' indicates that the requested action was not allowable or did not complete successfully. This field is described in the preliminary NISO standard Z39.70-199x.
on-line status		1-char, fixed-length field: Y or N. This field is provided by the ACS to indicate whether the system is on or off-line. For example the ACS can use this field to notify the SC that it is going off-line for routine maintenance.
overdue items	AT	variable-length field. This field should be sent for each overdue item.
overdue items count		4-char, fixed-length field. This field should contain the number of overdue items for this patron, from 0000 to 9999. If this information is not available or unsupported this field should contain four blanks (code $20).
overdue items limit	CA	4-char, fixed-length field. This field should contain the limit number of overdue items for this patron, from 0000 to 9999.
owner	BG	variable-length field. The field might contain the name of the institution or library that owns the item.
patron birth-date	PB	variable-length field; The patron's birth date. This field has been deprecated, but is still provided for backwards compatibility. The PD field should be used to obtain the same information. (Horizon only)
patron birth-date	PD	variable-length field; The birth-date of a patron. The date format should be in the ANSI standard X3.30 for date and X3.43 for time: YYYYMMDD.
patron identifier	AA	variable-length field; an identifying value for the patron.
patron pac access type	PA	variable-length field; The patron Internet access type that is used when determining patron privileges. This field has been deprecated. (Horizon only)
patron expiration date	PA	variable-length field; The date that a patrons subscription expires. The first 18-characters of the field indicate the date that a subscription expires in the ANSI standard X3.30 for date and X3.43 for time: YYYYMMDDZZZZHHMMSS. (Symphony only)

patron expiration date	PE	variable-length field; The date that a patrons subscription expires. The first 18-characters of the field indicate the date that a subscription expires in the ANSI standard X3.30 for date and X3.43 for time: YYYYMMDDZZZZHHMMSS. Following the date and time field may be an optional subscription code string. (Horizon only)
patron expiration date	PS	variable-length field; The date that a patrons subscription expires. The first 18-characters of the field indicate the date that a subscription expires in the ANSI standard X3.30 for date and X3.43 for time: YYYYMMDDZZZZHHMMSS. Following the date and time field may be an optional subscription code string. (Horizon only)
patron first name	DH	variable-length field. Patron's first name
patron loan class	PC	variable-length field. The patron type or loan class that is used when determining patron privileges.
patron loan type	ZY	variable-length field. The patron type or loan class that is used when determining patron privileges. This field has been deprecated, but is still provided for backwards compatibility. The PC field should be used to obtain the same information. (Horizon only)
patron middle name	DI	variable-length field. Patron's middle name
patron password	AD	variable-length field. If the ACS stores the patron password in its database then the SC will prompt the patron for their password (PIN) and it will be sent to the ACS in this field. If this feature is not used by the ACS in the library then the field should be zero length if it is required in the command, and can be omitted entirely if the field is optional in the command.
patron preferred name	DL	variable-length field. Name preferred by the patron.
patron prefix/title	DG	variable-length field. Patron's prefix or title, if any.
patron status		14-char, fixed-length field. This field is described in the preliminary NISO standard Z39.70-199x. A Y in any position indicates that the condition is true. A blank (code $20) in this position means that this condition is not true. For example, the first position of this field corresponds to "charge privileges denied" and must therefore contain a code $20 if this patron's privileges are authorized.

<div>

Position   Definition
   0 charge privileges denied
   1 renewal privileges denied
   2 recall privileges denied
   3 hold privileges denied
   4 card reported lost
   5 too many items charged
   6 too many items overdue
   7 too many renewals
   8 too many claims of items returned
   9 too many items lost
  10 excessive outstanding fines
  11 excessive outstanding fees
  12 recall overdue
  13 too many items billed

</div>

patron suffix	DK	variable-length field. Patron's name suffix, if any
patron surname	DJ	variable-length field. Patron's last name or surname
patron user category1	PE	variable-length optional field. This field shows the patron user category 1. (Symphony only)
patron user category2	PF	variable-length optional field. This field shows the patron user category 2. (Symphony only)
patron user category3	PG	variable-length optional field. This field shows the patron user category 3. (Symphony only)
patron user category4	PH	variable-length optional field. This field shows the patron user category 4. (Symphony only)
patron user category5	PI	variable-length optional field. This field shows the patron user category 5. (Symphony only)
payment accepted		1-char, fixed-length field: Y or N. A Y indicates that the ACS has accepted the payment from the patron and the patron's account will be adjusted accordingly.

payment type		2-char, fixed-length field (00 thru 99). An enumerated value for the type of payment, from the following table:
		ValuePayment Type
		  00 Cash
		  01 VISA
		  02 Credit card
		  03 Debit card

permanent location	AQ	variable-length field. The location where an item is normally stored after being checked in.
personal name	AE	variable-length field; the patron's name.
pickup location	BS	variable-length field; the location where an item will be picked up.
print line	AG	variable-length field. Print line fields provide a way for the ACS to print messages on the SC printer. They are never required. When used, there can be one or more of these fields, which are then printed on consecutive lines of the printer. If they are too long, then the trailing portion of the field will be left out.
protocol version		4-char, fixed-length field: x.xx. The protocol version field contains the version number of the protocol that the software is currently using. The format of the version number should be expressed as a single numeral followed by a period then followed by two more numerals.
PWD algorithm		1-char, fixed-length field. Specifies the algorithm, if any, used to encrypt the login password field of the Login Message. '0' means the login password is not encrypted. The SC and the ACS must agree on an algorithm to use and must agree on the value to be used in this field to represent that algorithm.
queue position	BR	variable-length field. This field contains a numeric value for the patron's position in the hold queue for an item.
recall date	CJ	18-char, fixed-length field: YYYYMMDDZZZZHHMMSS. The date that the recall was issued.
recall items	BU	variable-length field. This field should be sent for each recalled item.
recall items count		4-char fixed-length field. This field should contain a count of the items that the patron still has checked out that have been recalled, from 0000 to 9999. If this information is not available or unsupported this field should contain four blanks (code $20).
renewal ok		1-char, fixed-length field: Y or N. This field is needed to inform the SC that the material is already checked out. A 'Y' value means that the item was checked out to the same patron, so it is actually being renewed. An 'N' value means that the patron did not already have the item checked out.
renewed count		4-char fixed-length field. A count of the number of items that were renewed.
renewed items	BM	variable-length field. This field should be sent for each renewed item.
request identifier	NL	variable-length field. Value sent by vendor to uniquely identify hold requests in the vendor's system.
request identifier	NR	variable-length field. Value returned to uniquely identify hold requests in the ILS.
resensitize		1-char, fixed-length field: Y or N. If the ACS checked in the article and it is appropriate to resensitize it, then this field should contain a 'Y'. If the article should not be resensitized, then this field should contain a 'N'. In this case an appropriate message could be sent in the screen message field.
retries allowed		3-char, fixed-length field. Indicates the number of retries that are allowed for a specific transaction. 999 indicates that the retry number is unknown.
return date		18-char, fixed-length field: YYYYMMDDZZZZHHMMSS. The date that an item was returned to the library, which is not necessarily the same date that the item was checked back in.
SC renewal policy		1-char, fixed-length field: Y or N. If this field contains a 'Y ' then the SC has been configured by the library staff to do renewals. 'N' means the SC has been configured to not do renewals. This field was called "renewals allowed" in Version 1.00 of the protocol.
SC transaction id	BK	variable-length field, transaction id assigned by SC.

screen message	AF	variable-length field. Screen message fields provide a way for the ACS to display messages on the SC screen. They are never required. When used, there can be one or more of these fields, which are then displayed on consecutive lines of the screen. If they are too long, then the trailing portion of the field will be left out. The message can contain holds, fines, disabled card, library branch, or other information as provided by the ACS.

security inhibit	CI	1-char, fixed-length field: Y or N. A 'Y' in this field will notify the SC to ignore the security status of the item.

security marker		2-char, fixed-length field (00 thru 99). Enumerated security marker type.
		ValueSecurity Marker Type
		  00 other
		  01 None
		  02 3M Tattle-Tape Security Strip
		  03 3M Whisper Tape

sequence number	AY	1-char, fixed-length field; sequence number for the message, used for error detection and synchronization when error detection is enabled.

sort bin	CL	variable-length field. This field should contain a bin number that indicates how the items should be sorted. The maximum practical number of sort bins for a patron using 3M SelfCheck system is probably only 3 or 4, but many digits are allowed to accommodate some sort of fantastic sorting device using a hierarchical bin numbering scheme.

start item	BP	variable-length field. The number of the first item to be returned. The Patron Information message allows the SC to request the ACS to send a list of items that a patron has checked out, or that are overdue, etc. This field specifies the number in that list of the first item to be sent to the SC. For instance, if the SC had requested - via the summary, start item, and end item fields of the Patron Information message - to have the fifth through tenth items in the list of the patron's overdue items sent in the Patron Information response, this field would have the value "5". A numbering system that starts with 1 is assumed. This allows the requester to have control over how much data is returned at a time, and also to get the whole list in sequential or some other order using successive messages/responses.

status code		1-char, fixed-length field: 0 or 1 or 2; the status of the SC unit.
		ValueDefinition
		  0 SC unit is OK
		  1 SC printer is out of paper
		  2 SC is about to shut down

status of transaction		1-char, fixed-length field: 0=unknown, 1=active, 2=inactive

status update ok		1-char, fixed-length field: Y or N. ACS policy for the SC. A Y indicates that patron status updating by the SC is allowed, e.g., a patron's card status can be changed to blocked.

summary		10-char, fixed-length field. This allows the SC to request partial information only. This field usage is similar to the NISO defined PATRON STATUS field. A Y in any position indicates that detailed as well as summary information about the corresponding category of items can be sent in the response. A blank (code $20) in this position means that only summary information should be sent about the corresponding category of items. Only one category of items should be requested at a time, i.e. it would take 6 of these messages, each with a different position set to Y, to get all the detailed information about a patron's items. All of the 6 responses, however, would contain the summary information. See Patron Information Response.
		Position Definition
		  0 hold items
		  1 overdue items
		  2 charged items
		  3 fine items
		  4 recall items
		  5 unavailable holds
		  6 fee items

supported messages	BX	variable-length field. This field is used to notify the SC about which messages the ACS supports. A Y in a position means that the associated message/response is supported. An N means the message/response pair is not supported.
		Position Message Command/Response pair
		  0 Patron Status Request
		  1 Checkout
		  2 Checkin
		  3 Block Patron

	4 SC/ACS Status
	5 Request SC/ACS Resend
	6 Login
	7 Patron Information
	8 End Patron Session
	9 Fee Paid
	10 Item Information
	11 Item Status Update
	12 Patron Enable
	13 Hold
	14 Renew
	15 Renew All

terminal location	AN	variable-length field. The ACS could put the SC's location in this field.
terminal password	AC	variable-length field. This is the password for the SC unit. If this feature is not used by the ACS in the library then the field should be zero length if it is required in the command, and can be omitted entirely if the field is optional in the command.
third party allowed		1-char, fixed-length field: Y or N. If this field contains an 'N ' then the ACS should not allow third party renewals. This allows the library staff to prevent third party renewals from this terminal.
timeout period		3-char, fixed-length field. This timeout period until a transaction is aborted should be a number expressed in tenths of a second. 000 indicates that the ACS is not on-line. 999 indicates that the time-out is unknown.
title identifier	AJ	variable-length field. Identifies a title; could be a bibliographic number or a title string.
transaction date		18-char, fixed-length field: YYYYMMDDZZZZHHMMSS. All dates and times are expressed according to the ANSI standard X3.30 for date and X3.43 for time. The ZZZZ field should contain blanks (code $20) to represent local time. To represent universal time, a Z character (code $5A) should be put in the last (right hand) position of the ZZZZ field. To represent other time zones the appropriate character should be used; a Q character (code $51) should be put in the last (right hand) position of the ZZZZ field to represent Atlantic Standard Time. When possible local time is the preferred format.
transaction id	BK	variable-length field. This field should contain a transaction id that is assigned by the ACS or by a payment device, for auditing purposes to track cash flow.
transaction mode		3-char, fixed-length field. This field provides the mode of the identified transaction.
transaction type		1-char, fixed-length field. This field will contain a D to debit funds or a C to credit funds.
transaction type code	DF	variable-length field. This code identifies the transaction type.
UID algorithm		1-char, fixed-length field. Specifies the algorithm, if any, used to encrypt the login user id field of the Login Message. '0' means the login user id is not encrypted. The SC and the ACS must agree on an algorithm to use and must agree on the value to be used in this field to represent that algorithm. Few, if any, systems will want to encrypt the user id.
unavailable holds count		4-char fixed-length field. This field should contain the number of unavailable holds for this patron, from 0000 to 9999. If this information is not available or unsupported this field should contain four blanks (code $20).
unavailable hold items	CD	variable-length field. This field should be sent for each unavailable hold.
unrenewed count		4-char fixed-length field; a count of the number of items that were not renewed.
unrenewed items	BN	variable-length field. This field should be sent for each unrenewed item. It could include a reason that the item was not renewed.
update accepted		1-char, fixed-length required field: Y or N. Field identifies if the notice update was accepted by the ILS.
valid patron	BL	1-char field: Y or N. A Y in this field is used to indicate that the patron bar-code is valid, is on the database. An N indicates that the patron is not a valid patron.
valid patron password	CQ	1-char field: Y or N. A Y in this field is used to indicate that the patron password is valid. An N indicates that the patron password is not valid.

Data Transfer Protocol between Library Automation Devices and Automated Circulation Systems

Introduction

This protocol provides a standard interface between a library's Automated Circulation System (ACS) and library automation devices. The protocol was developed originally as an interface between the Automated Circulation System and 3M™ SelfCheck™ system. With the growth of automation in the library, there is an increased need for a standard protocol.

This standard protocol will be applicable to ACS system interfaces to automated devices and services where patron information and/or library material information is required.

This standard protocol benefits the library by enabling them to:
- Add new types of automated devices and services to the library with minimal change to the ACS system.
- Upgrade to new versions of automated devices with minimal or no change needed in the ACS system.
- Change from one ACS to another without the need to replace equipment or services that interface with the ACS.

This standard protocol description will be useful to:
- Vendors of library systems and devices who wish to develop a standard interface between the ACS and automated library devices.
- Library planning committees who are planning new types of automated devices and services for patrons or staff.

Acronyms and Abbreviations
ACS =   Automated Circulation System
SC   =   3M SelfCheck system or any library automation device dealing with patrons or library materials
NISO =   National (U.S.) International Standards Organization

If you have questions regarding the 3M Standard Interchange Protocol, you may call 3M SelfCheck system Software Support Services at 800-328-0067.

What's New with the Standard Interchange Protocol?

This document describes Version 2.00 of the 3M Standard Interchange Protocol. Version 2.00 builds on top of Version 1.00 of the protocol, adding new messages, and new fields to already-existing messages. All new messages and fields are indicated by having "2.00" in front of them in the message definitions. Any messages and fields that are not prefixed by "2.00" existed in earlier versions of the protocol.

Standard Protocol Rules and Regulations

Standalone Messages
Each message/response pair should stand on its own, irrespective of any previous or future message/response pair. For instance, it is not required for the SC to send a Patron Status Request Message and for the ACS to respond to it in order for the SC to send a Checkout Message; the Checkout Message contains everything that should be needed for the ACS to perform a Checkout operation and construct a Checkout Response Message. Similarly, although the SC might send an End Session Message to signal the end of a patron's activity of checking out books, there may be no End Session Message sent to signal the end of a patron's activity of checking in books until sometime after the patron is actually done and a timer expires due to lack of patron activity, since the SC may not know when the patron is done. It is intended that each protocol message/response pair be independent of any other protocol message/response pair.

Commands
Command identifiers that are unrecognized should be ignored. This allows new commands to be added to the protocol in the future, without adversely affecting software written for earlier versions of the protocol.

All recognized commands sent by the SC to the ACS require a response from the ACS.

The ACS Status Message Response will not be sent by the ACS unsolicited. When the ACS wishes a change of status, it will send an ACS Status message as the response to the next message sent to it by the SC. The SC will accept the new status and then send its command again (unless it happened to be an SC Status message).

Fields
Fields with unrecognized field identifiers should be ignored. This allows new fields to be added to the protocol in the future, without adversely affecting software written for earlier versions of the protocol.

Packet Format
Messages to and from the ACS have the same general format. The message packet begins with a command identifier. The command identifier is followed by fixed-length fields without field identifiers, and then by fixed- and variable-length fields with field identifiers. The message ends with a carriage return.

Fixed-length fields must appear in the order given in the specification for each message.

Fields with fields identifiers may be sent in any order following the fixed-length fields. For some fields in some messages, multiple fields of the same type may be included in a single message.

In general the packet contains only ASCII characters. The command identifier is two ASCII characters, the fixed and variable-length fields are composed of ASCII characters, field identifiers are ASCII characters, and the message terminator is an ASCII character.

The default character set will be English 850 (as defined in the Microsoft MS DOS manual). If another character set is required, the SC and the ACS must mutually define the character set.

Message Terminator
All messages must end in a carriage return (hexadecimal 0d). This character is interpreted as the last character in a message and cannot be used elsewhere as a character in a message.

Nulls
Null codes (hexadecimal code 00) cannot appear anywhere in a message.

Fixed-length fields
Fixed-length required fields must contain specific information and cannot be left blank.

Variable-length fields
Variable-length fields start with 2 field identifier characters, followed by 0 to 255 characters from a mutually agreed upon character set, and end with a | (code hexadecimal 7C). The | is a delimiter so it cannot appear anywhere except as the last character of the field. Some languages use code 7C as a printable character. In this case, another delimiter character must be defined. The field delimiter code should be configurable in the SC.

    field = <field identifier characters><from 0 to 255 ASCII characters><delimiter>

When variable-length or optional fields from the ACS are not used, they should be left out entirely.

Beginning with Ver. 2.00 of the protocol, the following rules are followed in assigning field identifiers:
• all fields added to pre-existing messages are assigned field identifiers

- all variable-length fields are assigned field identifiers
- all optional fields are assigned field identifiers
- required fields in new messages that are fixed in length and are not perceived to be general-purpose fields (not useful in other messages) are not assigned field identifiers
- any field assigned a field identifier , whether fixed or variable in length, must end with a delimiter character.

This will hopefully make it easier to maintain backward compatibility.

Only displayable characters (no control characters) should be included in print or display messages from the ACS.

Establishing a Connection

This protocol does not define how a communications session between the SC and ACS is established, only the format of the data transferred between the SC and the ACS once they have established a connection.

Error Handling

Checksums and Sequence Numbers

The protocol allows extra error detection to be enabled, over and above any error detection provided by the communications medium's protocol. When error detection is enabled, a sequence number field, followed by a checksum field, is appended to every message as defined in previous pages. When included in a message, the sequence number field should always be the second-to-last field, the checksum field should be the last field, and they should be followed by a carriage return (see above) as the last character in the message.

The checksum is four ASCII character digits representing the binary sum of the characters including the first character of the transmission and up to and including the checksum field identifier characters.

To calculate the checksum add each character as an unsigned binary number, take the lower 16 bits of the total and perform a 2's complement. The checksum field is the result represented by four hex digits.

To verify the correct checksum on received data, simply add all the hex values including the checksum. It should equal zero.

The sequence number is a single ASCII digit, '0' to '9'. When error detection is enabled, the SC will increment the sequence number field for each new message it transmits. The ACS should verify that the sequence numbers increment as new messages are received from the 3M SelfCheck system. When error detection is enabled, the ACS response to a message should include a sequence number field also, where the sequence number field's value matches the sequence number value from the message being responded to.

Note that, even though both the sequence number and checksum fields have field identifiers, neither field utilizes the field delimiter character. Both fields are fixed in length.

SC System Error Handling

When a message is sent from the SC to the ACS, the SC waits for a response until a timer expires.

If the timer expires without a response, the message is re-transmitted, until the maximum number of retries is reached.

If a response message is received but is found to have a checksum error, the SC transmits a "Request ACS Resend" message. If further errors occur, the "Request ACS Resend" message is re-transmitted until the maximum number of retries is reached.

If the ACS returns a "Request SC Resend" message, the original message is re-transmitted, provided that the maximum number of retries is not exceeded, and the last message sent was not itself a "Request ACS Resend" message.

Should the maximum number of retries be reached without a valid response being received, or if the SC receives a "Request SC Resend" message in response to having sent a "Request ACS Resend" message, the SC should conclude that communications with the ACS have failed.

If the SC receives a response message with a valid checksum, but the sequence number does not match the sequence number of the message sent, the SC will discard the response and wait for another, valid response from the ACS (and probably timeout doing so).

ACS System Error Handling
When a message is received from the SC that has a checksum error, the ACS should respond with a "Request SC Resend" message.

When the ACS responds to a valid message it may receive a "Request ACS Resend" message. In such a case the previous response should be retransmitted, even if it was itself a "Request SC Resend" message. If no response message had been transmitted, then a "Request SC Resend" message should be sent.

If the ACS receives a message in which the message checksum and sequence number match the previous message received from the SC, the ACS should re-send its last response.

Protocol Version Compatibility

a) If SC protocol version > ACS system protocol version
    SC will take responsibility for deciding if it can operate in a mode compatible with an older version ACS system.

b) If SC protocol version < ACS system protocol version
    Each version of Standard Protocol will include in its specification the minimum version of the SC Protocol with which it is compatible. The ACS system should refuse to talk to a version of the protocol which is older than the specified minimum. The minimum compatible version of the Standard Protocol release 1.00 is 1.00.

    For example, V3.00 of the standard protocol might have as its minimum compatible version V2.50. This version of ACS system would operate only with SC's running protocol version 2.50 or higher.

    If the ACS system detects an incompatible version it should send an ACS system status message indicating that the ACS system is not on-line, with an appropriate error message for the SC screen.

Protocol Extensions
If you extend the protocol for the purpose of communicating to a device other than a 3M SelfCheck system, you are requested to send documentation of your extensions to 3M. In an effort to make this protocol a general-purpose standard, 3M will try to incorporate into the 3M Standard Interchange Protocol those extensions that are deemed to be general-purpose, and will also try to avoid re-using Message IDs and Field IDs that are in use in your extensions.

Field identifiers for variable-length or optional fields.
These are each ASCII characters:

	patron identifier	= AA	
	item identifier	= AB	
	terminal password	= AC	
	patron password	= AD	
	personal name	= AE	
	screen message	= AF	
	print line	= AG	
	due date	= AH	
	title identifier	= AJ	
	blocked card msg	= AL	
	library name	= AM	
	terminal location	= AN	
	institution id	= AO	
	current location	= AP	
	permanent location	= AQ	
2.00	hold items	= AS	
2.00	overdue items	= AT	
2.00	charged items	= AU	
2.00	fine items	= AV	
	sequence number	= AY	(used only when error detection is enabled)
	checksum	= AZ	(used only when error detection is enabled)
2.00	address	= BD	
2.00	e-mail address	= BE	
2.00	phone number	= BF	
2.00	owner	= BG	
2.00	currency type	= BH	
2.00	cancel	= BI	
2.00	transaction id	= BK	
2.00	valid patron	= BL	
2.00	renewed items	= BM	
2.00	unrenewed items	= BN	
2.00	fee acknowledged	= BO	
2.00	start item	= BP	
2.00	end item	= BQ	
2.00	queue position	= BR	
2.00	pickup location	= BS	
2.00	fee type	= BT	
2.00	recall items	= BU	
2.00	fee amount	= BV	
2.00	expiration date	= BW	
2.00	supported messages	= BX	
2.00	hold type	= BY	
2.00	hold items limit	= BZ	
2.00	overdue items limit	= CA	
2.00	charged items limit	= CB	
2.00	fee limit	= CC	
2.00	unavailable hold items	= CD	
2.00	hold queue length	= CF	
2.00	fee identifier	= CG	
2.00	item properties	= CH	

2.00	security inhibit	= CI
2.00	recall date	= CJ
2.00	media type	= CK
2.00	sort bin	= CL
2.00	hold pickup date	= CM
2.00	login user id	= CN
2.00	login password	= CO
2.00	location code	= CP
2.00	valid patron password	= CQ
2.EX	*collection id*	*= CR*
2.EX	*call number*	*= CS*
2.EX	*destination institution id*	*= CT*
2.EX	*alert type*	*= CV*
2.EX	*hold patron id*	*= CY*
2.EX	*hold patron name*	*= DA*
2.EX	*institution hours request*	*= DB*
2.EX	*deposit balance*	*= DB*
2.EX	*deposit maximum*	*= DM*
2.EX	*institution open hours*	*= DC*
2.EX	*institution next open day*	*= DD*
2.EX	*comment*	*= DE*
2.EX	*transaction code*	*= DF*
2.EX	*patron prefix title*	*= DG*
2.EX	*patron first name*	*= DH*
2.EX	*patron middle name*	*= DI*
2.EX	*patron surname*	*= DJ*
2.EX	*patron suffix*	*= DK*
2.EX	*patron preferred name*	*= DL*
2.EX	*author name*	*= EA*
2.00	account identifier	= ID
2.EX	*ISO 639.2 Language*	*= LG*
2.EX	*NCIP author*	*= NA*
2.EX	*bibliographic identifier*	*= NB*
2.EX	*NCIP item type*	*= NI*
2.EX	*request identifier*	*= NL*
2.EX	*request identifier*	*= NR*
2.EX	*NCIP title*	*= NT*
Hz	*patron pac access type*	*= PA*
Sym	*patron expiration date*	*= PA*
Hz	*patron birth date*	*= PB*
Sym	*patron loan class*	*= PC*
Sym	*patron birth date*	*= PD*
Hz	*patron expiration date*	*= PE*
Sym	*patron user category1*	*= PE*
Sym	*patron user category2*	*= PF*
Sym	*patron user category3*	*= PG*
Sym	*patron user category4*	*= PH*
Sym	*patron user category5*	*= PI*
Sym	*alternate/previous id*	*= PJ*
2.00	amount	= UA
Hz	*ACS server version*	*= VN*
Hz	*patron type (ptype)*	*= ZY*

Message identifiers

Command messages sent by the SC to the ACS:

	Patron Status Request	= 23
	Checkout	= 11
	Checkin	= 09
	Block Patron	= 01
	SC Status	= 99
	Request ACS Resend	= 97
2.00	Login	= 93
2.00	Patron Information	= 63
2.00	End Patron Session	= 35
2.00	Fee Paid	= 37
2.00	Item Information	= 17
2.00	Item Status Update	= 19
2.00	Patron Enable	= 25
2.00	Hold	= 15
2.00	Renew	= 29
2.00	Renew All	= 65
2.EX	*Patron Notification*	*= 41*
2.EX	*Deposit Account Activity*	*= 41*
2.EX	*Notice Sent*	*= 43*
2.EX	*Agency Information*	*= 45*
2.EX	*Accept Item*	*= 45*

Response messages sent by the ACS to the SC:

	Patron Status Response	= 24
	Checkout Response	= 12
	Checkin Response	= 10
	ACS Status	= 98
	Request SC Resend	= 96
2.00	Login Response	= 94
2.00	Patron Information Response	= 64
2.00	End Session Response	= 36
2.00	Fee Paid Response	= 38
2.00	Item Information Response	= 18
2.00	Item Status Update Response	= 20
2.00	Patron Enable Response	= 26
2.00	Hold Response	= 16
2.00	Renew Response	= 30
2.00	Renew All Response	= 66
2.EX	*Patron Notification Response*	*= 42*
2.EX	*Deposit Account Activity Resp*	*= 42*
2.EX	*Notice Sent Response*	*= 44*
2.EX	*Agency Information Response*	*= 46*
2.EX	*Accept Item Response*	*= 46*

Messages in Numerical Order

	Block Patron	= 01
		02 (Not implemented see 24)
	Checkin	= 09
	Checkin Response	= 10
	Checkout	= 11
	Checkout Response	= 12
2.00	Hold	= 15
2.00	Hold Response	= 16
2.00	Item Information	= 17
2.00	Item Information Response	= 18
2.00	Item Status Update	= 19
2.00	Item Status Update Response	= 20
	Patron Status	= 23
	Patron Status Response	= 24
2.00	Patron Enable	= 25
2.00	Patron Enable Response	= 26
2.00	Renew	= 29
2.00	Renew Response	= 30
2.00	End Patron Session	= 35
2.00	End Session Response	= 36
2.00	Fee Paid	= 37
2.00	Fee Paid Response	= 38
2.EX	*Patron Notification*	*= 41*
2.EX	*Patron Notification Response*	*= 42*
2.EX	*Deposit Account Activity*	*= 41*
2.EX	*Deposit Account Activity Resp*	*= 42*
2.EX	*Notice Sent*	*= 43*
2.EX	*Notice Sent Response*	*= 44*
2.EX	*Agency Information*	*= 45*
2.EX	*Agency Information Response*	*= 46*
2.EX	*Accept Item*	*= 45*
2.EX	*Accept Item Response*	*= 46*
2.00	Patron Information	= 63
2.00	Patron Information Response	= 64
2.00	Renew All	= 65
2.00	Renew All Response	= 66
2.00	Login	= 93
2.00	Login Response	= 94
	Request SC Resend	= 96
	Request ACS Resend	= 97
	ACS Status	= 98
	SC Status	= 99