



How to Set Up a SIP2 Server for Self-Check Systems

Version 20 and later

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1 Overview

Self-check systems are part of a global trend toward self-service in library operations. They enable library patrons to borrow and return materials without the assistance of library staff, usually by means of scanning the barcodes on the item and on the patron's library card.

In order to provide an interface between the Aleph Circulation module and an external Self-Check system, you must set up a Self-Check server.

This document tells you how to operate and prepare your Aleph 500 system for the installation of a SIP2-compliant Self-Check system.

SIP2 is an acronym for the Standard Interchange Protocol, Version 2, which was developed by the 3M company. SIP2 is now the standard protocol for data transfer between library automation devices (such as Self-Check machines) and library circulation systems (such as the Aleph 500 Circulation module). It facilitates the exchange of patron information and / or library material information.

The communication between Aleph and the Self-Check system is based on XML.

1.1 Loans

The Aleph SIP2 server uses the Aleph Circulation settings. Therefore, the checks that are active for the SIP2 server are the same as those used by the Circulation client. It is possible to assign additional checks that are only performed in the SIP2-server (for example, in order to avoid check out of magnetic media via the Self Check system). The circulation loan checks are defined in the library's `<ADM library>/tab/tab_check_circ` table.

The relevant sections in `tab_check_circ` are LOAN and SIP-LOAN.

In addition, the loan transaction is not completed in the event of the following errors:

- Patron's barcode not found
- Item's barcode not found
- Item on loan to another patron
- Patron removes the item before completion of the loan procedure (the loan transaction has been completed, but the desensitizing procedure has not been completed). The system actually performs an automatic return procedure.

Note that the SIP2 Server consults `tab_attr_sub_library`. A loan is only performed if the Self-Check machine is registered as type 1 in Column 2 of `tab_attr_sub_library`.

1.2 Short Loans

Short Loan functionality is supported by the SIP2 server in the same way as it is when a Short Loan is made from the GUI. The preview period for Short Loans through the

Self-Check machine is defined under the environment variable
`item_schedule_preview_period` in `./aleph/proc/sip2_server`.

Note that this variable is also defined under `pc_server_defaults`. The value there is only relevant for the Short Loan preview period in the GUI.

1.3 Renewals

The Renew / Renew All functions are supported by the SIP2 server in the same manner as the Renew / Renew All when they are done through the Web OPAC. The two paths are similar because of the fact that in both cases the patron renews loans by himself with no help from the librarian.

The same checks that are done in the Renew / Renew All process in the Web are also done when these activities are done through the SIP2 server. The SIP2 server consults the RENEW-WWW section in `tab_check_circ`.

When a loan is performed, if the item is already loaned, and the patron who has the item on loan is the same as the patron performing the loan, a renewal transaction is registered.

1.4 Returns

When a return is performed, if the item is returned late and a fine is to be levied, the system charges a fine. The system does not process outstanding hold requests when the item is returned. Therefore, the library will have to check for requests by entering the barcodes in the Circulation client in the Return function, or via the Requests/Hold Request/Print Letter – Hold Request Filled command and fully process these requests. There are several conditions where a special return message is given, dependent on setup in `tab_sip2.conf` defined in the `./<ADM library>/tab` directory (see section [2.1 tab_sip2.conf](#) on page 8). These conditions are:

- When the returned item has an active hold request attached
- If there is a circulation note on the item (Z30-NOTE-CIRCULATION)
- When the item's sublibrary is not registered as a home library for this station (no matching entry for type 3 in Column 2 of `tab_attr_sub_library`).
- If the returned item is a short loan item.

This message can tell the patron to place the returned item in a separate box, thereby indicating to the library staff that these items need special handling.

You can block the return of an item marked as magnetic media and direct the patron to the circulation desk to make the return.

Note that the SIP2 Server consults `tab_attr_sub_library`. A return is only performed if the Self-Check machine is registered as a type 1 or 2 in Column 2 of `tab_attr_sub_library`.

1.5 Hold Requests

The Hold functionality is supported by the SIP2 server in the same manner as the Hold request when it is done through the Web OPAC. The two paths are similar due to the fact that in both cases, the patron places the Hold request himself without the librarian's intervention.

The same checks that are activated when the patron places the hold request through the Web OPAC are active when the request is placed through the SIP2 server. The SIP2 server consults the relevant sections in `tab_hold_request`. The relevant sections are:

PRE
POST

2 SIP2 Server Settings

By default, the server monitors the 533\${ALEPH_SUB_PORT} port, although the SIP2_SERVER_PORT environment variable can be set to any different free port. The following lines must be present in aleph_start and aleph_startup:

aleph_start

```
setenv SIP2_SERVER_PORT 533${ALEPH_SUB_PORT}
setenv SIP2_STARTUP_LIBS "usm50"
```

aleph_startup

```
if ($?SIP2_STARTUP_LIBS) then
    echo "starting sip2_server..."

    @ n = $1_sip2_server_port
    foreach lib ($SIP2_STARTUP_LIBS)
        start_proc00 $lib
        echo " - $active_library"
        csh -f $aleph_proc/sip2_server $n >&
        /dev/null &
    @ n ++

end
```

The SIP2 server settings for compatibility with Self-Check clients are defined in the tab_sip2.conf file and in the tab_sip2_translate file.

2.1 tab_sip2.conf

This table is in the ADM library's tab directory (for example, ./usm50/tab). It sets the operative definitions for the server.

The codes and the values are not case-sensitive.

The structure of the file is as follows:

<operative definition> = <value>

```
[HOST]
error_correction = N
institution_id = ALEPH
online_status = Y
checkin_ok = Y
checkout_ok = Y
stat_update_ok = Y
offline_ok = N
renew_policy = Y
alert = Y
sc_language = 001
pin_required = N
match_id_type = 01
item_transfer = N
```

```
[ALERT]
serveradmin = <mail-address>
```



```

[DEBUG]
verbose_msg = N
level = 0

[TIMEOUT]
retries_allowed = 010
timeout_period = 030

[SIP]
field_delimiter = |
protocol_version = 2.00
return_message = N
extensions = Y
patron_extension_da = Y

address_type = 1
shelf_count = N
use_sub_library_code = Y
item_identifier = REC-KEY
its_extensions = N
use_adm_privileges = Y
return_during_loan = N

[CHAR-CONV]
input = 8859_1_TO_UTF
output = UTF_TO_8859_1

[MESSAGES]
checkout_message = Y
checkin_message = Y
checkin_fee = Y

[STATUSES]
missing = MI,MS

```

2.1.1 Key to Operative Definitions

[HOST]

error_correction
s/[n]

If the default is set to "S" (serial), then the Aleph 500 SIP2 server performs a checksum of the messages received from the Self-Check system and adds a checksum to the messages sent to the Self-Check system.

If the default is set to "N" (none), no checksum operations are performed.

The setting of `error_correction` must be the same as the setting of this flag in the Self-Check system configuration.

institution_id

Enter your institution's name

online_status [y]/n	Field on-line status in message 98 ("ACS Status") will be set accordingly to this value.
checkin_ok [y]/n	Y indicates that the Self-Check system is allowed to return items.
checkout_ok [y]/n	Y indicates that the Self-Check system is allowed to loan items.
stat_update_ok [y]/n	Field status update ok in message 98 ("ACS Status") will be set accordingly to this value.
offline_ok [y]/n	Field off-line ok in message 98 ("ACS Status") will be set accordingly to this value.
renew_policy y/[n]	Y indicates that the Self-Check system is allowed by the Aleph SIP2 server (ACS) to process patron renewal requests. Field "ACS Renewal Policy" in message 98 ("ACS Status") will be set accordingly to this value.
alert [y]/n	Y generates an audible sound in the Self-Check system. The alert will indicate conditions such as articles on hold, articles belonging to another library branch, or other alert conditions. The alert signal will alert the library staff to special article handling conditions during discharging operations. When set to N and return_message is set to Y, the system will initiate a special response message telling the patron to place the returned item in a separate box.
sc_language [001]	Aleph 500 SIP2 server conversation language code (can also be found in the Self-Check system manual). A valid code is a three-digit number.

<u>Language</u>	<u>Code</u>
Unknown (default)	000 (the language is not specified)
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
pin_required y/[n]	If set to “Y”, each patron is expected to supply their password in SIP2-messages 23 (Patron Status Request), 35 (End Patron Session), 37 (Fee Paid) and 63 (Patron Information). More specifically, the "patron password" field of SIP messages is expected to have a value.	
match_id_type	01, 02, and so on. Most commonly, this would be the SSN or university ID. The Match-ID is used for matching the Patron's ID only (identification key in Z308 and Z303) for the specified key type. After ID-Matching - the password verification is matched against any ID of the patron. It is possible to set this value to auto . By setting this value, the system automatically matches against any ID that is defined in tab_bor_id.lng as possible for GUI logon (column 5 = Y).	
item_transfer	A Y/N flag. Indicates whether the server should create a transfer record, when a check-in is done, and the item needs to be transferred.	
[ALERT]		
Serveradmin	Write the mailing address of the server administrator or the library staff so that the Self-Check system can notify the library staff that, for example, a patron card has been blocked.	
[DEBUG]		
verbose_msg y/[n]	If set to Y, incoming and outgoing messages are logged by the Aleph 500 SIP2 server.	
level 1/[0]	If set to “1”, a variety of error, warning, and informational messages are logged to files by the Aleph 500 SIP2 server.	
[TIMEOUT]		
retries_allowed	Number of retries to get an answer from the Self-Check	

system.

`timeout_period [999]` Response time (in tenths of a seconds) of the Aleph 500 SIP2 server before doing a retry or giving up. Enter a three-digit value (for example, 225 equals 22.5 seconds). 999 indicate that the timeout is unknown.

[SIP]

`field_delimiter` Character used to delimit fields. Normally it would be the pipe character | (code hexadecimal 7C). 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.

`protocol_version [2.00]` 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.

return_message

If this parameter is set to Y, and if one of the following conditions is met during return, the special message 36 (*Return performed - please put this item into the red box.*) from `./aleph/error_eng/sip2_server` instead of message 26 (*Item returned*) is displayed.

The conditions are:

- The item has active hold requests (Z37-record)
- The item has a circulation note in the item record (Z30-NOTE-CIRCULATION) - this can be used in order to identify ILL material.
- The item's sublibrary is not registered as a home library for this station. The item has to be transferred to the item's library. (No matching entry for type 3 in column 2 of `tab_attr_sub_library`).
- The item is a "short-loan" item. An item is a short-loan item if a "reserved items schedule" is defined for the current date for this item in `tab43`.

The patron is asked to set aside problematic items. This way an appropriate action (for example, printing transfer slips), can be taken by the staff using the Circulation GUI.

extensions

When this parameter is set to Y, the SIP2 server adds the following extensions to the Checkin Response message:

Field ID	Field
CR	Collection code
CS	Call number
CT	Destination location
CV	Alert type
CY	Hold patron id
DB	Hold patron name
DA	Hold patron name (depends on the setting of patron_extension_da below)

These additions are used for sorting books.

Other possible options for the CV field, that are not supported in Aleph, are:

- 01 hold for this library
- 02 hold for other branch
- 03 hold for ILL
- 04 send to other branch
- 99 other

The alert type is defined in `tab_sip2_alert`.
The DB

patron_extension_da

When this parameter is set to Y and `extensions` is set to Y, the SIP2 server adds the "DA" extension tag to the Checkin Response message and NOT the "DB" extension.

tpl_extensions

If this parameter is set to Y, the SIP2 server supports electronic payment via a self-service kiosk. The messages 63/64 and 37/38 are extended.

When the "fine items"-flag in the summary field of SIP2-message 63 (Patron Information Request) is set to Y, the response message 64 (Patron Information Response) contains the following additional fields:

Field ID	Field
----------	-------

EB	Barcode
ET	Title information
EC	Cash transaction type
EN	Net amount
EV	VAT
EF	Sum
EK	Cash transaction ID

These fields are repeated for every open cash transaction.

Note: These fields are **not** SIP2 standard but customer-specific!

Note: Fields EB and ET are only sent by Aleph when an item record is linked to a cash record.

Messages 37 (Fee paid) is supported using the following fields:

Field ID	Field
	Payment type
AA	Patron identifier
AD	Patron password
BK	Transaction ID
BV	Fee amount
BZ	e-payment ID
EK	Cash transaction ID
EI	Payment IP
EA	Terminal login ID

The fields BZ and EK are repeated for every paid cash transaction.

Note: The fields BZ, EK, EI and EA are **not** SIP2 standard but customer-specific!

Message 38 (Fee Paid Response) is supported using the following fields:

Field ID	Field
	Payment accepted Y/N
	Transaction ID
AO	Institution ID
AA	Patron identifier
BZ	e-payment ID
ER	Receipt no

The fields BZ and ER are repeated for every paid cash transaction.

Note: The fields BZ and ER are **not** SIP2 standard but customer-specific!

`address_type [1]/3`

This parameter can be used to define the format of the user address for the field "BD" (sent in message 63).

The value 1 (default) sets up the standard format.

Example: Address line 3 - Address line 2

The value 3 sets up the European format.

Example: Address line 1, Address line 2, Address line 3

`force_return Y/[N]`

If `force_return` is set to "Y", check-in is executed even if the material is not on loan. This option might be useful because the library wants to get the material back in any case and does not want the self-check machine to reject the checkin.

If this parameter is set to "N", the check-in will be rejected if the item has not been on loan.

`shelf_count`

If this parameter is set to Y, then only shelved holds are counted. When set to N (default), then both unavailable and shelved holds are counted.

`item_identifier`

This parameter enables the user to insert an identifier other than the barcode to identify an item in order to get additional information about a loan or renewal that was

listed previously. The following values are possible:

- REC-KEY = Z30-REC-KEY
- CALL-NO = Z30-CALL-NO
- CALL-NO-2 = Z30-CALL-NO-2
- BARCODE = Z30-BARCODE (default)

<code>its_extensions</code>	For communication with campus systems. Note that this parameter is customer-specific and not part of the standard SIP2 protocol definition. Currently, this field is supported by Intelligent machines only. The creation of the field is switched on with the new parameter "its_extensions = Y" in <code>tab_sip2.conf</code> (default = N).
<code>use_sub_library_code</code> Y/[N]	If this parameter is set to Y, the field's permanent location (AQ) contains the sublibrary code. If it is set to N (default) the field contains the sublibrary name.
<code>detailed_patron_status</code> us = Y/[N]	<p>This parameter is relevant for Aleph 20 and later. If this parameter is set to N and the SIP-AUTH-checks during message 63 fail, all positions in field "patron status" are set to Y.</p> <p>If this parameter is set to Y, the positions in field "circulation status" will be differentiated and positions 0-3, 5, 10 and 12 will be supported. Note that SIP-AUTH-checks will not be performed anymore during message 63, in this case.</p>
<code>use_adm_privileges</code> Y/[N]	<p>Only relevant if <code>detailed_patron_status</code> = Y is set (Aleph 20 and later).</p> <p>If this parameter is set to Y, then the "patron status" field (positions 0-3 and 10) in Patron Information Response (message 64) will be determined according to privileges and cash limit of z305 of the ADM library level.</p> <p>When set to N (default), then the "patron status" field (positions 0-3 and 10) in Patron Information Response (message 64) will be set to blanks.</p>
<code>return_during_loan</code> = Y/[N]	<p>This parameter is relevant for Aleph 21 and later. If this parameter is set to Y, then an item loaned to a patron will be also returned, when performing a checkout for another patron.</p> <p>If this parameter is set to N, then an item loaned to a</p>

patron will not be available for check out to other patrons.

[CHAR-CONV]

Input

Character conversion as defined in the alephe/unicode/tab_character_conversion_line table. The 8859_1_TO_UTF line must be present to translate data from the Self-Check system to the Aleph 500 SIP2 server.

Output

Character conversion as defined in the alephe/unicode/tab_character_conversion_line table. The UTF_TO_8859_1 line must be present in order to translate data from the Aleph 500 SIP2 server to the Self-Check system.

[MESSAGES]

checkout_message

If this parameter is set to Y, then the first error message returned by check_circ will be displayed in AG and AF fieldes.

When set to N (default), only a general error will be displayed in AG and AF fieldes.

checkin_message

If this parameter is set to Y, then the first error message returned by check_circ will be display in AG and AF fieldes.

When set to N (default), only a general error is displayed in AG and AF fieldes.

checkin_fee

If this parameter is set to Y, and a fine was generated during checkin activity, then the fine amount will be included in the message in AG and AF fields.

When set to N (default), the fine amount is not included.

[STATUSES]

missing

This parameter (Aleph 20 and later) includes all the process statuses to be considered as "missing". The statuses should be separated by ",".
For example:

missing=MI,MS

2.2 tab_sip2_translate

This table is in the ADM library's tab directory (for example, ./usm50/tab).

The table has two purposes:

- It matches the Z30 Material field (in Aleph 500) with the field media type (in the Self-Check system) and defines the description for this field. The field media type (CK) is part of the response to messages 09, 11, 17 and 29.
- It defines the mapping between the SIP2 language code and the Aleph internal language code. The SIP2 language is sent from the Self-Check machine as part of the messages Patron Status (23) and Patron Information (63). The Aleph SIP2 server then uses this information to send the screen messages in the proper language.

Please note: If the Self-Check machine does not send a language code the default is defined by value `sc_language` in `$data_tab/tab_sip2.conf.<port>`. If this parameter is not set the system takes the default from the library parameter (`prof_library`) `CON_START`.

The structure of the file is as follows:

```
!      1      2      3      4
!!!!!!!!!!!!!!!!-!!!!-!!!!!!!!-!!!!!!!!!!!!!!!!!!!!!!!!!!!!
MEDIA-TYPE      000      other
MEDIA-TYPE      001      BOOK      book
MEDIA-TYPE      002      ISSUE      magazine
MEDIA-TYPE      003      bound journal
MEDIA-TYPE      004      audio tape
MEDIA-TYPE      005      video tape
MEDIA-TYPE      006      CD/CDROM
MEDIA-TYPE      007      diskette
MEDIA-TYPE      008      book with diskette
MEDIA-TYPE      009      book with CD
MEDIA-TYPE      010      book with audio tape
!
LANGUAGE      001      ENG      English
LANGUAGE      002      FRE      French
LANGUAGE      003      GER      German
```

Col. 1 Type of line:

- MEDIA-TYPE - enumerated material type
- LANGUAGE - SC interface language

Col. 2 Self-Check definition for field media type (when col.1 is MEDIA-TYPE) and for field language (when col. 1 is LANGUAGE). The definition can be found in the Self-Check server's user guide. Valid codes consist of three digits.

Col. 3 Aleph definition for material type and for internal language code.

Col. 4 Description of the media type or language in Col. 2 (not functional)

2.3 tab_sip2_alert

This table is in the ADM library's `tab` directory (for example, `./usm50/tab`). It is used for the automatic book sorting interface and defines the values for the Self-Check fields alert and alert type for items returned at a Self-Check station. Alert and alert type are defined depending on the item process status, sublibrary of item and pickup location of hold request (if the item has a hold).

The structure of the file is as follows:

```
! 1 2 3 4 5
!!!!-!!-!!!!-!!-!!
##### MI ##### Y 99
ULINC ## N 00
##### ## Y 04
##### ## ULINC Y 01
##### ## ILLDT Y 03
##### ## ##### Y 02
```

Col. 1 Sublibrary of the item

Col. 2 Item process status

Col. 3 Pickup location

Col. 4 Alert (Y/N)

Col. 5 Alert type:

00 - undetermined
01 - hold for this branch
02 - hold for other branch
03 - hold for ILL
04 - send to other branch
99 - other

2.4 tab_sip2_sort_bin

This table is in the ADM library's `tab` directory (for example, `./usm50/tab`). It is used for the creation of the field sort bin (CL) as part of the checkin-message. The field sort bin is used by different book sorting machines.

The structure of the file is as follows:

```
!1 2 3 4 5 6 7 8
9 10 11
!!-!!-!!-!!!!-!!!!-!!-
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!-!!!!-!!!!-!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
26 # Y # ##### ##### ##
30 # # # ##### ##### 11
30 # # # ##### ##### 21
02 # # # ##### ##### 02
01 # # # ##### ##### 01
11 # S # ##### ##### ##
```

Col. 1 Sort bin

- Col. 2** Status of loan
A = Active, L = Lost, C = Claimed lost
- Col. 3** Hold request
Y = Is requested, N=Not requested, S=On Hold Shelf
- Col. 4** Photocopy request
Y = Is requested, N=Not requested
- Col. 5** Sublibrary code
- Col. 6** Collection code
- Col. 7** Item status
- Col. 8** Item call number (truncated)
- Col. 9** Field tag from the title record
It is possible to use virtual or expanded fields. For this purpose you have to use the relevant expand-routines in section SIP2SERVER in `./xxx01/tab/tab_expand`.
- Col. 10** Subfield of tag defined in col. 9
- Col. 11** Truncated text to compare with contents of subfield defined in col. 9

2.5 Circulation Checks

Circulation activity through any Self-Check machine is subject to the same checks that are performed when done through the Circulation desk or through the Web OPAC.

The SIP2 server consults `tab_check_circ` general settings for regular circulation checks and consults specific entries of the table for checks that are only in force for Self-Check circulation activities. These sections are:

- SIP-AUTH: checks during the authentication of a patron through in the SIP2 server
- SIP-LOAN: checks when the item is loaned/renewed through the SIP2 server (are checked in addition to the regular LOAN-checks)
- SIP-RETURN: checks when the item is returned through the SIP2 Server.

2.5.1 Patron Block Check

A patron block check can be activated using the `check_circ_1_a` program under the SIP-AUTH section in `tab_check_circ`. The program checks whether at least one of the three block fields of the Global Patron Record (Z303) is filled. The block status (Y = blocked; blank = not blocked) is put into the *Patron Status* field.. In order to check section SIP-AUTH in `tab_check_circ`, set `detailed_patron_status = N` in `tab_sip2.conf`.

2.5.2 Patron Authentication Response

Aleph returns the result of the authentication check to the SIP2 interface by filling the following fields:

Valid Patron

Y = patron ID is valid

N = patron ID is not valid

Valid Patron Password

Y = patron password is valid

N = patron password is non valid.

2.5.3 Magnetic Media check

A magnetic media check can be defined for both the SIP-LOAN and SIP-RETURN sections in `tab_check_circ` (located under the `./usm50/tab` directory). If the patron tries to loan, renew or return an item marked as magnetic media, an error message is displayed and the patron is referred to the Circulation Desk. The identification of an item as a magnetic media is done according to Column 4 of `tab25.lng` (Material types).

The check is `check_circ_2_e`.

For example:

```
SIP-LOAN    check_circ_2_e
SIP-RETURN  check_circ_2_e
```

2.6 tab_attr_sub_library (IP address)

The SIP2 server consults `tab_attr_sub_library` settings in the ADM library's `tab` directory.

The IP address of the Self-Check machine has to be indicated in Column 1.

A loan is performed only if the Self-Check machine's IP address is registered as type 1 in Column 2 of `tab_attr_sub_library`.

A return is performed only if the Self-Check machine's IP address is registered as a type 1 or 2 in Column 2 of `tab_attr_sub_library`.

Columns 3-7 have the sublibrary codes.

For example:

```
!      1      2      3      4      5      6      7
!!!!!!!!!!!!!!!!!!!!!!-!-!!!!!!-!!!!!!-!!!!!!-!!!!!!-!!!!!!>

192.115.76.50      1 HIL    HYL    LIT    LAW
                   2 HIL    HYL    WID    LIT    LAW
```

2.6.1 tab_attr_sub_library port

In Aleph 23.1.2 and later it is possible for the SIP2 server to consult a port sensitive version of `tab_attr_sub_library` settings in the ADM library's `tab` directory. In order to use the new functionality, define `tab_attr_sub_library.server_port` under `./[adm_library]/tab`. For example:

`tab_attr_sub_library.5332`

The port extension of `tab_attr_sub_library` should be the same as the `SIP2_SERVER_PORT` environment variable set in `aleph_start`.

3 Client-Server Activation

3.1 Server Activation

To activate the Aleph 500 SIP2 server:

From the Unix command prompt, enter:

```
>>>dlib <ADM library> (for example, dlib USM50)
>>>util W
```

The following menu displays:

```
W. Server and Daemon Management (WWW,PC,Z39)
-----
0. Exit Procedure
1. Monitor Servers
2. Stop Servers
3. Start Servers
4. View Log File
5. View/Update Global System status
```

Please select [exit]:

When 3 (Start servers) is entered, the following menu appears:

Start Servers

```
0. Exit Procedure
1. WWW Server
3. PC Server
4. Z39 Server
5. Z39 Gate
6. HTTP (Apache) Server (Root Password is Required)
7. Other Server
```

Enter number [0]

When 7 (Other Server) is entered, the following menu appears:

Start 'Other' Servers

```
0. Exit Procedure
1.
2. NCIP Server
3. OCLC Server
4. SIP2 Server
5. SLNP Server
6. VST Server
7. ILL Server
```

Enter Number [0]

Port number is the port number to be used by the Aleph 500 SIP2 server. The port number must be the same as that set in the Self-Check system configuration.

The server creates a log file under \$LOGDIR. The name of the log file is sip2_server_<port number>.log

4 Aleph 500 SIP2 Server Messages

The messages for the Aleph 500 SIP2 server are defined in the following files in aleph/error_<lng>.

- sc_global
- sip2_server

If you want to modify the text, note that the messages must not contain control characters or any other special Aleph editing characters.

5 Aleph and the 3M Standard Interchange Protocol Version 2.00

The following section contains an overview of SIP2 messages and fields supported by Aleph. .

Acronyms and Abbreviations

ACS = Automated Circulation System = ALEPH SIP2 Server
SC = The 3M Self-Check system or any library automation device dealing with patrons or library materials

5.1 Command Messages by the SC to the ACS

The following table defines which fields are supported for which message type. The fields are explained in appendix 1. You find information on the messages at the bottom of the table.

	01	09	11	15	17	23	29	35	37	63	65	93	99
Cancel		A	A										
cash-transaction id									C				
e-payment id									C				
expiration mode				A									
fee amount									A				
Hold mode				A									
institution id								A					
Item identifier		A	A	A	A		A			A			
Login user id												A	
Login password												A	
patron identifier	A		A	A		A	A	A	A	A	A		
patron password			A	A		A	A	A	A	A	A		
payment IP									C				
payment type									A				
protocol version													A
summary – [charged items]										A			
summary – [hold items]										A			
summary – [overdue items]										A			
summary – [recall items]										A			
summary – [unavailable hold items]										A			
terminal login id									C				
Transaction Date								A	A		A		

A = Fields are supported

B = Fields are supported if extensions =Y in tab_sip2.conf

C = Fields are supported if tpl_extensions = Y in tab_sip2.conf

Fields in italic are site-specific and not SIP2-standard.

Supported message-types and their definition

01 = Block Patron
 09 = Checkin
 11 = Checkout
 15 = Hold
 17 = Item Information
 23 = Patron Status Request
 29 = Renew
 35 = End patron session
 37 = Fee Paid
 63 = Patron Information
 65 = Renew all
 93 = Login
 99 = SC Status

Notes:

In message 15 (Hold) – the “Hold Mode” field (1-char, fixed-length field) the following modes are supported in Aleph:

- + Add patron to the hold queue for the item
- Delete patron from the hold queue for the item

The "*" mode is not supported (change the hold to match the message parameters).

5.2 Response Messages sent by the ACS to the SC

The following table defines which fields are supported for which message type. The fields are explained in [Appendix 1](#) on page 35. You can find information on the messages at the bottom of the table.

	10	12	16	18	24	30	36	38	64	66	94	98
ACS renewal Policy												A
alert type	A											
Available			A									
call number	B	A										
charged items									A			
charged items count									A			
charged items limit									A			
checkin ok												A
checkout ok												A
circulation status				A								
collection code	B											
currency type		A		A	A	A			A			
current location				A								
date / time sync												A
desensitize		A										
destination location	B											
due date		A		A		A						
e-mail address									A			

<i>e-payment-id</i>								C				
end session							A					
fee amount		A		A					A			
fee limit									A			
fee type		A										
fine items									A			
hold items									A			
hold items count									A			
hold items limit									A			
hold patron id	B											
hold patron name	B											
hold queue length				A								
home address									A			
home phone number									A			
institution id	A	A	A		A	A	A	A	A	A		A
item identifier	A	A	A	A		A						
item properties		A		A								
Language					A				A			
library name												A
magnetic media	A	A										
media type	A	A		A								
offline ok												A
Ok	A	A	A			A				A	A	
online status												A
Overdue items									A			
Overdue items Count									A			
Owner				A								
patron identifier	A	A	A		A	A	A	A	A			
patron password												
patron status					A				A			
payment accepted								A				
permanent location	A			A								
personal name					A				A			
print line	A	A	A	A	A	A	A		A	A		A
protocol version												A
recall date				A								
recall items									A			
recall items count									A			
<i>receipt no</i>								C				
Renewal ok						A						
Renewed count										A		
Renewed items										A		
resensitize	A											
retries allowed												A
screen message	A	A	A	A	A	A	A		A	A		A
sort bin	A											
status update ok												A
supported messages												A
timeout period												A
title identifier	A	A	A	A		A						

transaction date	A	A	A	A	A	A	A	A	A	A		
transaction ID		A						A				
unavailable holds									A			
unavailable holds count									A			
unrenewed count										A		
unrenewed items										A		
valid patron					A				A			
valid patron password					A				A			

A = Fields are supported

B = Fields are supported if extensions = Y in tab_sip2.conf

C = Fields are supported if tpl_extensions = Y in tab_sip2.conf

Fields in italic are site-specific and not SIP2-standard.

Notes:

- In field “charged items limit”, the limit from tab16, col. 12 for item status 99 on ADM-level is displayed.
- In field “hold items limit”, the limit from tab16, col. 13 from item status 99 on ADM-level is displayed.
- If detailed_patron_status = Y is activated in tab_sip2.conf:
 - In field “patron status”, flag 5 (“too many items charged”) is set to Y, if the patron has exceeded the limit from tab16, col. 12 for item status 99 on the ADM-level (similar to check_circ_4_c in tab_check_circ).
 - In field “patron status”, flag 12 (“recall overdue”) is set to Y, if the patron has at least one recalled item on loan that is overdue.
- In message 18 (Item Information Response), the field “fee amount” is displayed according to the line for patron status ## in tab18.eng.
- In message 18 - the statuses for the “circulation status” field are checked in the order listed below.
Only if the first status is not correct is the next status checked.
The list below contains the origin of the “circulation status” field.
 - 9 - Waiting to be re-shelved
If Z30-LAST-RETURNED-DATE is in the past, but Z30-LAST-RETURNED-DATE + time of reshelving (according tab14) is in the future.
 - 2 - on order
If there is value in Z30-EXPECTED-ARRIVAL-DATE, Z30-ARRIVAL-DATE is empty, and z30-item-process-status is not blank and not null.
 - 10 - In transit between library locations
If Z36-ID is in tab_sub_library (similar to check_item_in_transit routine).
or if Z36-ID = Z30-DEPOSITORY-ID (code of a remote storage)

- 5 - Charged; not to be recalled until earliest recall date
If the item is loaned, and tab15 "allow rush recall" column is set to "N".
- 7 - Recalled
If the item is on active loan (Z36-STATUS = "A"), and recalled (Z36-RECALL-DATE is not empty and earlier than the current date).
- 4 - Charged
If the item is on active loan (Z36-STATUS = "A")
- 8 - waiting on hold shelf
If the item has a hold (Z37-DOC-NUMBER = Z30-DOC-NUMBER) that is on a hold shelf (Z37-STATUS = "S")
- 11 - claimed returned
If the item is on loan and it is "Claimed Returned" (Z36-STATUS = "C")
- 12 - Lost
If the item is on loan and it is "Lost" (Z36-STATUS = "L")
- 13 - Missing
If Z30-PROCESS-STATUS is one of the "Missing" statuses as defined in tab_sip2.conf table under the [STATUSES] section in the "missing" parameter
For example:
Missing=MI,MS
- 6 - In process
If Z30-ITEM-PROCESS-STATUS is not empty
- 3 - Available
If the item passes all of the previous tests and does not have holds (Z37 is checked)
- 1 – Other
If the item passes all of the previous tests

Supported message-types and their definition

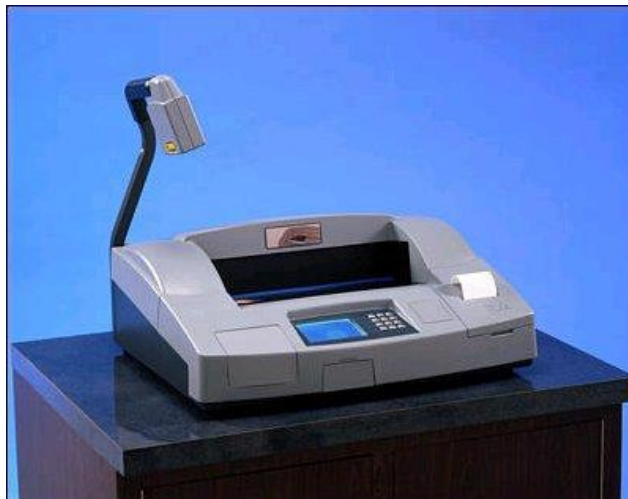
10 = Checkin Response
12 = Checkout Response
16 = Hold Response
18 = Item Information Response
24 = Patron Status Response
30 = Renew Response
36 = End Session Response
38 = Fee Paid Response
64 = Patron Information Response
66 = Renew All Response
94 = Login Response
98 = ACS Status

6 Example: 3M SelfCheck™ Systems

The 3M SelfCheck System is manufactured by the 3M company (see the 3M Web site: <http://www.3m.com/library>).

The 3M SelfCheck allows the patron to borrow items (with accompanying demagnetization). The loan process begins when a patron places a library card under the scanner. A receipt is printed after a loan is successfully transacted. This shows the patron's name, book and item details and due date. If the loan was not completed, a message is displayed to the patron, instructing him to apply to the circulation desk. The 3M SelfCheck always relates to a specific ADM library.

The 3M SelfCheck interface supports both SIP1 and SIP2 protocols/software. SIP2 is a richer protocol. Aleph 500 supports, in addition to the features that were available in SIP1, some of its new features as well. The 3M SelfCheck models that have been checked for use with Aleph 500 are 4210 (shown below) /5210/5220/6210.



3M SelfCheck™ System Model 4210

6.1 Client Activation

A separate user guide is provided by 3M.

The 3M SelfCheck contains different configuration menus. The following are the settings for the configuration menus. The settings in the 3M SelfCheck and the SIP2 server must match.

- Select Host Communication from the SelfCheck configuration menu
- Select TCP/IP Control
- Line 1, 2, 3, must be provided by the system manager.
- Line 4 Host IP address of the machine where the Aleph 500 SIP2 server is running

- Line 5 Host Port number. This must be the same as the port number on which the Aleph 500 SIP2 server is activated.
- Line 7 Error Correction Protocol. There are two options: NONE and SERIAL. This must be the same value as in the `error_correction` field in the `tab_sip2.conf` file in the ADM library's `tab` directory (for example, `./usm50/tab`).

Appendix 1: Field definitions

The following table is taken from the description of 3M Standard Interchange Protocol, Rev. 2.00. It explains all field definitions used in the SIP2-protocol. For information which fields are supported by the Aleph SIP2 server please refer to sections [5.1 Command Messages by the SC to the ACS](#) on page 27 and [5.2 Response Messages sent by the ACS to the SC](#) on page 28.

<u>Field Name</u>	<u>Field ID</u>	<u>Field Description</u>
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.
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.
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.
blocked card msg	AL	variable-length field. This field indicates the reason the patron card was blocked.
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: <u>Value</u> <u>Status</u> 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
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: <u>Value</u> <u>Definition</u> 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.
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.
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	<p>1-char field: Y or N.</p> <p>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.</p> <p>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.</p> <p>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.</p>																				
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	<p>2-char, fixed-length field (01 thru 99). Enumerated type of fee, from the following table:</p> <table><tr><th>Value</th><th>Fee Type</th></tr><tr><td>01</td><td>other/unknown</td></tr><tr><td>02</td><td>administrative</td></tr><tr><td>03</td><td>damage</td></tr><tr><td>04</td><td>overdue</td></tr><tr><td>05</td><td>processing</td></tr><tr><td>06</td><td>rental</td></tr><tr><td>07</td><td>replacement</td></tr><tr><td>08</td><td>computer access charge</td></tr><tr><td>09</td><td>hold fee</td></tr></table>	Value	Fee Type	01	other/unknown	02	administrative	03	damage	04	overdue	05	processing	06	rental	07	replacement	08	computer access charge	09	hold fee
Value	Fee 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
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: <u>ValueHold Type</u> 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 id	AO	variable-length field; the library's institution ID.
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 a item, such as item weight, size, security marker, etc. It may possibly 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. <u>Language</u> 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																								
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: <table><tr><th>Value</th><th>Media Type</th></tr><tr><td>000</td><td>other</td></tr><tr><td>001</td><td>book</td></tr><tr><td>002</td><td>magazine</td></tr><tr><td>003</td><td>bound journal</td></tr><tr><td>004</td><td>audio tape</td></tr><tr><td>005</td><td>video tape</td></tr><tr><td>006</td><td>CD/CDROM</td></tr><tr><td>007</td><td>diskette</td></tr><tr><td>008</td><td>book with diskette</td></tr><tr><td>009</td><td>book with CD</td></tr><tr><td>010</td><td>book with audio tape</td></tr></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
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.																										
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.																										
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 identifier	AA	variable-length field; an identifying value for the patron.																														
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 status		<p>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.</p> <table><thead><tr><th>Position</th><th>Definition</th></tr></thead><tbody><tr><td>0</td><td>charge privileges denied</td></tr><tr><td>1</td><td>renewal privileges denied</td></tr><tr><td>2</td><td>recall privileges denied</td></tr><tr><td>3</td><td>hold privileges denied</td></tr><tr><td>4</td><td>card reported lost</td></tr><tr><td>5</td><td>too many items charged</td></tr><tr><td>6</td><td>too many items overdue</td></tr><tr><td>7</td><td>too many renewals</td></tr><tr><td>8</td><td>too many claims of items returned</td></tr><tr><td>9</td><td>too many items lost</td></tr><tr><td>10</td><td>excessive outstanding fines</td></tr><tr><td>11</td><td>excessive outstanding fees</td></tr><tr><td>12</td><td>recall overdue</td></tr><tr><td>13</td><td>too many items billed</td></tr></tbody></table>	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
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																															
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		<p>2-char, fixed-length field (00 thru 99). An enumerated value for the type of payment, from the following table:</p> <table><thead><tr><th>Value</th><th>Payment Type</th></tr></thead><tbody><tr><td>00</td><td>cash</td></tr></tbody></table>	Value	Payment Type	00	cash																										
Value	Payment Type																															
00	cash																															

		01 VISA 02 credit 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.
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.
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. <u>ValueSecurity Marker Type</u> 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. <u>ValueDefinition</u> 0 SC unit is OK 1 SC printer is out of paper 2 SC is about to shut down
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.

		<u>Position</u>	<u>Definition</u>
		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.	
		<u>Position</u>	<u>Message Command/Response pair</u>
		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.	
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.
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.