

# CAPITA

## **Bridge Pro 1.5**

**Reference Manual**

**February 2011**

## About this document

This document describes how to install Bridge Pro. Please read this document carefully before attempting to install the software. Knowledge of basic UNIX commands is presumed.

You should read this document:

- If you are upgrading from *any* previous version of SelfServ or Bridge Lite
- If you are upgrading from *any* previous version of the SIP2 server
- If you are installing Bridge Pro from scratch

For more information about the functionality included with each release, refer to the section [Version history](#).

## Contacting Talis

If you are experiencing difficulties, please contact your System Manager/IT Department in the first instance. You can now raise calls using Talis Solutions, Talis' 24 x 7 customer support web based service. You must have a user name and password to access the customer support web site.

### Talis Support

Talis Solutions: <http://support.talis.com/>

Tel: +44 (0)870 400 5400

### General enquiries

Tel: +44 (0)870 400 5000

Fax: +44 (0)870 400 5001

Email: [info@talis.com](mailto:info@talis.com)

Internet: <http://www.talis.com/>

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# Contents

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<b>1. Introduction</b>	<b>5</b>
<b>2. Version history</b>	<b>6</b>
2.1 What's new in SelfServ 1.0	6
2.1.1 New operational model	6
2.1.2 Increased robustness	6
2.1.3 Automatic shutdown/restart	6
2.1.4 New home directory	6
2.1.5 Client configuration	6
2.1.6 Server configuration	7
2.1.7 New logs	7
2.1.8 More borrower information	7
2.1.9 Hire charge acknowledgement	7
2.1.10 Magnetic media	7
2.1.11 PERS included in SelfServ 1.0	7
2.1.12 Defects fixed in SelfServ 1.0	7
2.2 What's new in SelfServ version 1.1	8
2.2.1 Fee payments	8
2.3 What's new in SelfServ version 1.2	8
2.3.1 Sorting	8
2.3.2 Alert	8
2.3.3 Alert screen message	8
2.3.4 Issue of items waiting collection	9
2.3.5 Cancellation of incomplete transactions (applies to some self-check systems, notably 3M)	9
2.3.6 Numeric limits in user messages	9
2.3.7 Alternative homesite rule	9
2.3.8 Option for omitting the numeric identifiers from user messages	9
2.4 What's new in BridgeLite1.0	10
2.4.1 Issue from the reservation shelf	10
2.4.2 Expired borrower card and fines	10
2.4.3 Further blocking of issues/renewals through customization	10
2.5 What's new in BridgePro 1.0	10
2.5.1 Change of 3d party device Login	10
2.5.2 Support for offline operation	10
2.5.3 Allowing issue/renewals to exceed Borrower's expiry date	11
2.5.4 Allowing renewal of (actively) reserved items	11
2.5.5 Self service payment transaction id made optional	11
2.6 What Is New in Bridge Pro 1.5	11

2.6.1 Option to treat renewals as unseen .....	11
2.6.2 Overpayments & Credit .....	11
2.6.3 Borrower email .....	12
2.6.4 Offline Improvements.....	12
2.6.5 Self-Issue of Age Restricted AV Material.....	12
2.6.6 Automatic Item Relocation for Dynamic Stock System .....	12
2.6.7 Borrower Unblocking .....	12
2.6.8 Inclusion of Fine in the receipt (applies to 3M only) .....	13
2.6.9 Inclusion of symbol '£' in fine message .....	13
<b>3. Installation .....</b>	<b>13</b>
3.1 Installation prerequisites.....	13
3.2 Download the software.....	13
3.3 Installing the software.....	14
3.4 Checking the update log file .....	16
3.5 Install the Server's Runtime Control (RC) scripts .....	16
<b>4. Configuration and start-up .....</b>	<b>16</b>
4.1 First time installation.....	17
4.2 Upgrading from SelfServ or BridgeLite.....	17
4.3 Upgrading from Talis SIP2 server .....	17
4.4 Client configuration.....	18
4.5 Server configuration .....	19
4.5.1 Start script configuration .....	19
4.5.2 Service configuration.....	19
4.5.3 Login configuration .....	21
4.5.4 User message configuration.....	21
4.6 Starting the server manually.....	21
4.7 Shutting down the server manually .....	22
<b>5. Server Logs.....</b>	<b>22</b>
5.1 Log maintenance.....	22
<b>6. Troubleshooting .....</b>	<b>22</b>
Appendix A: Location & Operator configuration parameters.....	24
Appendix B: Discharge configuration parameters.....	26
Appendix C: Issue/Renew configuration parameters .....	29
Appendix D: Item media configuration parameters.....	32
Appendix E: Other configuration parameters.....	34
Appendix F: Payment configuration parameters.....	35
Appendix G: Timeout configuration parameters .....	37
Appendix H: User messages.....	38
Appendix I: Offline (store-and-forward) .....	47

# 1. Introduction

This document describes how to install and configure The Bridge Lite Server - and comprises the following sections:

Section 1, **Introduction**, being this section.

[Section 2, Version history](#), explains how the system evolved and what features were added to each one of its versions.

[Section 3, Installation](#), takes you through the download and installation procedures.

[Section 4, Configuration and start-up](#), describes how to configure and start the newly installed server. Follow the instructions appropriate to your installation, whether that's an upgrade from previous versions or a first time installation.

[Section 5, Operation Logging](#), explains how to audit the server's operation, including what logs are created and how to read them.

[Section 6, Troubleshooting](#), contains helpful tips in case a client device can't connect or log on to the server.

[Appendix A](#) through to [Appendix G](#) list the server's configuration parameters and explains how to change them to adapt the server's operation to your library self-service policy.

[Appendix H](#) contains all default messages that the server sends to the client for display when an operation is either refused or the server needs to alert the client to take special action.

Finally, [Appendix J](#) explains how Offline (Store-And-Forward) operates.

Note that for the purpose of this document, the following conventions are used:

Term	Description
Client	Any third party library device that connects to the server using the SIP2 protocol. Current clients include self-check and self-payment devices from 3M, Talkingtech (Talis Message), Intellident, 2CQR, Lorensbergs, Plescon, Codeco, Insight Media (iCAM), Salford Software (GPAS), D-Tech, etc.
Self-check	Any library automation device dealing with patrons (borrowers) and library material.
Service	The service provided by the server to a specific client. The service conforms to the SIP2 protocol but may be configured to suit local circulation policy or different self-check operating characteristics, for example, self-checks with payment facilities or self-checks with sorting facilities.
Service configuration	The set of software parameter settings that configure the service. The server's configuration provides the ability to individually configure the service provided to its clients via configuration files. See Appendices A – G for a full list of the available configuration parameters.
Service configuration file	The file that contains all parameter settings for a particular service. The service, as defined by the configuration file, may be shared by more than one self-check device.

## 2. Version history

The product was originally developed under the name **SIP2 server** and it was intended to serve the 3M self-check and Talkingtech's i-tiva known also as Talis Message. At the end of 2004 it was renamed as **SelfServ** with its first release being 1.0. SelfServ 1.1 added support for fee payment self-service devices while SelfServ 1.2 added further support for self-service stations with sorting capabilities, issue of items from the reservation shelf, as well as a more comprehensive alert capability at discharge to include item messages. In 2007 SelfServ was renamed BridgeLite and its first version, BridgeLite 1.0, is SelfServ1.2 with some defect fixes.

The following section describes the new functionality introduced and (where appropriate) the PERs addressed by each release.

### 2.1 What's new in SelfServ 1.0

#### 2.1.1 New operational model

The original server system ran as a group of client-server pairs. Each pair was configured to communicate via a different (but fixed) TCP/IP port: the server was launched by its own start script to listen to its assigned port and the client was configured to connect to that port. No login was required.

SelfServ uses a single listening port and all clients are expected to connect to that port. On connection SelfServ automatically launches a new server process and it requires the client to first login (by sending the SIP2 Login message) before it may be allowed to use the service. SelfServ that will always provide a new server process upon a connection request from a client.

#### 2.1.2 Increased robustness

The server now recovers automatically from network problems or loss of communication. There is no need for operator intervention to restart the server – the server will always grant requests for a new connection. If, in the event of connection loss, the self-check does not automatically request a new connection from the server, then all that needs to be done is to force a self-check software reboot.

#### 2.1.3 Automatic shutdown/restart

The service is automatically stopped and started via the server's run-time scripts when the system is shut down and restarted (UNIX reboot).

#### 2.1.4 New home directory

The new software is located in its own directory, namely `/usr/opt/blcmp/sip2`.

#### 2.1.5 Client configuration

All client machines must be configured to:

- 1) Point to the server's single listening port
- 2) Send the Login message to log in to the server
- 3) Set the client's keep-alive time interval on which to send the status message in order to keep the connection to the server alive.

### 2.1.6 Server configuration

In addition to the service configuration, the server must now be configured to listen to a single port and let client machines log in through the protocol's Login message.

### 2.1.7 New logs

Logging has been improved to cover in finer detail the interaction between client machines and the server.

### 2.1.8 More borrower information

The server now returns overdue items, recalled items, items currently on loan, reserved items waiting collection, and reserved items not yet available (unsatisfied or still active reservations). You should contact your self-check supplier and ask them how to take advantage of these features.

### 2.1.9 Hire charge acknowledgement

The server now returns the hire charge incurred by an issue or renew and also supports the protocol option to cancel the transaction if the borrower does not agree to it. You should contact your self-check supplier and ask them how to take advantage of this feature.

### 2.1.10 Magnetic media

Support has been added to the server to enable self-check units to checkout and discharge videos and other magnetic material.

### 2.1.11 PERS included in SelfServ 1.0

#### **Talis Message - order of items (PER no. CIRC434)**

When reporting item information Talis Message now reports items in due date. That is, the item due back soonest is given first.

#### **Due date format (PER no. CIRC439)**

Issue and renew dates are now displayed in the same format on self-check machines.

#### **Borrower unblocking (PER no. CIRC442)**

If automatic unblocking is used, the server now removes the blocking message from a borrower that no longer matches the blocking criteria.

#### **Outstanding charge limit (PER no. CIRC443)**

A new configuration variable, `TAL_SELF_CHARGE_LIMIT`, has been introduced to provide, in conjunction with `TAL_SELF_CHARGE`, finer control over item issue/renew for borrowers with outstanding charges. If it is set to a value between 0.01 and 999.99 and `TAL_SELF_CHARGE` is set to YES then an issue or renewal for a borrower with an outstanding charge will be allowed provided the charge does not exceed the limit specified.

### 2.1.12 Defects fixed in SelfServ 1.0

#### **Amendment to start\_sip2\_server script (Defect no. CIRC789)**

The way in which the script checks whether a SIP2 process is already running has been amended to avoid incorrect processes being identified.

### Square brackets in titles (Defect no. CIRC793)

All occurrences of square brackets in titles are now replaced by round brackets.

### Query items in loan counts (Defect no. CIRC803)

Query items are no longer included when a borrower's loan and loan type counts are calculated for self-issue or self-renew.

## 2.2 What's new in SelfServ version 1.1

### 2.2.1 Fee payments

Support was added for transacting with self-service fee payment stations. The server will feed the station with detailed borrower fee information and accept fee payments from it. Fee payments will be automatically forwarded to Talis LMS and update the borrower's account.

## 2.3 What's new in SelfServ version 1.2

### 2.3.1 Sorting

Sorters are self-check systems equipped with multiple bins that can separate returned items into different bins for easier and quicker re-shelving. Bridge supports two types of sorting, sorter based sorting and server based sorting: In the former case the server returns item location related information and the sorter uses it in its software sort matrix to determine the bin number to which the discharged item is sorted. In the latter case, the sorter relies on the server to calculate the correct bin number and return it to the sorter. The calculation depends on the library branch physical layout and the number of the available bins.

In both cases the library and/or the partner must contact Talis to let us know the required sorting along with the sorting criteria - we will carry out all the required bespoke work on the library's Bridge installation to satisfy the requirement.

### 2.3.2 Alert

By default, a self-check will be alerted by the server when the discharged item is either actively reserved or is required at another branch (i.e. the item's home site is not the branch of return). This feature allows libraries to separate returned items with messages into special bins for further processing.

The server can be customized to alert the self-check when additional conditions hold at self return: messages attached, item ready for rotation, etc. To enable the additional alert, the customer must contact Talis and let us know the additional conditions - we will carry out all the required bespoke work on the library's Bridge installation to satisfy the requirement.

### 2.3.3 Alert screen message

When the server alerts the self-check terminal to take special action at an item's discharge it does not by default send a user message for display onto the terminal's VDU. In general, self-checks can be configured to respond to the server's alert as libraries see fit (for example, display a message that directs the user to place the item into a special bin or channel the returned item into a specific bin without involving the user). If you want the server to send such a message (for example, to instruct the user to take a special action) then edit the **checkin\_messages** configuration file and add text to the line with message tag **Alert\_message**. For example:

```
Alert_message = Please place the item into the red bin
```

### 2.3.4 Issue of items waiting collection

Libraries can now set up self-service stations to issue items from the reservation shelf. The server will ensure that these items will only be issued to the borrowers for which they are reserved.

### 2.3.5 Cancellation of incomplete transactions (applies to some self-check systems, notably 3M)

A client-server transaction (discharge, issue, renew) can fail when the borrower removes the item from the self-check system after the transaction has been committed by the server but *before* the item has been sensitised/desensitised. The transaction is now in an inconsistent state: it has been committed by Talis LMS but not by the self-check because the item is not sensitised/desensitised. For example, if this happens at an item's discharge, the borrower can walk out with the book never to return it. To prevent this from happening, the self-check sends the reverse request (discharge for issue and renew, issue for discharge) with a cancel flag so that the server rolls back the previously committed transaction rather than creating a new transaction.

In previous versions, the server was ignoring the cancel flag and was creating new transactions instead of cancelling the previous transaction. This caused the creation of unnecessary and confusing transactions (for example, an item being issued, discharged, and issued again to the same borrower at the same time).

This has now been fixed: the server removes the committed transactions from the database as if they never occurred.

### 2.3.6 Numeric limits in user messages

The user messages that the server sends to the self-check for display will now contain explicit numeric limits. For example, the message “*You have reached your maximum number of loans*” will now read “*You have reached your maximum number of 7 loans*”. Similarly, the message “*You reached your maximum number of renewals for this item*” can now read “*You have reached your maximum number of 8 renewals for this item*”.

### 2.3.7 Alternative homesite rule

There is now an alternative to the TAL\_HOMESITE\_IN configuration parameter for specifying the locations that will be considered as home locations by a self-check terminal at discharge. You may instead use the parameter TAL\_HOMESITES to specify the home sites explicitly. For example:

```
TAL_LOCATION = AA
```

```
TAL_HOMESITES = AL, ACC, ML
```

The server will now consider any item whose active site is AA, AL, ACC or ML as being returned to its home site.

### 2.3.8 Option for omitting the numeric identifiers from user messages

Previous server versions appended a unique numeric identifier in brackets to each message sent to the Self-check terminals, for example the message “Unknown Borrower” was being sent as “Unknown Borrower [1]”. Its purpose was to ensure that customers and Talis Support can trace the message to the underlying condition or exception when this is not possible from the message text itself. This may occur when more than one message has exactly the same text. There is now a configuration parameter, OMIT\_MESSAGE\_ID, which when set to YES will force the server to drop the numeric id from the message end.

## 2.4 What's new in BridgeLite1.0

In this version, two defects have been fixed and a new optional customization option has been added.

### 2.4.1 Issue from the reservation shelf

When an item was discharged from the reservation shelf and self-issued, the `BORROWER_ID` of the reserver rather than the reservation shelf was added to the discharge row in the database. This caused the loan to the reservation shelf to display in the reserver's loan history in Alto and Prism.

### 2.4.2 Expired borrower card and fines

When a borrower whose card had expired returned an overdue item then the fine, if any, was recorded as incurred by the borrower that had most recently used the machine, rather than the borrower that actually returned the overdue item.

### 2.4.3 Further blocking of issues/renewals through customization

In cases where the existing configuration parameters can't capture library-specific issue and/or renew blocking conditions, it may be achieved through customization.

To enable the additional issue and/or renew blocking, please contact Talis and let us know the additional conditions. We will carry out all the required bespoke work on the library's Bridge installation to satisfy the requirement.

## 2.5 What's new in BridgePro 1.0

In BridgePro 1.0, support has been added for offline self service operation. The server configuration has been simplified and extended to allow:

- More flexibility to the renew of reserved items
- Loans that exceed a borrower's expiry date
- Payment without transaction id
- The option to replace the default operator "Self Issue" of offline transactions with a new operator (say "Offline")

### 2.5.1 Change of 3d party device Login

To simplify the server's configuration, the way the client machines log in was changed to supply the client's name and the Talis location code (*operating location code*) where the client machine operates. In previous versions, the server configuration required as many configuration files as different locations with self service machines used; that is, every self service branch required at least one configuration file since the location code was specified in a configuration file.

In addition to this, the *collocated codes* (the Talis location codes that along with the operating location code considered also home sites) were also specified in the configuration file (configuration variables `TAL_HOMESITE_IN` or `TAL_HOMESITES`). Now both the operating location as well as the collocated codes must be supplied in the machine's Login message - see [Client configuration](#) for more details.

### 2.5.2 Support for offline operation

Self service machines can now operate without connection to the server (offline mode) and upload the offline transactions (upload mode) when the machines re-establish the connection to the server. The server will store

the offline transactions in Talis LMS using the actual (offline) transaction times and will backdate appropriately all applied fees (fines, hire or reservation charges).

Furthermore, the server will also create separate offline logs to record the offline transactions that were impossible to accept as well as all returns that at real time would have been placed by the machine into a special bin or book-shelf (reserved-item, send-to-other-library-item, etc). Staff will thus be able to manually correct all failed transactions and process all returns that need further attention by simply inspecting the offline log. An offline log will be created for each machine that uploads offline transactions.

A new configuration variable, namely `TAL_OFFLINE_OPERATOR`, was added to set the operator for offline transactions. If not defined, the operator will default to the one used for on-line operation, i.e., “Self Issue” or the name provided by the machine at login – see configuration variable `TAL_LOAN_OPERATOR`, [Appendix A](#), for more detail about the operator used for on-line transactions.

Please contact your supplier to find out how to configure your self-check machines to operate in offline mode and upload the offline transactions when the connection is restored.

For more details on offline operation see [Appendix J](#).

### 2.5.3 Allowing issue/renewals to exceed Borrower’s expiry date

A new configuration variable - `TAL_AUTOEXTEND` - was added to allow an issue/renewal to run its full course when the due date exceeds the borrower’s expiry date. This will only apply to borrower cards that are not expired at the time of issue/renew.

### 2.5.4 Allowing renewal of (actively) reserved items

A new configuration variable - `TAL_RENEW_WHEN_RESERVED` - was added to allow renewal of items that are actively reserved. Previous versions only allowed the issue of such items through configuration variable `TAL_ISSUE_WHEN_RESERVED`.

### 2.5.5 Self service payment transaction id made optional

A new variable - `FEE_TRANS_ID` - is added to configure the server to refuse payments that do not supply a (unique) machine generated transaction id. Supplying a transaction id facilitates audit of machine payment transactions versus Talis LMS credit transactions but it is no longer mandatory. If your policy requires the machine to provide transaction ids then you must set `FEE_TRANS_ID` to YES.

## 2.6 What Is New in Bridge Pro 1.5

### 2.6.1 Option to treat renewals as unseen

Due to the ability of self issue kiosks to offer renewal without requiring the item’s physical presence, some customers prefer that Bridge treat renewals as unseen and thus reduce renewal limit to that of unseen renewals.

To achieve this, set configuration variable `TAL_RENEW_ACTION_ID` (see [Appendix B](#)) as follows:

```
TAL_RENEW_ACTION_ID = OBR
```

### 2.6.2 Overpayments & Credit

Alto 4.3 introduced credit to allow self issue overpayment in case the machine runs out of change. Bridge can now be customized to accept overpayment and record it as credit. An upper credit limit can also be enforced so that it doesn’t grow indefinitely. It should be used only with kiosks that support credit display and allow overpayment. Please note that although at present credit can only be consumed at the counter, it will nevertheless be used by Bridge to offset outstanding fees (fines, charges, etc.) that may block issue or renewal.

### 2.6.3 Borrower email

Bridge can now be customized to return the borrower's email to support kiosks that offer the option of emailing rather than printing of receipts. The customization can take into account customers that don't use the standard Alto method for storing the borrower's email in the Talis LMS.

### 2.6.4 Offline Improvements

The following improvements were introduced:

#### Disallow upload of out-of-order offline issue

Bridge now rejects offline issues that are uploaded out-of-order or the kiosk attempts to upload an offline issue more than once. The former may occur when an item is discharged offline at kiosk A, then issued at kiosk B but the upload takes place in order B, A. The latter may occur when, for any reason, the kiosk's offline batch is not cleared properly after being uploaded.

#### Improve clarity of Offline log messages

Their wording changed to describe precisely the underlying error condition – for more detail see [Appendix I](#).

### 2.6.5 Self-Issue of Age Restricted AV Material

To conform to Trading Standards unsupervised self-issue kiosks need authenticate borrowers by asking them to provide their PIN whenever an age restricted item is checked out. Bridge can be customized to support PIN authentication at issue of age restricted material.

#### Pre-requisites

The above method can be applied to customers that meet the following conditions:

1. Talis LMS loan rules already prevent under age borrowers checking out age restricted items. Bridge will not check if the loan rules observe the age restriction rules – it assumes that they do.
2. The PIN is already in use – the customer's library members, or their majority in the least, have been allocated PINs. Please contact Talis to discuss what to do if not all members have been allocated PINs.
3. Age restricted items are tagged as "Not for offline use" to prevent unauthorized checkout during offline operation (neither barcode nor PIN can be ascertained).

### 2.6.6 Automatic Item Relocation for Dynamic Stock System

Some libraries operate a dynamic stock system whereby an item discharged at a site will remain at the discharge site and become re-sited there (known as "sticky stock"). Bridge can now be customized to automatically re-site returned items according to the library rules; this will eliminate manual re-siting at the counter stations and also reduce 'losing' stock when items are being shelved at the return site without re-siting.

### 2.6.7 Borrower Unblocking

By default Bridge will unblock a borrower **only when** the underlying blocking conditions do not hold **and** the borrower attempts to either issue or renew an item. If the borrower logs on to the kiosk, views account information, discharges or makes payments that potentially remove the blocking conditions without attempting to issue/renew, then the blocking message won't be expired.

Bridge can now be configured to expire the blocking message when the user logs in (requires borrower's card scanning) and logs out of the kiosk.

To force unblocking set FORCE\_BORROWER\_UNBLOCK (see [Appendix A](#)) as follows:

FORCE\_BORROWER\_UNBLOCK = YES

### 2.6.8 Inclusion of Fine in the receipt (applies to 3M only)

Bridge can now direct the machine to include a configurable text in its receipt for overdue items that caused the borrower to incur fines. See the new configuration variable FINE\_PRINT\_LINE in [Appendix B](#).

### 2.6.9 Inclusion of symbol ‘£’ in fine message

Monetary values in the fine message sent to the machine for display will be preceded by sign ‘£’ rather than ‘#’ – (see relevant message, Tag = Fine info (message ID = [11]), in [Appendix F](#)).

## 3. Installation

This installation process comprises the following steps:

- Check that the host machine has adequate disk space
- Download the software
- Install the software
- Check the update log files to ensure the installation completed successfully
- Install the server’s run time control scripts

### 3.1 Installation prerequisites

The following conditions are prerequisites for loading the software:

1. At least 3.1 Mb of disk space free in **/scratch** to perform the load. To check the disk space available, enter the following commands:

```
cd /scratch <Enter>
df -k . <Enter>
```

If you do not have sufficient disk space, delete any unwanted backups or surplus files.

2. You need 20Mb of disk space free in **/usr/opt/blcmp**. To confirm this, enter the following commands:

```
cd /usr/opt/blcmp <Enter>
df -k . <Enter>
```

Check that the “avail” column shows a figure of 20,000 or greater. If there is *less* than this amount free in **/usr/opt/blcmp** this will need to be expanded. In this case contact Talis Support before loading this software.

### 3.2 Download the software

The file to download is called BridgeLite and is 3220480 bytes in size. It should be downloaded to your **/scratch** directory.

#### To download the BridgePro file

1. Log in as **talis** and change directory:

```
cd /scratch
```

2. Connect to the Talis **ftp** server:

```
ftp ftp.talis.com
```

If the following text (or similar) is displayed, you can proceed to step 3.

```
Connected to ft p.talis.com.
220- ---- Talis Information Limited ----
220-
220 ftp.talis.com FTP server ready.
Name (ftp.talis.com:talis):
```

If you cannot access the Talis **ftp** server, it is likely that there is no route between your machine and the **ftp.talis.com** machine. If so, consult your network support staff.

3. Log in to the ftp server using your member login and password.
4. Enter the following commands:

```
cd BridgePro_1.0
prompt
bin
get BridgePro
```

The file should now begin to download to your Talis machine.

5. Once the file has completed downloading, type the following to leave the ftp program:

```
quit
```

### 3.3 Installing the software

The software will only take a few minutes to install. It can be installed while Talis users are logged on. However, please note the following:

- If you have two or more clients and the software on them is not shared, you must install the software onto each machine.
- Ensure that the server is not running when this software is installed. To do this, you must shut down the server by running the command **kill\_sip2\_server**. If upgrading from any SelfServ version, run the command from **/usr/opt/blcmp/sip2/bin**. If upgrading from the older SIP2 server, run the command from **/usr/opt/blcmp/talis/bin**.

#### To install the software

1. Log on as the user **talis**.
2. Enter the following command:  

```
cd /usr/opt/blcmp/bin
```
3. Enter the command to access the menu for installing the software:

```
load_update BridgePro
```

The following menu is displayed:

*Figure 1: First Intermediate Revision Utilities Menu*

```
Talis Information Ltd
Intermediate Revision Utilities

1. talis
2. tutor_talis
3. EXIT
```

```
Please select option: 1
```

Note that the contents of this menu are constructed dynamically, so the options shown on your system may differ from those shown above if you do not have a tutor system.

- Select the **talis** option.

The following menu is displayed, allowing you to identify the file from which the update is to be taken:

*Figure 2: Second Intermediate Revision Utilities Menu*

```

Talis Information Ltd
Intermediate Revision Utilities

If loading from a Talis tape enter the tape device name
e.g. /dev/rmt/0

..or if loading from a file enter the full pathname
e.g. /scratch/BridgePro

(or type EXIT to finish):
```

- Select the option to load from a file, since the file should be present in **/scratch**.

The system will indicate where output is being written and prompt you to enter the database to be upgraded, for example:

*Figure 3: Update Progress Log*

```

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Intermediate Revision Utilities

Recording output in file:
  /usr/opt/blcmp/tmp/update.[date][time]

Start time : [date][time]

TALIS - BridgePro
  OK to continue (y/n)?:

Enter target Database name [prod_talis]:

running scripts for database: prod_talis
  OK to continue (y/n)?:

[contents of the update progress log]

...

End time : [date][time]

update execution complete

Output recorded in file:
  /usr/opt/blcmp/tmp/update.[date].[time]

Press <Enter> to continue:
```

6. When the update is complete you will be prompted to press **<Enter>** to continue.  
You are returned to the second Intermediate Revision Utilities menu.
7. Exit from the **load\_update** script again by typing **EXIT**.  
You are returned to the first Intermediate Revision Utilities menu.
8. Select the **Exit** option to exit.  
The script will confirm when you exit:

Figure 4: Exiting load\_update

```
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Intermediate Revision Utilities

..Exited load_update
```

This completes the installation. Proceed to check the log file.

### 3.4 Checking the update log file

The log file provides details of the start and end date and time of the update. You are advised to check this before configuring and running the server.

The full path and file name of the log file is:

**/usr/opt/blcmp/tmp/update.[date].[time].**

In addition, a copy of the update script is created. The full path and file name of the update script is:

**/usr/opt/blcmp/talis/update/update.[date].[time].**

where **update.[date].[time]** matches those of the log file. This can prove useful if it's subsequently necessary to investigate a particular update.

### 3.5 Install the Server's Runtime Control (RC) scripts

You can skip this step if you are upgrading from a previous SelfServ or BridgeLite version.

Once installed, the runtime control scripts will automatically stop and restart the server at system reboot. This helps maximize the server's availability.

To install the server's runtime control scripts you must:

Log on as **root**

Move to directory **/usr/opt/blcmp/sip2/rc\_scripts**

Enter the following command:

```
./install_sip2_rc_scripts <enter>
```

## 4. Configuration and start-up

To configure and start the newly installed server you should choose and follow the instructions from one of the following sections:

[4.1 First time installation](#)

[4.2 Upgrading from SelfServ1.0, 1.1 or 1.2](#)

[4.3 Upgrading from the SIP2 server](#)

## 4.1 First time installation

To install the server for the first time:

1. Edit the server's start script to specify the server's listening port (see [Start script configuration](#)).
2. Start the server manually (see [Starting the server manually](#)).

Create the configuration files (see [Service configuration](#)).

Edit the server's login configuration file to let the clients log on to the server (see [Login configuration](#)).

Configure the clients to connect and login to the server (see [Client configuration](#)).

Edit the user message files if you want to change the user messages (see [User message configuration](#)).

Check that the clients can log in to the server. If there are any problems then refer to [Troubleshooting](#).

## 4.2 Upgrading from SelfServ or BridgeLite

If you are upgrading from SelfServ or BridgeLite, please follow the instructions below.

1. Reconfigure all the client machines to send the Login message so that it conforms to the new format – for more details see [Client configuration](#).
2. If your start script (**start\_sip2\_server** in directory `/usr/opt/blcmp/sip2/bin`) was starting the server on port 2000 and managing the server's logs in directory `/scratch/sip2_logs`, then you can proceed to step 2. Otherwise, you must copy the port (see [PORT\\_NUMBER variable](#)) and the log directory (see [LOG\\_DIR variable](#)) from the old start script, saved under the name **start\_sip2\_server.save**, to the new one loaded with version 1.2.
3. Start the newly installed server. Move to the directory `/usr/opt/blcmp/sip2/bin` and enter the following command:

```
start_sip2_server
```

4. If you have not changed the user message files (**checkin\_messages**, **checkout\_messages**, **renew\_messages** in directory `/usr/opt/blcmp/sip2/control`) then proceed to step 4. Otherwise, you must copy the modified text from the old user message files to the new ones provided with version 1.2. Note that the installation renames your old user message files as **checkin\_messages.save**, **checkout\_messages.save**, **renew\_messages.save** before installing the new ones.

You should also decide if you want to change any of the new user messages provided. See [Appendix H: User messages](#) for more details.

5. You should decide if you want to use any of the new configuration settings provided with version 1.2 (see Appendices A to G). Copy any you wish to use to your existing local configuration files.

## 4.3 Upgrading from Talis SIP2 server

To upgrade from the Talis SIP2 server:

1. Edit the server's start script to specify the server's single listening port - you can reuse one of the ports used in the old system (see [start script configuration](#)).
2. Start the server manually (see [Starting the server manually](#)).
3. Recreate the configuration files in directory `/usr/opt/blcmp/sip2/control` using the configuration templates provided (**selfcheck.cfg** for self-check units and **telephony.cfg** for Talis Message) and then edit them to match the settings in the old copies in directory `/usr/opt/blcmp/talis/control`. You should also decide if you want to use any of the new settings (see [Service configuration](#)).
4. Re-configure the clients to 'talk' to the new server (see [Client configuration](#)).

**NOTE:** To reconfigure Talis Message you must contact Talkingtech.

5. Edit the server's login configuration file to let the clients log on to the server (see [Login configuration](#)).
6. If you have not edited the user message files (**checkin\_messages**, **checkout\_message**, **renew\_messages**) in directory **/usr/opt/blcmp/talis/control** then there is nothing to be done. If you have, then you must copy the modified text to the new user message files in **/usr/opt/blcmp/sip2/control**. You should also decide if you want to modify the new messages (added in subsequent versions) to adapt them to your local policy (see [User message configuration](#)).
7. Check that the clients can log in to the server. If there are any problems then refer to [Troubleshooting](#).
8. Remove from the cron any line(s) previously used to start and kill the individual SIP2 servers. The server now gets shutdown and restarted at system reboot by its Runtime Control scripts. If you still need to stop and restart the server at times other than at system reboot then change the cron references to refer to **start\_sip2\_server** and **kill\_sip2\_server** in their new location **/usr/opt/blcmp/sip2/bin**.
9. Delete the old SIP2 software as follows:

- Delete the SIP2 files from **/usr/opt/blcmp/talis/bin**. The command:

```
rm -i *sip2*
```

will remove the files supplied by Talis, prompting you to confirm the deletion. You should also delete any local SIP2 specific files not removed by this command.

- Delete the following files from **/usr/opt/blcmp/talis/control**

```
3M.cfg  
checkin_messages  
checkout_messages  
renew_messages  
telemessage.cfg
```

- Delete any local SIP2 specific **.cfg** and message files
- Delete the SIP2 stored procedures from **/usr/opt/blcmp/talis/database/proc** using the following command:

```
rm -i SIP2*
```

## 4.4 Client configuration

You will need first to devise a unique name for each client. The name will be used to log in to the server and create log files to audit each client-server interaction individually.

Each client must be configured to:

- Connect to the server's single listening port.
- Upon connection, send the SIP2 Login message to identify itself and indicate the Talis location code of the branch/site where the machine will operate (see below for more details).
- Set the client's keep-alive time interval on which to send the status message in order to keep the connection (to the server) alive. The server has a timer that is restarted every time it is contacted. If the timer expires, the server will drop the connection. The server's default timeout period is 6 minutes but it can be modified to make it a couple of minutes longer than the client's keep-alive period (see [CONNECTION\\_TIMEOUT](#) in [Appendix F: Timeout configuration parameters](#)). Alternatively, the client can be configured so that its keep-alive time interval is shorter (by a couple of minutes) than the server's timeout period.

The Login message includes 3 fields:

1. **Login user id** (machine name), this is the machine's unique name. The server will use this name to check if the machine is in its login configuration – see [Login configuration](#) below - to determine the configuration

settings to apply to the provided service and it will also use it to name the server log where the client's interaction (exchanged messages) with the server is recorded.

2. **Login password**, the password login is currently fixed to "taliss00"
3. **Location code**, this is the Talis location code of the library branch where the machine operates followed by the location codes, if any, of the collocated branches, separated by comma (",")

Example1: machine named *ML\_selfissue* operates at location *ML*

The machine must send the Login message (<login user id>, <login password>, <location code>) as follows:

**<ML\_selfissue>, <taliss00>, <ML>**

Example2: machine named *ML\_selfissue* operates at location *ML* with locations *CL* and *DL* also considered homes sites

The machine must send the Login message (<login user id>, <login password>, <location code>) as follows:

**<ML\_selfissue>, <taliss00>, <ML, CL, DL>**

Instructions for configuring the client machine are partner specific; please contact your partner for more details about how to do this. The partner may configure the machine on your behalf.

## 4.5 Server configuration

### 4.5.1 Start script configuration

The server's start script is **start\_sip2\_server** in the **/usr/opt/blcmp/sip2/bin** directory and it contains the following parameters:

- **PORT\_NUMBER:** This is the TCP/IP port that the server will listen to. All client devices must point to this port. The default is 2000 but this may be changed if it is already used by another product.
- **CONFIG\_DIR:** This is the directory where all configuration files reside. The default is **BLCMP\_HOME/sip2/control** and it should NEVER be changed.
- **LOG\_DIR:** This is the directory where all transaction log files will be created. The default is **/scratch/sip2\_logs**. We suggest that you retain the default **/scratch/sip2\_logs** so that Talis Support can quickly locate the log files if a problem arises.

### 4.5.2 Service configuration

To configure the service provided to a client you need to:

1. Create a local configuration file by copying one of the defaults provided and then edit it to adapt it to local policy. Alternatively, you can use an already created configuration file if two or more client devices should have the same configuration.
2. Associate the configuration file with the client. The server will use the associated configuration file to configure the service it provides when the client logs in to the server. See section [Login configuration](#) below for how to achieve this.

The default configuration templates should be used to create local copies as follows:

- Use **selfcheck.cfg** for self-check devices with or without self-payment facility
- Use **telephony.cfg** for Talkingtech's Talis Message
- Use **selfpay.cfg** for devices dedicated to self-payment only

You can change the settings in the configuration files at any time while the server is in operation - there is no need to stop and restart the server. The changes will take effect the next time the client reconnects to the server. You can force reconnection at any time by either rebooting or switching off and on the client.

For a full list of the available settings and their effect, please refer to Appendices A to G.

### 4.5.3 Login configuration

The server's login configuration file **sip2\_login.cfg** must include the following line for each client:

**client\_name = configuration\_file**

where:

- ◆ **client\_name** is the name supplied in the Login message (in field <location code>) sent by the client machine
- ◆ **configuration\_file** is the file that contains the settings that will configure the service provided to that client.

Example of **sip2\_login.cfg** file

```
self_issue1 = issue.cfg
self_issue2 = issue.cfg
self_disch1 = discharge.cfg
kiosk1      = kiosk.cfg
t1m1       = t1m.cfg
t1m2       = t1m.cfg
t1m3       = t1m.cfg
t1m4       = t1m.cfg
```

There are three self-check units, named **self\_issue1**, **self\_issue2** and **self\_disch1**. The service provided by the server to **self\_issue1** and **self\_issue2** is configured by the settings contained in the file **issue.cfg** and the service provided to **self\_disch1** is configured by the settings contained in the file **discharge.cfg**. Those two files were originally copied from the **selfcheck.cfg** template supplied and then edited to suit library circulation policy.

There is also a self-payment only device, named **kiosk1** whose service is configured by the settings contained in configuration file **kiosk.cfg** which is a local copy of template **selfpay.cfg**.

The remaining four clients, **t1m1**, **t1m2**, **t1m3** and **t1m4**, are the names assigned to Talis Message's four telephone lines. The service provided by the server to all four lines is configured by the file **t1m.cfg** which was originally copied from the provide template **telephony.cfg** and then edited to adapt it to the library's telephone renewal policy.

To add a new client at any time, simply append a new line to **sip2\_login.cfg**. There is no need to stop and restart the server.

### 4.5.4 User message configuration

The user message files **checkin\_messages**, **checkout\_messages** and **renew\_messages** in the directory **/usr/opt/blcmp/sip2/control** contain the default user messages that the server sends to the client machine for display when either an operation (discharge, issue, renew) is refused or the user is alerted to take special action (for example, to place book in a special bin). Customers can modify the files to adapt the user messages to local context. For a full list of the available user messages and their associated condition see [Appendix H: User messages](#).

## 4.6 Starting the server manually

To start the server for the first time, move to the directory **/usr/opt/blcmp/sip2/bin** and enter the following command:

**start\_sip2\_server**

This will start the server as a background process and will return you to your normal UNIX prompt. This UNIX session can then be used as normal or can be closed. The server will continue running in the background.

The server can be left running once it has been started. It will automatically be brought down and up again when the system is rebooted.

## 4.7 Shutting down the server manually

To stop the server, move to the directory `/usr/opt/blcmp/sip2/bin` and enter the following command:

```
kill_sip2_server
```

This will force all server processes that are currently serving self-checks to terminate. To restart the server, refer to the section [Starting the server manually](#).

## 5. Server Logs

All interaction (exchanged messages) between the server and any client, as well as diagnostic messages in cases of trouble, are logged as follows:

- A client's request to connect to the server will be logged in **SIP2.log**.
- Then, until the client logs in successfully, interaction will be logged in **SIP2\_LOGIN.log**. If the client fails to login then please look at this log for a diagnostic message.
- Once the client has logged in successfully all interaction will be logged in the file **client\_name.log** where **client\_name** is the name supplied in field <location code> of the Login message request.

The log files are appended until they are renamed or removed. The server will automatically recreate any log that is renamed or removed.

### 5.1 Log maintenance

We suggest that at the beginning of each month you clear all logs by moving them to a subdirectory, (for example `/scratch/sip2_logs/old_logs`). The server will automatically recreate the required logs. It is up to you how many months log files you want to keep – they are required in situations where client/server transaction auditing is necessary.

## 6. Troubleshooting

Improper configuration may give rise to connection or login problems. When a client attempts to establish a TCP/IP connection with the server, the connection gets logged in the `/scratch/sip2_logs/SIP2.log` file as follows: "Connection (x) accepted", where x is a number ranging from 1 to 99. Once the connection is established, all login problems will be reported in the `/scratch/sip2_logs/SIP2_LOGIN.log` file.

Some common connection and login problems (and solutions) are provided in the following table.

Problem Description	Solution
A client cannot connect to the server.	Check that the client is pointing to the server's listening port. Check that the firewall allows communication between the server and the client machine.
Login fails with the message " <i>Illegal Login message</i> "	Reconfigure the client to send first the Login message in accordance with the SIP2 protocol
Login fails with the message " <i>Login message was expected</i> "	Configure the client to send the <i>Login</i> message. It should be the first message sent by the client.
Login fails with the message " <i>Login failed: location code was not supplied in Login request</i> "	Configure the client to include a location code in the <i>Login</i> message sent to the server.

Problem Description	Solution
Login fails with the message “ <i>Login failed: unknown location code was supplied by Login request: &lt;xxx&gt;</i> ”	Check the following: <ul style="list-style-type: none"><li>◆ the configuration directory is specified correctly in the <b>start_sip2_server</b> script. It should always be <b>/usr/opt/blcmp/sip2/control</b></li><li>◆ <b>sip2_login.cfg</b> contains the line <b>xxx=zzz.cfg</b>, where <b>zzz.cfg</b> denotes a configuration file</li><li>◆ the configuration file <b>zzz.cfg</b> exists in the configuration directory</li></ul>
Login fails with the message “ <i>Location not found in database</i> ”	Check TAL_LOCATION in the configuration file: <ul style="list-style-type: none"><li>◆ If it is misspelled then correct it</li><li>◆ If it does not exist in the database then you may need to create it</li></ul>

# Appendix A: Location & Operator configuration parameters

---

The table below contains the parameters that are currently used to configure the location, action id and create operator of the self service client. You must assign a location code to TAL\_LOCATION and decide if the default values of the other two parameters should be left unchanged. Parameters highlighted in Gray (like this) are obsolete.

Parameter	Description	Added in Version
FORCE_BORROWER_UNBLOCK	Setting it to YES will force Bridge to evaluate and remove the blocking message, if applicable, as soon as the user removes their card. Note that unblocking will take place only when auto unblock is enabled in the LMS. <i>Mandatory</i> <i>Value range:</i> NO, YES <i>Default:</i> NO	Pro 1.5
TAL_LOCATION	The location code of the client machine. Also, the CREATE_LOCATION used when an new transaction is inserted into a database table (LOAN for issue, renew and discharge, BORROWER_CREDIT for payments) <i>Mandatory</i> <i>Value range:</i> LOCATION.LOCATION_ID <i>Default:</i> none <i>Example:</i> CL	SIP2 server
TAL_LOAN_ACTION_ID	The ACTION_ID used when an issue/discharge/renew transaction is inserted into the LOAN table <i>Mandatory</i> <i>Value range:</i> CLIS, OBR <i>Default:</i> <b>CLIS</b> for a self-check, <b>OBR</b> for Talis Message	SIP2 server

Parameter	Description	Added in Version
TAL_LOAN_OPERATOR	<p>The CREATE_OPERATOR used when a new transaction is inserted into a database table (LOAN for issue, renew and discharge, BORROWER_CREDIT for payments)</p> <p><i>Optional</i></p> <p><i>Value range:</i> Any name, maximum 10 characters</p> <p><i>Default:</i> <b>Self Issue</b> for a self-check, <b>Telephone</b> for Talis Message</p> <p><b>NOTE:</b> If you want to audit, or draw reports of, self issue loan and payment transactions per machine name then we suggest that you comment out the parameter – Bridge will use the client’s name instead of the generic name <b>Self Issue</b> as operator to record the transaction in Talis LMS</p>	SIP2 server
TAL_OFFLINE_OPERATOR	<p>The CREATE_OPERATOR used when an offline transaction is uploaded into Talis LMS loan table</p> <p><i>Optional</i></p> <p><i>Value range:</i> Any name, maximum 10 characters</p> <p><i>Default:</i> TAL_CREATE_OPERATOR</p>	BridgePro1.0
TAL_RENEW_ACTION_ID	<p>The ACTION_ID used when a renew transaction is inserted into the LOAN table</p> <p><i>Mandatory</i></p> <p><i>Value range:</i> CLIS, OBR</p> <p><i>Default:</i> <b>CLIS</b>; if <b>OBR</b> is used then Bridge will treat the renewal as unseen and it will apply the relevant limit</p>	Pro 1.5

# Appendix B: Discharge configuration parameters

---

The table below contains the parameters that are currently used to configure the discharge operation. Each parameter has a default value that should be changed if it does not fit your library self service policy. Please read carefully and amend if necessary. Parameters highlighted in gray ([like this](#)) are obsolete.

Parameter	Description	Version
MESSAGE_ALERT_OK	Is there a locally defined message condition that may require the server to alert the self-check when a returned item satisfies it? <i>Optional</i> <i>Value range:</i> YES/NO; <i>Default:</i> NO	SelfServ 1.2
BOOKSORT_OK	Should the server return booksort information at discharge? <i>Optional</i> <i>Value range:</i> YES/NO; <i>Default:</i> NO NOTE: Use this option when the sorter (self-check with multiple bins) has a software sort matrix that can be programmed to determine the bin that the item is sorted into (for more information, refer to section 2.3.1).	SelfServ 1.2
FINE_PRINT_LINE	The text to be sent to 3M's print receipt for every discharge of overdue items that incur fines. Bridge will insert the incurred fine in the text after the character '£' - if not present, the fine won't be inserted. NOTE: '£' may appear/display as '\243' in the text when using the vi editor on Unix Talis machines. <i>Optional</i> <i>Value range:</i> any text <i>Default:</i> empty (no text) <i>Example:</i> FINE_PRINT_LINE = Fine due £	Pro 1.5
SORTBIN_OK	Should the server calculate and return to the sorter the bin number in which the discharged item should be placed? <i>Optional</i> <i>Value range:</i> YES/NO; <i>Default:</i> NO NOTE: Use this option when the sorter expects the server to calculate the bin into which the item is sorted at discharge (for more information, refer to section 2.3.1).	SelfServ 1.2

Parameter	Description	Version
TAL_HOMESITE_DISCHARGE_ONLY	Should items not being returned to a home site be discharged? The homesite rule (i.e. which item active site ids are considered homesite) is defined by TAL_HOMESITE_IN or TAL_HOMESITES <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO <i>Default behaviour:</i> Items are always discharged regardless of their active site id but the server alerts the self-check when the homesite rule determines that the item's active site id is not considered as one of its homesites.	SIP2 server
TAL_HOMESITE_IN  <b>Obsolete</b>	Number of leading characters that will be matched against TAL_LOCATION to decide if an item's active site id is a homesite. <i>Optional</i> <i>Value range:</i> 0-up to TAL_LOCATION length <i>Default behaviour:</i> If left empty then only TAL_LOCATION will be considered homesite NOTE: Specify 0 (zero) if you want all locations to be considered homesite.	SIP2 server
TAL_HOMESITES  If set takes precedence over TAL_HOMESITE_IN  <b>Obsolete</b>	An alternative way to specify the homesite rule. All locations listed here (in addition to TAL_LOCATION) will be considered as homesites. If you only want TAL_LOCATION to be the homesite then only use TAL_LOCATION. <i>Optional</i> <i>Value range:</i> a comma separated list of locations <i>Example:</i> TAL_LOCATION = N TAL_HOMESITES = AC, AB, CD Locations N, AC, AB, CD are considered homesite	SelfServ 1.2
TAL_NON_DISCHARGEABLE_ITEMS	Item types that are not self-dischargeable (discharge will be refused by the server). <i>Optional</i> <i>Value range:</i> a comma separated list of item types <i>Example:</i> NRES,S,TB,LPNF	SIP2 server
TAL_NON_DISCHARGEABLE_LOANS	Loan types that are not self-dischargeable (discharge will be refused by the server). <i>Optional</i> <i>Value range:</i> a comma separated list of loan types <i>Example:</i> AD10,AJ9	SIP2 server
TAL_NO_DISCHARGE_WHEN_FINED	Refuse discharge of items with a fine? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO <i>Default behaviour:</i> Items with a fine will be discharged.	SIP2 server

Parameter	Description	Version
TAL_NO_DISCHARGE_WHEN_RESERVED	Refuse discharge of reserved items? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO <i>Default behaviour:</i> The item will be discharged but the self-check will be alerted to take special action (for example, place the item into a special bin)	SIP2 server
TAL_NOT_ON_LOAN_DISCHARGE	Accept discharge of items not on loan? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO When set to YES, an attempt to discharge an item that is not on loan is accepted but the LOAN table is not updated.	SIP2 server
TAL_QUERY_DISCHARGE	Accept discharge of query items? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	SIP2 server
TAL_QUERY_FINESTOP  Applies <u>only</u> when TAL_QUERY_DISCHARGE = YES	Does the fine due on an item query override the fine on discharge? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	SIP2 server

# Appendix C: Issue/Renew configuration parameters

The table below contains the parameters that are currently used to configure the issue and renew operations. Each parameter has a default value that should be changed if it does not fit your library's self service policy. Please read this carefully.

Parameter	Description	Added in Version
TAL_AUTOCHOP	Are issue/renew dates brought forward to the borrower's expiry date when the calculated due date exceeds expiry date? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	SIP2 server
TAL_AUTOEXTEND	Shall issues/renews be allowed to extend beyond the borrower's expiry date? This may apply only to borrowers whose card has not expired at the time of issue/renew. <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	BridgePro1.0
TAL_BOOKING_INTERCEPT	May an item's issue or renewal be blocked due to bookings? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	SIP2 server
TAL_BOOKING_NO_SLOT  Applies <u>only</u> when TAL_BOOKING_INTERCEPT = YES.	If set to YES the due date is calculated using the normal Loan Rule parameters, otherwise the due date defaults to the end of the current booking slot. <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	SIP2 server
TAL_RENEW_AT_ISSUE_SITE	Should the site of the original issue instead of TAL_LOCATION be used as the site for the renewal? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO	SIP2 server
TAL_SELF_CHARGE	Should outstanding charges prevent borrowers from issuing/renewing library material? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> YES <i>Default behaviour:</i> Borrowers with outstanding charges will be refused further issues/renewals. You can use TAL_SELF_CHARGE_LIMIT to relax this rule up to a specified amount of money.	SIP2 Server

Parameter	Description	Added in Version
TAL_SELF_CHARGE_LIMIT  Applies <u>only</u> when TAL_SELF_CHARGE = YES	Ignore outstanding charges on issue and renewal up to and including this limit. <i>Optional</i> <i>Value range:</i> Numeric between 0.01 and 999.99 <i>Example:</i> 20.00 – only borrowers with outstanding charges above £20.00 will be refused issues/renewals.	SelfServ1.0
TAL_SELF_FINE_LIMIT	Disallow renewal if the fine, if any, exceeds this limit. <i>Optional</i> <i>Value range:</i> Numeric between 0.01 and 999.99 <i>Example:</i> 9.99 <i>Default behaviour:</i> If left blank then it is assumed to be 0.0 and any item with an overdue fee will be refused renewal.	SIP2 server
TAL_SELF_HIRE_LIMIT	Disallow issue/renewal if the hire charge exceeds this limit. <i>Optional</i> <i>Value range:</i> Numeric between 0.01 and 999.99 <i>Example:</i> 3.5 <i>Default behaviour:</i> If left blank then it is assumed to be 0.0 and any item with a rental fee will be refused issue or renewal.	SIP2 server
TAL_SELF_MESSAGE_LEVEL	Ignore borrower and item messages whose IGNORE_LEVEL is less than this level. <i>Optional</i> <i>Value range:</i> Numeric between 0 and 10; <i>Default:</i> 0 <i>Default behaviour:</i> TAL_SELF_MESSAGE_LEVEL=0 will block issue/renewal when either the borrower or item has a message of any level.	SIP2 server
TAL_SELF_OVERDUE	Should overdue items prevent a borrower from issuing/renewing? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> YES <i>Default behaviour:</i> All borrowers with one or more overdue items will be refused further issues/renewals.	SIP2 server
TAL_SELF_RECALL	Should recalled items prevent a borrower from issuing/renewing? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> YES <i>Default behaviour:</i> All borrowers with one or more recalled items will be refused further issues/renewals.	SIP2 server

Parameter	Description	Added in Version
TAL_ISSUE_WHEN_RESERVED	Are actively reserved items available for issue? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO <i>Default behaviour:</i> All actively reserved items are refused issue.	SIP2 server
TAL_RENEW_WHEN_RESERVED	Are actively reserved items available for renewal? <i>Optional</i> <i>Value range:</i> YES, NO <i>Default:</i> NO <i>Default behaviour:</i> All actively reserved items are refused renewal.	BridgePro1.0

# Appendix D: Item media configuration parameters

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The following applies only to magnetic material that is either issued or discharged by self-checks that are not RFID based.

The server may assist issue and discharge of magnetic material so as to prevent its content being accidentally erased by the self-check's desensitisation unit.

To enable the server to assist the self-check to handle magnetic media, a Talis LMS business rule must be defined. The rule may be based on either the physical medium of the item's associated WORK (PHYSICAL\_MEDIUM attribute held in the MONO\_008 table) or the item's format type (FORMAT\_ID attribute held in ITEM table). For more information see PHYSICAL\_MEDIUM or FORMAT\_ID configuration options in the table below. When defined, the rule will be used by the server to deduce the following material properties of the item:

1. Is the item magnetic media?
2. If it is magnetic media then is it a videocassette?

Both properties are required for 3M self-check units because they can only desensitise and resensitise videocassettes (and not, for example, audiocassettes). For some other self-checks, only the first property is required as they may sensitise and desensitise all items with magnetic content.

If this configuration option is enabled then the following self-check behaviour will apply:

1. 3M self-check units *without* a Video Checkout Unit (VCU) will refuse the issue and discharge of all magnetic material
2. 3M self-check units *with* a VCU will allow the issue/discharge of videocassettes and refuse the issue and discharge of other magnetic material (e.g. audiocassettes)
3. Self-check units of other makes that are able to sensitise and desensitise all magnetic material will allow any magnetic item to be issued or discharged.

The FORMAT\_ID\_POLICY or PHYSICAL\_MEDIUM\_POLICY is used to determine the server's policy when an item's media type can't be determined by the rule because the item's attribute value is stored in the database as either NULL or empty. If the policy is set to STRICT then the server will refuse to issue or discharge the item. The message 'This item cannot be self-issued' or 'This item cannot be self-discharged' will be sent to the self-check for display on its monitor. To change this message, edit the <message\_text> part of the following line in **checkin\_messages** and **checkout\_messages** files:

**Unknown\_media\_type** = <message\_text>

Parameter	Description	Added in Version
FORMAT_ID_MAGNETIC	Item format codes that denote magnetic media. <i>Optional</i> <i>Value range:</i> A comma separated list of item format codes. <i>Example:</i> AC,VC,FI,MI	SelfServ1.0

Parameter	Description	Added in Version
FORMAT_ID_VIDEO	<p>Item format code(s) that denote video tapes.</p> <p><i>Optional</i></p> <p><i>Value range:</i> A comma separated list of item format codes. It can be left empty when the library has no videos, the self-check is not equipped with a VCU (Video Checkout Unit) or the self-check is capable of (de)sensitising all magnetic media. The code (s) must be provided when the 3M self-check has a VCU.</p> <p><i>Example:</i> VC</p>	SelfServ1.0
FORMAT_ID_POLICY	<p>The policy that the server will apply when an item's FORMAT_ID is NULL or empty.</p> <p><i>Optional</i></p> <p><i>Value range:</i> STRICT, NON_STRICT</p> <p>STRICT causes the server to refuse the item's issue or discharge because its magnetic type can't be determined by the format id rule.</p> <p>NON_STRICT forces the server to assume that the item's content is non-magnetic.</p>	SelfServ1.0
PHYSICAL_MEDIUM_MAGNETIC	<p>Physical medium codes that denote magnetic media.</p> <p><i>Optional</i></p> <p><i>Value range:</i> A comma separated list of physical medium codes.</p> <p><i>Example:</i> k,l,q,f</p>	SelfServ1.0
PHYSICAL_MEDIUM_VIDEO	<p>Physical medium code(s) that denote video tapes.</p> <p><i>Optional</i></p> <p><i>Value range:</i> A comma separated list of physical medium codes. It can be left empty when the library has no videos, the self-check is not equipped with a VCU (Video Checkout Unit) or the self-check is capable of (de)sensitising all magnetic media. The code (s) must be provided when the 3M self-check has a VCU.</p> <p><i>Example:</i> f</p>	SelfServ1.0
PHYSICAL_MEDIUM_POLICY	<p>The policy that the server will apply when an item's PHYSICAL_MEDIUM is NULL or empty.</p> <p><i>Optional</i></p> <p><i>Value range:</i> STRICT, NON_STRICT</p> <p>STRICT causes the server to refuse the item's issue or discharge because its magnetic type can't be determined by the physical medium rule.</p> <p>NON_STRICT forces the server to assume that the item's content is non-magnetic.</p>	SelfServ1.0

## Appendix E: Other configuration parameters

Parameter	Description	Added in Version
DUE_DATE_FORMAT	<p>Format of the due date field in Issue, Renew and Item information responses.</p> <p><i>Optional</i></p> <p><u>Default for Talis Message</u> – <b>DO NOT CHANGE!</b>            yyyy[0]mm[0]dd [0]hh[0]mi[0]ss      e.g. 20040301 203000</p> <p><u>Default for self-checks:</u>            [0]dd/[0]mm/yyyy [0]hh:[0]mi      e.g. 01/03/2004 20:30</p> <p><u>Other valid formats are:</u>            [0]dd/[0]mm/yyyy      e.g. 01/03/2004            [0]dd/[0]mm/yyyy [0]hh:[0]mi:[0]ss      e.g.: 01/03/2004 20:30:00            dd/mm/yyyy      e.g. 1/3/2004            dd/mm/yyyy hh:mi      e.g. 1/3/2004 20:30            dd/mm/yy/hh:mi:ss      e.g. 1/3/2004 20:30:0            yyyy/[0]mm/[0]dd      e.g. 2004/01/13            yyyy/[0]mm/[0]dd [0]hh:[0]mi      e.g. 2004/01/13 20:30            yyyy/[0]mm/[0]dd [0]hh:[0]mi:[0]ss      e.g. 2004/01/13 20:30:00            yyyy/mm/dd      e.g. 2004/1/1            yyyy/mm/dd hh:mi      e.g. 2004/1/1 20:30            yyyy/mm/dd hh:mi:ss      e.g. 2004/1/1 20:30:0</p>	SIP2 server
OMIT_MESSAGE_ID	<p>Should the server drop from user messages the numeric message identifier that gets appended at the end of the message?</p> <p><i>Optional</i></p> <p>Value range: YES/NO; Default: NO</p>	SelfServ 1.2

# Appendix F: Payment configuration parameters

To configure the server to return Borrower fine information and accept payment requests you must create a local service configuration using one of the available configuration templates.

- If the third party device is a dedicated self-payment machine (e.g., Lorensbergs Kiosk), use template **selfpay.cfg**.
- If the device is also used for checking in and out library material (e.g., Intellident's Paragon Smart Kiosk), use template **selfcheck.cfg**.

There are two payment related parameters, FEE\_PAYMENT\_OK and BORROWER\_CREDIT\_NOTE. For information about all other parameters, please refer to the appropriate appendices.

- FEE\_PAYMENT\_OK tells the server if fine details should be included in the patron (library member) information message returned to the self-payment device (for display), and if payment requests from it should be accepted.
- BORROWER\_CREDIT\_NOTE defines the note that is attached to the transaction record inserted in Talis LMS when a payment is made.



**Note:** When the service is configured to enable payment then the patron's total outstanding balance is calculated to be equal to the sum of the unpaid fines rather than the total of all unpaid fees (fines, hire charges, reservations, miscellaneous). In other words, hire charges, reservations and miscellaneous are excluded from the total. The reason for this is to maintain consistency between the total amount and the fines displayed by ensuring that total = sum (fines).

Parameter	Description	Added in Version
FEE_PAYMENT_OK	Is the client device going to request fee information from the server and send payment requests? <i>Optional</i> <i>Value range:</i> YES/NO; <i>Default:</i> YES in selfpay.cfg, NO in selfcheck.cfg	SelfServ1.1
BORROWER_CREDIT_NOTE	The text added to the NOTE attribute when a payment transaction is inserted into the BORROWER_CREDIT table. The note will contain the transaction id (a unique numerical identifier) generated in the self payment device to enable audit. <i>Optional</i> <i>Value range:</i> Any text that contains the symbol '#' to indicate the position of the self-payment device's transaction id <i>Default:</i> Transaction id # <i>Example 1:</i> NetLoan transaction id # <i>Example 2:</i> GPAS transaction id #	SelfServ1.2

Parameter	Description	Added in Version
TRANS_FEE_ID	Is a transaction payment identifier required from the self payment device? <i>Optional</i> <hr/> <i>Value range: YES/NO; Default: NO</i>	BridgePro1.0

# Appendix G: Timeout configuration parameters

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Parameter	Description	Added in Version
CONNECTION_TIMEOUT	<p>Maximum period (in seconds) the server will keep the connection alive with no contact from the client. The client must keep alive the connection when there is no user activity by sending a Status (keep alive) message before the server's timer expires. When the server receives a message, the timer is reset.</p> <p><i>Optional</i>  <i>Value range:</i> Integer <i>Default:</i> 360 (6 minutes)</p> <p>You can increase this value to say 1200 (20 mins), 1560 (25 mins), 3600 (one hour), ... and reconfigure the client to send keep alive messages in 19, 24, 59 mins respectively so as to reduce the size of the logs in case of client inactivity.</p> <p><b><u>IMPORTANT NOTE:</u></b> You should not set it to 0 as this will disable the server's timer - the client won't be required to send keep-alive messages anymore but the server won't be able to shutdown unused server processes (client connections that are not in use anymore but were not properly closed by the self-check machines).</p>	SelfServ1.0
RESPONSE_TIMEOUT	<p>Maximum period a client may wait for a response from the server. If the server is unable to respond to a request within this period (usually due to database overload) it shuts down with an appropriate message.</p> <p><i>Optional</i>  <i>Value range:</i> Integer <i>Default:</i> 60 (1 minute)</p> <p><b>This should only be changed in consultation with Talis.</b></p>	SelfServ1.0

# Appendix H: User messages

When a checkout, renew or checkin operation is refused the server includes in its response a user message that describes the underlying exception. The self-check machine is expected to display the user message on its monitor to inform and guide the user through the operation.

The default user messages for all possible exceptions in checkin, checkout and renew can be found in the configuration files **checkin\_messages**, **checkout\_messages** and **renew\_messages** and can be edited to adapt them to local context.

Each message has been assigned a unique number that it is appended to the message when it is sent to the self-check. It enables libraries to change the text and retain traceability to the underlying exception when one or more messages have exactly the same text. To unset this option, edit the configuration file and add the following line:

```
OMIT_MESSAGE_ID = YES
```



**Note:** Talis Message ignores the user messages because it has no display unit. It instead uses fixed pre-recorded messages to relay transaction failure/success to the user.

## Message Format

The following format is used to illustrate the messages returned by the server:

```
[Id]   Tag  
      Text  
      Condition
```

Where:

[Id] = the message's unique numeric identifier  
Tag = the message's tag  
Text = the message's default text  
Condition = the functional condition that generates the message

Check-in (Discharge) User Messages		
ID	Tag, Text, Condition	Added
[1]	Unknown_item <i>This item cannot be self-discharged. Please take it to the circulation desk [1]</i> There is no ITEM with the supplied item barcode	SIP2 server
[2]	Not_on_loan <i>This item is not on loan [2]</i> There is no current LOAN for the supplied item barcode <b>and</b> TAL_NOT_ON_LOAN_DISCHARGE = NO	SIP2 server

Check-in (Discharge) User Messages		
ID	Tag, Text, Condition	Added
[3]	<p>Fine</p> <p><i>This item cannot be self-discharged. The fine due is £,xx.yy. Please take it to the circulation desk [3]</i></p> <p>Overdue fine &gt; 0.0 and TAL_NO_DISCHARGE_WHEN_FINED = YES</p>	SIP2 server
[4]	<p>Reserved</p> <p><i>This item is reserved by another borrower. Please take it to the circulation desk [4]</i></p> <p>Item is actively reserved <b>and</b> TAL_NO_DISCHARGE_WHEN_RESERVED = YES</p>	SIP2 server
[5]	<p>Homesite</p> <p><i>This is not the correct home site for this item so it cannot be self-discharged [5]</i></p> <p>Item is not at home site <b>and</b> TAL_HOMESITE_DISCHARGE_ONLY = YES</p>	SIP2 server
[6]	<p>Item_query</p> <p><i>There is a query relating to this item so it cannot be self-discharged. Please take it to the circulation desk [6]</i></p> <p>Item has a query attached to it <b>and</b> TAL_QUERY_DISCHARGE = NO</p>	SIP2 server
[7]	<p>Non_dischargeable_item</p> <p><i>This type of item cannot be self-discharged. Please take it to the circulation desk [7]</i></p> <p>Item's type id appears in TAL_NON_DISCHARGEABLE_ITEMS list</p>	SIP2 server
[8]	<p>Non_dischargeable_loan</p> <p><i>This type of loan cannot be self-discharged. Please take the item to the circulation desk [8]</i></p> <p>Item's loan type appears in TAL_NON_DISCHARGEABLE_LOANS list</p>	SIP2 server
[9]	<p>Reserved_info</p> <p><i>This item has been successfully discharged but will need the attention of library staff [9]</i></p> <p>Item is actively reserved <b>and</b> TAL_NO_DISCHARGE_WHEN_RESERVED = NO</p> <p><b>OBSELETE - NOT IN USE ANY MORE</b></p>	<p>SIP2 server</p> <p>Removed in SelfServ 1.2</p>
[10]	<p>Homesite_info</p> <p><i>This item has been successfully discharged but will need the attention of library staff [10]</i></p> <p>Item is not at homesite <b>and</b> TAL_HOMESITE_DISCHARGE_ONLY = NO</p> <p><b>OBSELETE - NOT IN USE ANY MORE</b></p>	<p>SIP2 server</p> <p>Removed in SelfServ 1.2</p>

Check-in (Discharge) User Messages		
ID	Tag, Text, Condition	Added
[11]	<p>Fine_info</p> <p><i>This item has been successfully discharged. The fine due is £. This amount has been added to your borrower record [11]</i></p> <p>Overdue fine &gt; 0.0 and TAL_NO_DISCHARGE_WHEN_FINED = NO</p>	SIP2 server
[12]	Not in use	
[13]	<p>Unknown_media_type</p> <p><i>This item cannot be self-discharged [13]</i></p> <p>The item's magnetic media can't be established. The item's PHYSICAL_MEDIUM or ITEM_FORMAT media rule in the configuration file cannot be applied because the item's associated attribute (MONO_008.PHYSICAL_MEDIUM or ITEM.FORMAT_ID) is either blank or NULL and the rule's policy is set to STRICT</p>	SelfServ1.0
[14]	<p>Cancel_error</p> <p><i>No checkout to cancel [14]</i></p> <p>This message may appear when the self-check terminal violates the SIP2 cancel protocol. It can be ignored.</p>	SelfServ 1.2
[15]	<p>Hold_item</p> <p><i>This item can't be self-discharged [15]</i></p> <p>This message will appear when the item being discharged is waiting to be collected.</p>	SelfServ 1.2
[16]	<p>Alert_message</p> <p><i>User defined [16]</i></p> <p>This message will appear when the return of an item causes the server to alert the self-check. If it is not defined then no message will be sent to the self-check for display.</p>	SelfServ 1.2

Check-out (Issue) User Messages		
ID	Tag, Text, Condition	Added in Version
[1]	<p>Another_borrower</p> <p><i>This item is on loan to another borrower [1]</i></p> <p>The item is on loan to a different borrower.</p>	SIP2 server
[2]	<p>No_loan_rule</p> <p><i>This item cannot be self-issued [2]</i></p> <p>There is no loan rule for the supplied borrower/item/site combination.</p>	SIP2 server

Check-out (Issue) User Messages		
ID	Tag, Text, Condition	Added in Version
[3]	<p>No_CS_renewal_policy</p> <p><i>Selfcheck is not allowed to renew items [3]</i></p> <p>The self-check has not been configured to allow renewals. To enable renewals the self-check must be re-configured and the <b>SC renewal policy</b> option set to Y.</p>	SIP2 server
[4]	<p>Unknown_borrower</p> <p><i>Unknown borrower [4]</i></p> <p>The borrower card has expired, the borrower record has been deleted or the barcode supplied is not stored in the database.</p>	SIP2 server
[5]	<p>Unknown_item</p> <p><i>This item cannot be self-issued [5]</i></p> <p>The barcode supplied is not attached to an item in the database</p>	SIP2 server
[6]	<p>Overdue_loans</p> <p><i>You have # overdue loans [6]</i></p> <p>Borrower's overdue count &gt; 0 <b>and</b> TAL_SELF_OVERDUE = YES</p>	SIP2 server Modified in SelfServ 1.2
[7]	<p>Recalled_loans</p> <p><i>You have # recalled loans [7]</i></p> <p>Borrower's recall count &gt; 0 <b>and</b> TAL_SELF_RECALL = YES</p>	SIP2 server Modified in SelfServ 1.2
[8]	<p>Borrower_message</p> <p><i>You have a message on your borrower record [8]</i></p> <p>Borrower has at least one message whose IGNORE_LEVEL &gt;= TAL_SELF_MESSAGE_LEVEL</p>	SIP2 server
[9]	<p>Outstanding_charges</p> <p><i>You have outstanding charges [9]</i></p> <p>Borrower's outstanding charges &gt; TAL_SELF_CHARGE_LIMIT <b>and</b> TAL_SELF_CHARGE = YES</p>	SIP2 server
[10]	<p>Loan_limit_reached</p> <p><i>You have reached your maximum of # loans [10]</i></p> <p>Borrower's count of current loans &gt;= BORROWER_RULE.LOAN_TOTAL_LIMIT</p>	SIP2 server Modified in SelfServ 1.2

Check-out (Issue) User Messages		
ID	Tag, Text, Condition	Added in Version
[11]	<p>Loan_type_limit_reached</p> <p><i>You have reached your maximum of # loans of this type [11]</i></p> <p>Borrower attempts to create a loan for a loan type whose current count is already equal to LOAN_TYPE_GROUP.MAX_LOANS</p>	<p>SIP2 server</p> <p>Modified in SelfServ 1.2</p>
[12]	<p>Item_message</p> <p><i>This item cannot be self-issued [12]</i></p> <p>Item has one or more messages whose IGNORE_LEVEL &gt;= TAL_SELF_MESSAGE_LEVEL</p>	SIP2 server
[13]	<p>Not_loanable_status</p> <p><i>This item cannot be self-issued [13]</i></p> <p>The item's STATUS_ID indicates it is not available for loan (ITEM.STATUS_ID &lt;&gt; 5)</p>	SIP2 server
[14]	<p>Reserved</p> <p><i>This item is reserved by another borrower [14]</i></p> <p>There is an active reservation on the item <b>and</b> TAL_ISSUE_WHEN_RESERVED = NO</p>	SIP2 server
[15]	<p>Project_loan</p> <p><i>This is a project loan item [15]</i></p> <p>Item is a parent or child item</p>	SIP2 server
[16]	<p>In_transit</p> <p><i>This item cannot be self-issued [16]</i></p> <p>The item is in transit</p>	SIP2 server
[17]	<p>No_due_date</p> <p><i>This item cannot be self-issued [17]</i></p> <p>A due date cannot be calculated because the necessary rules have not been set up</p>	SIP2 server
[18]	<p>Due_date_after_expiry</p> <p><i>Your ticket is about to expire [18]</i></p> <p>Item's projected due date is after borrower's expiry date and TAL_AUTOCHOP = NO</p>	SIP2 server
[19]	<p>Hire_charge</p> <p><i>Hire charge due [19]</i></p> <p>Hire charge &gt; 0.0 <b>and</b> Hire charge &gt; TAL_SELF_HIRE_LIMIT</p>	SIP2 server

Check-out (Issue) User Messages		
ID	Tag, Text, Condition	Added in Version
[20]	<p>Fully_booked</p> <p><i>This item is booked by another borrower [20]</i></p> <p>Borrower does not have a booking for the current slot and all available items are booked</p>	SIP2 server
[21]	<p>Due_back_after_booking</p> <p><i>This item is booked by another borrower [21]</i></p> <p>Item's projected due date is after earliest date/time of an active booking for the item</p>	SIP2 server
[22]	Not in use	
[23]	Not in use	
[24]	<p>Unknown_media_type</p> <p><i>This item can't be self-issued [24]</i></p> <p>Item's media type can't be determined – it applies only when the magnetic media rule has been defined – see Appendix D</p>	SelfServ1.0
[25]	<p>Another_holder</p> <p><i>This item is waiting to be collected by another borrower [25]</i></p> <p>The borrower is attempting to issue an item that is waiting to be collected by another borrower. This message may appear when the library is using self-service to issue items that are on the reservation shelf.</p>	SelfServ 1.2
[26]	<p>Hold_item</p> <p><i>This item can't be self-issued [26]</i></p> <p>This message will appear when there is a discrepancy between the state of the item and its associated reservation. Check the reservation and item online.</p>	SelfServ 1.2
[27]	<p>Cancel_error</p> <p><i>No discharge to cancel [27]</i></p> <p>This message may appear when the self-check terminal violates the SIP2 cancel protocol. It can be ignored.</p>	SelfServ 1.2

Renew User Messages		
ID	Tag, Text, Condition	Added in Version
[1]	Unknown_borrower <i>Unknown borrower [1]</i> The borrower card has expired, the borrower record has been deleted or the barcode supplied does not exist.	SIP2 server
[2]	Another_borrower <i>This item is on loan to another borrower [2]</i> The item is on loan to a different borrower	SIP2 server
[3]	Item_not_on_loan <i>This item is not on loan [3]</i> The item is not on loan	SIP2 server
[4]	Unknown_item <i>This item cannot be self-renewed [4]</i> The barcode supplied is not attached to an item in the database	SIP2 server
[5]	Overdue_loans <i>You have # overdue loans [5]</i> Borrower's overdue count > 0 <b>and</b> TAL_SELF_OVERDUE = YES	SIP2 server Modified in SelfServ 1.2
[6]	Recalled_loans <i>You have # recalled loans [6]</i> Borrower's recall count > 0 <b>and</b> TAL_SELF_RECALL = YES	SIP2 server Modified in SelfServ 1.2
[7]	Borrower_message <i>You have a message on your borrower record [7]</i> Borrower has at least one message whose IGNORE_LEVEL >= TAL_SELF_MESSAGE_LEVEL	SIP2 server
[8]	Outstanding_charges <i>You have outstanding charges [8]</i> Borrower's outstanding charges > TAL_SELF_CHARGE_LIMIT <b>and</b> TAL_SELF_CHARGE = YES	SIP2 server
[9]	Loan_limit_reached <i>You have reached your maximum of # loans [9]</i> Borrower's count of current loans >= BORROWER_RULE.LOAN_TOTAL_LIMIT	SIP2 server Modified in SelfServ 1.2

Renew User Messages		
ID	Tag, Text, Condition	Added in Version
[10]	Loan_type_limit_reached <i>You have reached your maximum of # loans of this type [10]</i> Borrower is attempting to create a loan for a loan type whose current count is already equal to LOAN_TYPE_GROUP.MAX_LOANS	SIP2 server Modified in SelfServ 1.2
[11]	Item_message <i>This item cannot be self-issued [11]</i> Item has one or more messages whose IGNORE_LEVEL >= TAL_SELF_MESSAGE_LEVEL	SIP2 server
[12]	Not_loanable_status <i>This item cannot be self-issued [12]</i> The item's STATUS_ID indicates is not available for loan (STATUS_ID <> 5)	SIP2 server
[13]	Interloan <i>Interloan [13]</i> The item is on interloan	SIP2 server
[14]	Reserved <i>This item is reserved by another borrower [14]</i> There is an active reservation on the item <b>and</b> TAL_ISSUE_WHEN_RESERVED = NO	SIP2 server
[15]	Renew_limit_reached <i>You have reached your maximum of # renewals [15]</i> Item's renew count = LOAN_TYPE_GROUP.MAX_RENEWS	SIP2 server Modified in SelfServ 1.2
[16]	Unseen_renew_limit_reached <i>You have reached your maximum of # unseen renewals [16]</i> Item's consecutive unseen renew count = LOAN_TYPE_GROUP.MAX_UNSEEN_RENEWS	SIP2 server Modified in SelfServ 1.2
[17]	Not_publicly_renewable <i>This item cannot be self renewed [17]</i> LOAN_TYPE_GROUP.PUBLIC_RENEW = 'F'	SIP2 server
[18]	Fine <i>Fine owing [18]</i> Overdue_fine > 0.0 <b>and</b> Overdue fine > TAL_SELF_FINE_LIMIT	SIP2 server

Renew User Messages		
ID	Tag, Text, Condition	Added in Version
[19]	No_due_date <i>This item cannot be self-renewed [19]</i> A due date cannot be calculated because the necessary rules have not been set up	SIP2 server
[20]	Due_date_after_expiry <i>Your ticket is about to expire [20]</i> Item's projected due date is past borrower card's expiry date and TAL_AUTOCHOP = NO	SIP2 server
[21]	Hire_charge <i>Hire charge due [21]</i> Hire charge > 0.0 <b>and</b> Hire charge > TAL_SELF_HIRE_LIMIT	SIP2 server
[22]	Fully_booked <i>This item is booked by another borrower [22]</i> Borrower does not have a booking for the current slot and all available items are booked	SIP2 server
[23]	Due_back_after_booking <i>This item is booked by another borrower [23]</i> Item's projected due date is after earliest date/time of an active booking for the item	SIP2 server
[24]	Not in use	
[25]	Item_on_hold <i>Item is waiting collection [25]</i> Renew is refused because the item is waiting collection	SelfServ 1.2

# Appendix I: Offline (store-and-forward)

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## Introduction

The SIP2 protocol's term for the Offline operation is 'store-and-forward' and is a facility that takes place in two stages.

- ◆ The **store (offline)** phase, where the machine has no connection with the Talis LMS (through the TalisBridge server) and therefore stores the *offline transactions* in the machine itself
- ◆ The **forward (upload)** phase where the machine fast forwards the locally stored offline transactions to the Talis LMS (through the TalisBridge server)

The 'store-and-forward' phases are self-issue machine modes. The mode switch may be affected manually or automatically although the automatic mode switch may not be always reliable. (Note that these modes are determined by your self-check supplier, so contact them for more information). 'Store' will last as long as is necessary, and 'forward' only a few seconds or minutes depending on the duration of store.

During 'forward', there is no user interaction. Therefore, the duration will depend on how fast Bridge can respond to the machine forwarding the offline transactions (which in turn will depend on how fast the database server can respond to Bridge requesting retrieval and update).

There are two forward methods, *single* forward and *multiple* forward.

- ◆ During **single** forward, the machine can be switched to forward mode as many times as necessary. Each time will only forward the offline transactions that were rejected by the server *in the last attempt*. After each forwarding, the machine will report the transactions that failed along with the reason for the rejection. The server always sends a diagnostic explaining why the machine's request was rejected (e.g. 'unknown item'). Several forward attempts may be required if related offline transactions are forwarded in the wrong order. This may happen when more than one machine at the same branch is being used during offline mode.
- ◆ During **multiple** forward, the machine forwards once and the user relies on the server's offline logs to manually correct the offline transactions whose forwarding was rejected by the server.

## Server and self-check time synchronization

To ensure offline transactions are uploaded successfully and recorded correctly in the Talis LMS, the self-check machine internal clocks must be synchronized with the Talis machine that hosts the BridgePro server. This can be usually achieved by installing a time server that all hardware in the library's domain uses to synchronize. For more details, please contact Talis support.

Lack of time synchronization between the self-check machines and the Talis machine may lead to rejection of offline transactions as the server won't accept offline transactions whose timings do not fit its host's (usually the Talis server machine time zone).

## Limitations

Lack of access to the circulation system imposes some limitations on the offline operation of the Self-Check system.

1. **Items not for self service can be inadvertently checked out.**

These can be any items whose issue would have been refused by the server. Depending on the self service policy these could be reserved items, items for which no loan rules have been set up in Talis LMS, etc.

**2. Magnetic media can be damaged by accidental processing in the cradle because the circulation system cannot identify an item as magnetic media and warn the Self-Check system not to try to desensitize the security strip.**

Note that this does not apply in cases where RFID is used

**3. Customer and item IDs can be confused if a customer scans one or the other at the wrong time (for example, if a customer scans an item ID when prompted for a customer ID).**

Please discuss this issue with your self-check supplier.

**4. Transactions can be processed out of order, which can invalidate some of the item data.**

This can be an issue if the library runs more than one Self-Check machine in offline mode and allows both *check-in* and *checkout* during this time. To minimize this problem,

- a) Use only one self-check machine and enable it for both *check-in* and *check-out*
- b) Use one machine running in *check-in-only* mode and all others in *check-out-only* mode and when in forward mode, let first the check-in-only machine forward all its transactions *before* forwarding starts from all others.

If you still decide to run more than one machine in multiple modes then you may either need to switch the machines into forward mode more than once or use the server's offline logs to manually record the rejected transactions.

**5. Manual updates may be necessary**

If transactions fail during the forwarding process, a log of the failed transactions is generated by the server for the librarian to review. At that point, the librarian must manually update the circulation system based on the report's entries.

**6. Customers who have had their library privileges suspended will be able to check items out**

Unless the machine can store their IDs and stop them from issuing items during the offline operation.

**7. Sorters will not be operational**

Since sorters rely on the server to provide them with sorting criteria, offline operation will not be possible.

## 8. Alert feature will not be available

The alert feature enables self issue machines to separate returned items that need further processing (reserved-item, send-to-other-branch-item, item-to-be-rotated, etc.) into a special bin/shelf. Since alert relies on the server, the facility will not be available during offline. Users can still locate and process these items once the returns have been forwarded to the server by inspecting the server's offline logs; all returns that would caused an alert are recorded along with the alert reason in the server's offline logs (see the reports section below).

# Reports

## Offline transactions that have not yet been sent to the server

Management of these transactions must take place at the self-check machine. This will enable the operator to ensure that the whole set of offline transactions has been sent to the server. The machine may lose connection during the upload of its offline transactions, therefore, it must be possible to restart the upload for the remaining ones.

## Offline transactions that were either rejected or need further processing

The server will create a separate log for each offline machine to report issues/renews/returns whose upload was rejected by the server as well as returns that were accepted but need further processing. They will be logged and time stamped in the order they were received during upload. The log will be located in the server's log directory (usually `/scratch/sip2_logs`) and it will be named **machine\_name\_offline.log**. The log will be appended to every time the server receives offline transactions, and will remain until it is manually removed by the library.



**Note:** The offline log is an additional report and it does not in any way affect the machine's normal log: all offline transactions will also be reported - in SIP protocol format - in the logs that the server maintains for every machine. Therefore, every offline machine will have two logs: **machine\_name.log** and **machine\_name\_offline.log**.

The inclusion of the rejected transactions into the offline log assumes that the machines will only upload once. If the machine re-sends rejected offline transactions then this may cause confusion when reading the offline log:

- ◆ If the transaction failed in the 1<sup>st</sup> attempt but succeeded in the 2<sup>nd</sup>, the log will contain the 1<sup>st</sup> (failed) attempt but not the 2<sup>nd</sup> that succeeded. The reader may mistakenly believe that the transaction has failed.
- ◆ If the transaction is rejected twice then it will also appear in the log twice.

To avoid these issues customers using these logs are advised to only upload once. Refer to the section **Server Offline Logs** below for more details

## Single upload

If the library decides to upload once and run more than one self-check system in offline mode that allows both issue and discharge, then it is possible for some transactions to be processed out of order during upload. The server will reject them. This may happen during the offline period when an item is discharged/issued from one machine and then issued/discharged at another machine and they are uploaded in the wrong order. To optimize single upload, your offline machine configuration must ensure that no offline transactions are received out of order.

## Multiple upload

Multiple upload can be used to get around the problem of uploading offline transactions out of order. Normally two uploads (and in rare cases three) will achieve acceptance of all offline transactions. The worst case scenario will depend on the number of times an item was issued and returned at different machines during offline.

For example, assume an item was returned at machine A, then issued at machine B and then returned at machine C. An upload in order A, B, C would accept all of them but the order B, A, C will only accept A (B and C will be rejected). The second upload in order B, C will accept both B and C but the order C, B will only accept B (C will be rejected and it will require a third upload).

## Offline exceptions

During upload, the server will refuse offline transactions under certain conditions that are described below. Please note that:

- ◆ **offline date-time** is supplied by the machine – it's the actual date the offline transaction took place
- ◆ **offline due date** is supplied by the machine – it's the issue/renew due date generated by the offline machine
- ◆ **TAL\_QUERY\_DISCHARGE** is a server configuration variable

### A. Discharge offline exceptions

1. Unknown item (item is not on file)
2. Item is not on loan (this may be due to out of order upload)
3. Item's status is queried (QUER) and **TAL\_QUERY\_DISCHARGE = NO**
4. Item is a project loan
5. Check-in time out of order – the offline date-time is chronologically before the item's last issue or renewal timestamp.
6. Check-in time not in the past – the offline date-time is chronologically after the server's current date-time.

Exception 5 prevents invalidating the item's history. A possible cause may be out-of-order upload. For example, item was discharged at machine m1 and then issued at machine m2 but the upload took place in the reverse order, i.e., m2, m1. The issue at m1 will be interpreted and recorded as renewal and this will cause the subsequently uploaded discharge to be rejected as out-of-order.

Exception 6 is due to a lack of synchronization between the Self-Check and the Talis machine clocks. Ensure the partner machines are synchronized with the LAN's time server. All other exceptions require staff to manually update the Talis LMS.

### B. Issue exceptions

1. Unknown item (item is not on file)
2. Unknown borrower (borrower not on file)
3. Borrower's card has expired
4. No loan rule for Item/Borrower/Location combination
5. Item is on loan to another borrower – this may be due to out of order upload
6. Item is on the reservation shelf for another borrower
7. Item is a project loan
8. Checkout time out of order – the offline date-time is chronologically before the item's most recent transaction.

9. Checkout time not in the past – the offline date-time is chronologically after the server's current date-time
10. Due date not in future - - the item was already overdue at the time of its issue

Exceptions 1 to 7 require staff to manually update the Talis LMS.

Exception 8 may be caused by out-of-order upload (item was discharged at machine m1 and then issued at machine m2 but the upload took place in the reverse order, i.e., m2, m1)

Exception 9 is caused by lack of synchronization between the self-check and the Talis machine clocks – ensure the partner machines are synchronized with the LAN's time server.

Exception 10 is caused by self-issue machine defect.

### C. Renew exceptions

1. Unknown item (item is not on file)
2. Unknown borrower (borrower not on file)
3. Borrower's card has expired
4. Borrower other than owner attempts to renew (this may be due to out of order upload)
5. Item is not on loan (this may be due to out of order upload)
6. Item is a project loan
7. Checkout time out of order – the offline date-time is chronologically before the item's most recent transaction.
8. Checkout time not in the past – the offline date-time is chronologically after the server's current date-time
9. Due date not in future - the item was already overdue at the time of its renewal!

Exceptions 1 to 6 require staff to manually update the Talis LMS.

Exception 7 may be caused by out-of-order upload – see Issue exceptions above for an example.

Exception 8 is caused by lack of synchronization between the self-check and the Talis machine clocks – ensure the partner machines are synchronized with the LAN's time server

Exception 10 is caused by self issue machine defect.

## Offline Discharge Alerts

During upload of offline discharges The server will report in the machine's offline log the following alert conditions:

- ◆ Reserved for local branch
- ◆ Reserved for other branch
- ◆ Interlibrary loan
- ◆ Send to another branch
- ◆ Customization condition(s): any additional alerts enabled through customization (for example, item is ready to be rotated to another library).

## Server Offline Logs

The server will automatically create (or append to it if already exists) all offline transactions that were rejected (see **Offline Exceptions** above) and all offline discharges (see **Offline Discharge Alerts** above) that would have caused the server to alert the machine when operating on on-line mode. The server will create a separate

log for each uploading machine by appending the word “offline” to its on-line log name. Example: “3MSO.log”, “3MSO\_offline.log”. The format of the offline log will be as follows:

### **Rejected transactions**

Issue/Renew failed: reason, borrower barcode, item barcode, item title

Discharge failed: reason, item barcode, item title

### **Examples**

*Issue failed: Unknown borrower, Borrower 280140765241123, Item 3801234567890123, “Stalingrad”*

*Discharge failed: Item is not on loan, Item 3801234567890111, “The fifth element”*

### **Alert on item return**

Discharge alert: reason, item barcode, Item title

### **Example**

*Discharge alert: Send to another branch, Item 3801234567890111, “The fifth element”*