The BIC Library Communication Framework
Improving communication between library systems

WELCOME TO THE BIC LCF NEWSLETTER
July 2018

This newsletter is a periodical publication written by Mick Fortune (Consultant for BIC, and Chair of both the BIC LCF Technical Panel and LCF Review Group) on behalf of BIC in order to update BIC members and non-members alike on news, implementation progress, and the ongoing development of LCF.

This is the first LCF newsletter, and so we'll spend a bit of time on the history and background to the framework in this edition.

1. Why We Made LCF & What It Is: A Bit of History

Libraries were perhaps a surprisingly early adopter of automated systems beginning with simple, barcode-driven circulation solutions in the 1970s. When cataloguing and acquisition processes became automated in the late 1970s /early 1980s the Library Management System (LMS) was born and ever since then newcomers to the sector have had to overcome the challenge of communicating with a wide range of existing and often highly proprietary products.

The first protocol – 3M's Standard Interchange Protocol (SIP):

One of the earliest of these challenges – in the 1980s – was posed by suppliers of self-service circulation services. The problem of interoperability – as it is now called – was partially solved in the late 1980s by the development of a common protocol – called SIP (for Standard Interchange Protocol) – which was developed by the 3M corporation to define the way in which their self-service systems could interact with the LMS. 3M eventually made the protocol freely available to all self-service suppliers and it quickly became a de facto standard for communication.

During the 1990s however three things conspired to diminish the effectiveness of SIP. Firstly self-service solutions became more sophisticated with the introduction of more functionality – such as the payment of fines and fees. Secondly new products – like asset booking systems - appeared on the market that also required links to the LMS. Finally Radio Frequency Identification (RFID) began to be used for both circulation and security and, over the ensuing decade for acquisition, accession and stock management as well.

SIP now had some major issues. 3M's response was to allow third party suppliers to use such elements of SIP as they could and use something they called 'extensions' to add additional ones. The problem was that no attempt was made to monitor or regularise these extensions and by the end of the 1990s SIP had become unwieldy.

During the early part of the 21st century systems evolved even faster with RFID companies and others becoming increasingly frustrated by the limitations of SIP. In the UK the supplier community, led by BIC, determined to do something about it. In early 2012 3M offered to donate SIP to BIC to extend its capabilities but by then work was already in progress on what was then called the BIC Library Communication Framework (BLCF) and BIC respectfully declined to accept the gift. In June of the same year SIP was instead donated to America's National Information Standards Organisation (NISO).

BLCF is born:

By the end of 2012 the framework had been renamed simply 'LCF' – the 'B' was dropped as American librarians thought it stood for Britain and supporters there wanted to increase the chances of it being accepted on both sides of the Atlantic (a dialogue that continues today).

The original aim of LCF's developers was to replace SIP with a more modern protocol built on web services that could operate more quickly and carry more information. Its relatively modest purpose was to enable self-service to operate more efficiently and with increased functionality but once

the market realised that it was potentially a way to extend interoperability across a wide range of third party/LMS operations interest grew. By the time of its official launch in November 2015 it had been acknowledged by all the significant suppliers of RFID self-service systems as their preferred way forward with six of them issuing a press release to that effect on launch day. By 2016 the list included all the major LMS companies as well as other service providers such as Solus and Insight Media working with BIC to extend its potential.

Since then LCF has continued to grow in capabilities and scope with even the UK government – in the shape of the DCMS Libraries Taskforce – endorsing its use and expansion to support the UK Libraries Core Data Set in 2017.

What is LCF?:

LCF is a set of library interoperability standards defining a framework for the communication of data between self-service and other library terminal applications to and from library management systems.

It is flexible: There are various communication standards in use in the market in the UK and elsewhere including different versions of SIP. LCF supports the functionality in these standards but has been constructed to be a flexible framework to enable systems developers to use and develop a common set of principles, variables and values to enable other standards to be developed.

This flexibility allows providers to determine for themselves the means by which data is exchanged. LCF is not a protocol but rather the toolset with which protocols can be built. It confines itself to identifying the functionality required to deliver a service, the elements that need to be exchanged to deliver it, and the values that these elements might contain. Whilst it anticipates that the preferred means of delivering the service would be via web services (and offers examples of how these may be created) the framework is by no means prescriptive.

Full technical information of functionality, elements and values can be found on the BIC' website, here: http://www.bic.org.uk/114/Library-Communications-Framework-(LCF)/.

It is not finite: unlike SIP, LCF is not finite and continues to develop. Following its initial release work has continued around both implementation of support for new business cases and in demonstrating effective use of the standard. Support for the framework has been forthcoming from library management system (LMS) vendors and self-service vendors alike, with both parties committing to the intent to deliver implementations of LCF and seek compliance with the standard. We have also produced open source protocols built with the framework that can be implemented off-the-shelf and free of charge.

It is simple to use: The first protocol implementation of LCF is based on a modern RESTful web service model, the same model in common use with the internet that we all use. Allowing RESTful techniques to underpin the LCF implementation ensures LCF is simple to use with a very low technical barrier to entry. Anything that can communicate over HTTP and understand XML can understand a RESTful LCF implementation.

It is secure: LCF benefits from this by immediately adopting all current internet standard protocols, such as the secure transport layer that underpins HTTPS. For the library this means using LCF is secure out of the box, using internet standard and proven encryption technologies, whereas older technologies such as SIP2 remain using plain text with the additional cost of applying encryption through the use of VPNs and tunnelling.

This difference reduces both the cost and complexity of using LCF to link with system vendors who operate from data centres both internal and external to your own. This is where the answer to the question of benefit really begins; reducing the cost of systems integration while improving the security of your data, through the use of modern internet technology. The LCF standard will continue to grow, providing not only circulation activities but management features which have been absent from previous standards.

2. Governance – How the Framework is Managed

Creating the first release of LCF wasn't easy but it was a finite task – to replace the existing SIP protocol. However, it became clear very early on that there were potentially no limits to how it might be developed – BIC members were eager to extend its capabilities as much as possible and did not want to artificially limit its scope.

So, a great deal of planning went into setting up a structure that would make the process of adding, amending or deleting elements of the framework as speedy as possible. Accordingly, a management structure was created with this very much in mind.

At the top of the management tree is BIC's Library Committee. Ultimately it is this body of BIC members that oversees both the development and direction of the framework and manages it on behalf of BIC members. However, the Library Committee is not sufficiently agile a body to be able to respond quickly to change requests so the day to day maintenance and development was devolved to three Project Editors working in conjunction with the chair of the full BIC LCF Technical Panel.

Between them the three editors maintain and respond to the project's development site – hosted on Github – where new requests can be posted by any interested parties. (The site may be freely accessed at: https://github.com/anthonywhitford/bic-lcf/).

The Project Editors have the freedom to make minor changes to the framework - correcting errors, adding explanatory notes etc. on a day to day basis but their work is reviewed and approved on a regular basis by the BIC LCF Technical Panel. This is a larger group comprising librarians, suppliers and other stakeholders that has the responsibility for reviewing all new requests for additions or changes. It determines the best way in which new requirements can be met – by adding elements and values or by creating extensions. LCF extensions are managed and maintained by the Panel, not by the user in order to avoid the proliferation of unregulated extensions that blighted the development of SIP.

The final piece in the LCF jigsaw is the BIC LCF Review Group. Its primary task is to supervise the work of the BIC LCF Technical Panel, set priorities for development and promote the use of the framework to a wider audience. It also maintains regular contact with other organisations – like NISO – working in the same area.

Put together this three-tier structure ensures that the framework can develop rapidly, without delaying the delivery of new services. The three Project Editors work together on a regular basis to review Github requests and implement urgent changes; the structure of the BIC LCF Technical Panel ensures that the framework is supplier and platform-neutral while the BIC LCF Review Group focuses on the promotion and expansion of the whole framework concept.

3. PlugFests – Expanding & Testing the Framework

One of the more successful ways in which the BIC LCF Review Group carries out its responsibilities has been the two 'Plugfests' held in 2016 and 2017 (2018's will be in the autumn). As the name suggests these are opportunities to test new services built with the framework and have been vigorously supported by developers from all the major software suppliers operating in the UK library market.

Although each of the events so far have been organised around specific themes – usually to add new functionality and services in a particular area of activity (like self-registration for example) the enthusiasm of developers from different suppliers to explore and develop new features together has resulted in some very lengthy and innovative sessions and discussions running on after the main business of the day has been completed!

4. Latest Development News

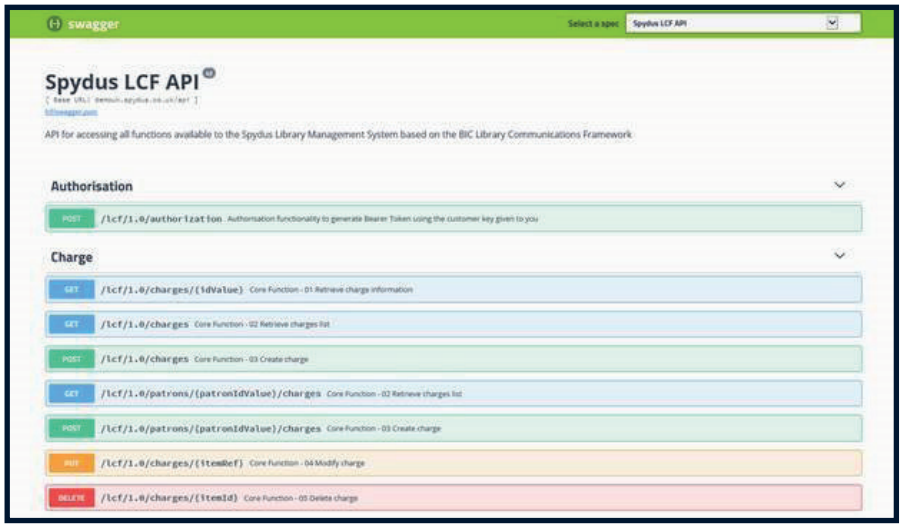
Suppliers were invited to send in contributions detailing their current LCF projects for inclusion in this first newsletter.

Capita

Perhaps unsurprisingly Capita – who provide one of the three Project Editors – remain fully committed to implementing LCF. They have already implemented both the Patron and Contact entities using the framework, and have demonstrated these in collaboration with Bibliotheca. (It is therefore safe to assume that Bibliotheca – despite not submitting a project this time – have successfully implemented the complementary support needed for these features to operate). Capita also point out that they are actively supporting further refinement of the standard to define and implement the Patron Authentication services requested by both self-service vendors and JISC.

Civica

Civica have developed LCF for the Spydus system (see the screenshot, below) and implemented this successfully internationally in their Singapore installation using version 0.99. Having released this code to the BIC LCF Technical Panel earlier this year they have now started work on amending it to match the new LCF version 1.0.1 which they anticipate will be completed imminently. Once this has been done they will be working towards live trials with test customers followed by a live implementation at one site. Once this has been completed they will then be offering LCF to all their customers.



Solus

In January 2018, the Libraries Taskforce endorsed a proposal from Solus to use LCF to expand the UK Core Data Specification. This is currently being done in conjunction with the BIC LCF Technical Panel and should be completed in the near future.

5. Next Time…

The next edition of this newsletter will include details of test server availability for developers.

What would you like to hear about next time?

Please do get in touch if you have suggestions for content to include in the next edition of this newsletter, or if there are specific things you would like us to cover, at info@bic.org.uk