
Software Requirements Specification

for the

Global Requirements

of an

Integrated Library System

Version 2.0 final

Prepared by Lori Ayre and Lucien Kress
Galecia Group
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Revision History

Name	Date	Reason For Changes	Version
Lucien Kress	11/17/08	Initial Draft	1.0 draft
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1. Introduction

1.1 Purpose and Perspective

This Software Requirements Specification (SRS) describes the global requirements of an Integrated Library System (ILS). The requirements were developed specifically for King County Library System, but are believed to be suitable for many large, urban, multiple-branch, centralized library systems.

This SRS includes only those requirements that were judged to span two or more modules of an ILS. There are separate SRS documents for requirements that are primarily related to one module. The modules for which separate SRS documents exist include: Acquisitions and Serials; Cataloging and Processing; Circulation; Outreach; Interlibrary Loan; Management Tools; Web Services and OPAC; System Interfaces; and System Administration.

Most of the requirements in this document originated from work in a specific module; as additional work revealed that a requirement applied to multiple modules, the requirement was moved into the Global category. The initial source of the requirement is included in the text of requirement, for auditing purposes.

The requirements in this SRS presuppose the general data structures and functionality of a full-fledged ILS. The ILS will replace and enhance the current capabilities of commercially available ILSes, as well as add new functionality.

1.2 Product Scope and Features

The Global Requirements support all aspects of the Integrated Library System. Specifically, the Global Requirements support the following modules:

- Acquisitions and Serials Management
- Cataloging and Processing
- Circulation
- Outreach
- Interlibrary Loan
- Management Tools
- Web Services and Online Public Access Catalog
- System Interfaces
- System Administration

The current specification presupposes the general functionality of an ILS and specifies only those requirements that are considered to be global to the system. Requirements that are primarily or specifically related to an individual module can be found in separate SRS documents.

Moreover, the current specification is focused on functional characteristics. Data structures and user interfaces will require further specification and development using an iterative, prototype-oriented software development methodology.

1.3 Intended Audience

This SRS is intended both for library managers and staff who may contribute additional requirements or commentary, and for software project managers and developers who will implement the requirements. As such, it aims for a high level of readability for a non-technical audience, while providing enough specificity to be useful to a software developer.

It is assumed that when software development occurs, it will be in a highly collaborative and iterative environment in which end-users have multiple opportunities to review prototypes and refine the user interface and software functionality.

It is also assumed that the reader has a general understanding of Library services and processes and does not require definition of common Library terminology.

1.4 Document Conventions

The SRS includes requirements. Requirements include a reference to a process flowchart where appropriate. Flowcharts generally indicate the current workflow in use at King County Library System, and should be considered to give contextual information rather than to prescribe or constrain new software development.

1.5 User Classes and Characteristics

Patron	A Patron is a customer of King County Library System, either possessing a library card or not, either on site of a community library or not, using either print materials, media materials, or electronic resources.
Staff	Staff include managers, librarians, library technicians, library assistants, and library pages who are involved in designing and providing services for the Library.
System Administrators Managers	System Administrators include staff with responsibility for managing servers, databases, applications, services, ports, and APIs related to the ILS. Managers include management staff who oversee Library processes.
Library Managers	Library Managers include Cluster and Site Managers who provide input to the design and implementation of Library services.
Library Directors	Library Directors include members of the Library Executive Team who plan and direct Library services and priorities.

1.6 Operating Environment

- OE-1: Global Requirements support the needs of a large, multiple-branch library system. Specifically, the system must support a library system with 50 locations, 20 million circulations, purchasing and processing over 500,000 items per year. It is highly desirable that searches and reports can be processed during open hours without disrupting other system functions.
- OE-2: The processes and functions described here shall operate on a Linux or Solaris server.

- OE-3: The processes and functions described here shall be accessible through a web-browser or a Windows-compatible client.
- OE-4: If web-browser based, the processes and functions described here shall be accessible through Microsoft Internet Explorer (v.6.0 and later) and Mozilla Firefox (v.2.0 and later).
- OE-5: The processes and functions described here shall be accessible with screen-reading software, screen-magnification software, and other software programs designed to increase accessibility.

1.7 Design and Implementation Constraints

- CO-1: The processes and functions described here shall use a fully relational database back-end.
- CO-2: The processes and functions described here shall produce standards-compliant HTML.
- CO-3: The processes and functions described here shall provide a development and training environment with the ability to migrate configurations to a production environment.
- CO-4: User rights and privileges will be controlled through security groups and/or “roles” that allow access control for individuals, workgroups, and arbitrary staff groups.

1.8 User Documentation

- UD-1: The software developer shall provide complete data specifications for authority records, bibliographic records, order records, item records, hold/request records, and other records maintained or accessed by the processes and functions described here.
- UD-2: The software developer shall provide a thorough high-level description of major processes, including bibliographic record import and export, validation of bibliographic records against internal and external authority sources, and standard reports.
- UD-3: The system shall provide an online, hierarchical, and cross-linked help system in HTML that describes and illustrates all system functions.

1.9 Assumptions and Dependencies

- AS-1: The processes and functions described here are part of an enterprise-level Library Automation System.
- AS-2: The processes and functions described here are consolidated at a central location, and accept input and provide services to multiple locations.
- DE-1: The processes and functions described here rely on the data structures and functionality of an enterprise-level Library Automation System, including Acquisitions, Cataloging, and Circulation modules.
- DE-2: The processes and functions described here interface with a variety of vendor websites, via published APIs and/or automated transfer of standard-format data files (e.g. USMARC21, EDIFACT).
- DE-3: The processes and functions described here interact with a patron interface, also known as an Online Public Access Catalog (OPAC).

2. System Requirements

Category: Global Requirements: General

Req ID: 6512 **Source:** ITS **Priority:** 3
Name: **SQL-based database**
Description: System runs on a fully relational, SQL-based database system. Ability to run SQL queries against any table in the database. Ability to access database as an ODBC source. All data tables and data storage are fully accessible.

Related Reqs: 2456 2475 **Related Process**

Req ID: 2492 **Source:** ACQ **Priority:** 2
Name: **individual and shared staff login accounts**
Description: Support for individual and shared staff login accounts; access to modules is granted by use of "roles" or "privileges" that allow each account to access as many (or as few) modules as needed. Individual logins allow user-level preferences and audit trail.

Related Reqs: 5514 **Related Process**

Req ID: 5616 **Source:** MGT **Priority:** 3
Name: **streamlined staff login**
Description: The system supports (but does not require) streamlined staff login methods, for example staff member swipes a card to log into a terminal.

Related Reqs: **Related Process**

Req ID: 5408 **Source:** CIR **Priority:** 3
Name: **patron-selected username**
Description: System provides option for patron to select a username and password, which can then be used to access OPAC, self check-out station, online databases, public PC booking system, and other electronic resources. In every case where patron authentication occurs, patrons can enter either a patron barcode or a username, and a password, and the system will handle authentication transparently.

Related Reqs: **Related Process**

Req ID:	1959	Source:	CIR	Priority:	2
Name:	patron password (PIN)				
Description:	Patron passwords are alphanumeric; numeric-only passwords are allowed. Library may set minimum and maximum limits on password length.				
	Related Reqs:		Related Process		

Req ID:	2039	Source:	CIR	Priority:	3
Name:	patron pin override				
Description:	Staff are able to assist patrons with functions that require a PIN. System provides a way to authenticate a patron PIN from the staff interface. System provides the possibility for patrons of specified patron type (e.g. Outreach patrons) to have a second PIN, visible to staff. Staff can reset PINs.				
	Related Reqs:		Related Process		

Req ID:	7010	Source:	WEB	Priority:	3
Name:	staff access to patron functions				
Description:	Staff can perform actions on behalf of patrons, such as placing holds, checking availability, etc., without logging out of staff accounts or changing current view. For example, from a search results screen, staff can select one or more items and place a hold for a specific patron, without leaving the current window. In cases where the action requires displaying additional information, a new window is opened and the staff person returns to the original window when done.				
	Related Reqs:	5264	Related Process		

Req ID:	5615	Source:	MGT	Priority:	3
Name:	real-time processing				
Description:	The system provides real-time processing. For example: pull lists are up to date at time of viewing or printing; system supports live shelf reading and weeding.				
	Related Reqs:		Related Process		

Req ID: 2154

Source: ACQ

Priority: 3

Name: transactions post in real time

Description: All transactions post in real time: including purchase orders, invoices, fund balances, vendor balances, vendor statistics and history, etc.

Related Reqs:

Related Process INV011

Category: Global Requirements: Interfaces

Req ID: 6026	Source: INT	Priority: 3
Name: transactional communication		
Description: System supports transactional communication with external services, for example providing APIs to read and update patron records, bibliographic records, item records, etc.		
Related Reqs: 2438 1636		Related Process
Req ID: 1636	Source: INT	Priority: 3
Name: SIP2 and NCIP2 support		
Description: System supports SIP2 and NCIP2 for interfacing with external applications. Support standard SIP2 and NCIP2 messages, and provide capacity for adding additional messages as formats evolves.		
Related Reqs: 6026		Related Process
Req ID: 6123	Source: INT	Priority: 3
Name: SIP2 emulator support		
Description: System supports 3M SIP2 emulator.		
Related Reqs:		Related Process
Req ID: 2438	Source: ITS	Priority: 3
Name: patron API		
Description: System provides a well-documented Patron API, for interfacing with external applications. System receives either a username, a barcode or a record number, and optionally either a PIN or a password. System returns an error code and patron information, if available. Error codes include: valid patron (no PIN or password provided), valid patron and valid PIN or password; valid patron and invalid PIN or password; invalid patron. Patron information includes at least: patron username, patron barcode, patron record number, patron type, name, address, phone, birthdate, creation date, last updated date, last use date, last electronic use date, expiration date, account balance, number of items checked out, number of items on hold, blocks, collections blocks.		
Related Reqs: 6026		Related Process

Req ID: 7219	Source: WEB	Priority: 3
Name: OpenURL support		
Description: System supports OpenURL (ANSI Z39.88).		
Related Reqs:	Related Process	

Req ID: 5010	Source: INT	Priority: 3
Name: integration with automated materials handling system		
Description: Full integration with Automated Materials Handling System (AMH) via SIP2/NCIP2, including ability to change all status types to checked-in status. Materials handling via SIP should result in exactly the same results as manual processes. SIP2 messages currently used by AMH include 09, 10, 11, 12, 17, 18, 63, and 64.		
Related Reqs:	Related Process	

Req ID: 1716	Source: CAP	Priority: 3
Name: MARC import/export		
Description: MARC bibliographic and authority records can be imported and exported, singly and in batch, all fields or selected fields, to and from vendors including OCLC. Imported records can overlay existing short or full bibliographic records. Imported batches can be maintained and manipulated as selection lists (see REQ-3004).		
Related Reqs: 3004	Related Process CAT180	

Category: Global Requirements: Business Rules

Req ID: 5278 **Source:** CIR **Priority:** 3**Name:** suppression rules**Description:** System provides customizable 'Rules of Suppression' that specify whether patrons and staff can view authority, bibliographic, order, and item records in staff and public (OPAC) interfaces. Records may be visible to specific workgroups only; to all staff and patrons at specific locations; or to all staff and all patrons. (See REQ-5057 for related requirements on loan rules, and REQ-5190 for related requirements on holdability.)**Related Reqs:** 5057 5190 580 **Related Process** CAT180

Req ID: 5190 **Source:** CIR **Priority:** 3**Name:** requesting rules**Description:** System allows creation and modification of requesting rules that determine whether a patron can place a hold on an item. Requesting rules may evaluate patron type, current number of holds, current patron account balance, item type, item status, owning location code, and other criteria. For example, requesting rules may prohibit patrons from placing holds on on-order CD titles, but allow patrons to place holds on other on-order titles. Requesting rules also specify whether staff with specific privileges or roles can override specific criteria. (See REQ-5057 re loan rules, REQ-5278 re visibility.)**Related Reqs:** 5057 5278 **Related Process** HOL-011

Req ID: 5057

Source: CIR

Priority: 3

Name: loan rules

Description: System allows creation and modification of loan rules that allow or disallow check-out of items, calculate loan periods, and determine renewal limits. Loan rules may evaluate patron type, current number of items checked out, current patron account balance, item type, item status, owning location code, check-out location code, and other criteria. For example, loan rules may prohibit patrons from checking out items with an unavailable status, e.g. an item with a triggered hold for another patron or an item that is already checked out to another patron. Loan rules can access check-out location open/closed schedule in calculating due date. Loan rules also specify whether a specific criteria may be overridden by staff with specific privileges or roles. (Also see REQ-5190 re requesting rules.)

Related Reqs: 5190

Related Process: HOL-131

 Category: Global Requirements: Data Characteristics

Req ID: 5323	Source: CIR	Priority: 3
Name: field and record sharing		
Description: Ability for multiple staff members and patrons to simultaneously access and update patron and item records, including on staff check-in and check-out terminals, on self check-out stations, through SIP2/NCIP2 and similar protocols and APIs, and in OPAC. Depending on assigned privileges, staff can view all patron and item fields; patrons can access only selected fields. Record changes are applied in a reasonable way, with prompts to warn when a record has been changed since it was displayed.		
Related Reqs:		Related Process
Req ID: 6513	Source: ITS	Priority: 3
Name: record lock management		
Description: For any patron record or item record, staff can identify where it is in use (location, user, date and time placed).		
Related Reqs: 6501 7302		Related Process
Req ID: 5399	Source: CIR	Priority: 3
Name: date format		
Description: Date format is set in system parameters, and used consistently throughout system.		
Related Reqs:		Related Process
Req ID: 2275	Source: CAP	Priority: 3
Name: item location codes in separate fields		
Description: Provide separate fields for branch identification, reading level (e.g. adult, juvenile) and shelving location (e.g. fiction, DVD).		
Related Reqs: 2274		Related Process

Req ID:	2204	Source:	ACQ	Priority:	3
Name:	unlimited number of temporary record sets				
Description:	Unlimited number of temporary record sets (aka buckets, query result sets, selection lists, etc.). Record sets can be the basis for batch field updates or for deleting original records; can be used as a limiting scope for subsequent queries; and can be exported.				
	Related Reqs:	1712	Related Process		

Req ID:	2143	Source:	SER	Priority:	2
Name:	unlimited items per bibliographic record				
Description:	Ability to add unlimited items to a single bibliographic record. For example, this is important for magazine titles that may comprise thousands of items per year.				
	Related Reqs:	2279, 2280, 55	Related Process		

Req ID:	1633	Source:	INT	Priority:	3
Name:	batch delete				
Description:	Ability to run mass deletions without significantly impacting system performance.				
	Related Reqs:	5540	Related Process		

Req ID:	5540	Source:	CAP	Priority:	2
Name:	delete and restore records				
Description:	Ability to delete all record types singly or via batch processing, with capability to recover or restore deleted data.				
	Related Reqs:	1633	Related Process		

Req ID:	4102	Source:	CAP	Priority:	3
Name:	barcodes				
Description:	The system must read and support barcodes as follows: 1) Read 8, 10, and 14 digit barcodes. 2) Support single and multiple barcodes. 3) Assign sequential barcodes to a number of items. 4) Support replacement barcodes. 5) Transfer one or more barcodes between bibliographic records.				
	Related Reqs:		Related Process	REC030	

Req ID: 5411	Source: CIR	Priority: 2
Name: barcodes must be unique		
Description: Item record barcodes and patron record barcodes must be unique. Alert staff when duplicate barcodes are entered, and prevent assignment of duplicate barcodes. (However, see REQ-5536 for the case of item records without barcodes.)		
Related Reqs: 5536	Related Process	

Req ID: 5328	Source: CIR	Priority: 3
Name: data validation		
Description: Ability to specify default value, data validation, automatic formatting, and required status for any field.		
Related Reqs:	Related Process	

Category: Global Requirements: Queries and Reports

Req ID: 1726	Source: CAP	Priority: 2
Name: indexing		
Description: Provide capability to create unlimited separate indexes for any data field.		
Related Reqs:		Related Process
Req ID: 2202	Source: ACQ	Priority: 3
Name: flexible queries and reports		
Description: All queries and reports include the ability to sort, filter, and limit on any variable or fixed field or subfield in any record type (bibliographic, item, order, authority). Ability to search for records that fall within a range of values. Ability to save customized queries and output criteria for future use. Ability to retrieve last X queries to repeat search and/or save query permanently.		
Related Reqs:		Related Process
Req ID: 5624	Source: MGT	Priority: 3
Name: query tool		
Description: System provides a user-friendly interface for designing queries against all record types. Staff can select fields to query; select values from picklist of possible values; select regular expressions from drop-down menu, and use a full range of Boolean operators. Administrators control staff access to tables and fields.		
Related Reqs:		Related Process
Req ID: 2306	Source: ACQ	Priority: 3
Name: wildcard searches		
Description: System supports wildcard searches and substring searches in all fields (including 'number' fields, e.g. isbn, upc, etc.).		
Related Reqs:		Related Process CAT010

Req ID: 3018	Source: WEB	Priority: 2
Name: NOT searches		
Description: Ability to search for records that do not match a search variable (e.g. NOT youth).		
Related Reqs:		Related Process CAT010

Req ID: 1704	Source: CAP	Priority: 3
Name: search results: display		
Description: Ability to customize all search result display screens, including selection of fields to display and sorting/limiting options. Ability to set preferred default displays defined by individual user logons with ability to further customize and change settings as needed.		
Related Reqs: 2271 2272 227		Related Process CAT010

Req ID: 5382	Source: CIR	Priority: 3
Name: search results: sorting		
Description: Ability to sort by any column in any list (search results, etc.).		
Related Reqs: 1704		Related Process

Req ID: 5511	Source: CAP	Priority: 3
Name: index browsing		
Description: On indexed fields, provide ability to perform an exact search with truncation, and browse related index alphabetically. Accessible to staff and patrons.		
Related Reqs:		Related Process CAT010

Req ID: 2205	Source: ACQ	Priority: 2
Name: return to search results		
Description: After searching for a record, ability to return to intermediate results (e.g. 'Back' or 'Return to List').		
Related Reqs:		Related Process CAT010

Req ID: 2322	Source: ACQ	Priority: 3
Name: run reports during business hours		
Description: Ability to run reports anytime during the day without impacting staff productivity.		
Related Reqs:		Related Process

Req ID: 5617	Source: MGT	Priority: 3
Name: reports permissions		
Description: System provides fine-grained permissions to allow or disallow staff to run specific reports, and/or to run ad hoc reports on specific sets of data.		
Related Reqs:		Related Process

Req ID: 2197	Source: ACQ	Priority: 2
Name: report format and output		
Description: Ability to fully customize layout and appearance of reports. Ability to display, print, email, or save report to standard formats including CSV and Excel, as well as to customizable formats.		
Related Reqs:		Related Process

Req ID: 2439	Source: ITS	Priority: 3
Name: multiple print output options		
Description: Ability to print to a file on the server, ftp , email, or printer from any part of the application. When applicable, the ability to select record fields and control order of fields when printing.		
Related Reqs:		Related Process

Category: Global Requirements: User Interface

Req ID: 7011	Source: WEB	Priority: 2
Name: search: interface		
Description: Search interfaces should be consistent for staff and patrons, with similar look-and-feel even when staff interfaces include additional options or features not available to patrons.		
Related Reqs:		Related Process
Req ID: 2091	Source: CIR	Priority: 3
Name: login information display		
Description: Show login identification at top of screen.		
Related Reqs:		Related Process
Req ID: 6124	Source: INT	Priority: 2
Name: suppress patron name		
Description: Ability to suppress patron name on all displays, on a per-system or per-patron basis. Patron may select option to display or mask patron name through patron account settings.		
Related Reqs:		Related Process
Req ID: 2490	Source: ACQ	Priority: 1
Name: menu options require permissions		
Description: Menu options require credentials/authorization. Menu options without correct credentials are greyed out.		
Related Reqs:		Related Process
Req ID: 5182	Source: CIR	Priority: 3
Name: customizable views		
Description: Ability to create and edit views (i.e. custom layouts) to hide fields, tabs, and command buttons that should not be used. Visible fields can be sized and ordered. Views can be assigned to users individually or via user groups or roles.		
Related Reqs:		Related Process

Req ID: 1731	Source: CAP	Priority: 3
Name: tabbing		
Description: Ability to tab through fields while creating and editing all record types (e.g. bibliographic, item, order, patron, etc.).		
Related Reqs:		Related Process CAT030

Req ID: 5525	Source: CAP	Priority: 2
Name: URLs are clickable		
Description: URLs in bibliographic and item records are clickable, and launch in a new web-browser window when clicked.		
Related Reqs:		Related Process CAT030

Req ID: 2276	Source: CAP	Priority: 3
Name: view and edit multiple records		
Description: Ability to view two or more records simultaneously, aligned either horizontally or vertically. Ability to copy and paste between records.		
Related Reqs: 1733		Related Process CAT030

Req ID: 5313	Source: CIR	Priority: 3
Name: copy and paste		
Description: All screens support copy and paste.		
Related Reqs:		Related Process

Req ID: 2220	Source: ACQ	Priority: 3
Name: keyboard macros and shortcuts		
Description: System supports administrator-programmable and user-programmable macros and/or keyboard shortcuts. Shortcut keys may be assigned to macros (e.g. 'Insert Field') or to text strings. Macros are centrally managed on server, can be imported from and exported to individual users, and can be restricted for use and/or editing through centrally-managed permissions.		
Related Reqs:		Related Process

Req ID: 1703	Source: CAP	Priority: 3
Name: custom toolbars		
Description: Staff can create a customized toolbar of icons used for editing and cataloging functions, such as Insert Row, Delete Row.		
Related Reqs:	Related Process	

Req ID: 5216	Source: CIR	Priority: 3
Name: patron error messages		
Description: Patron error messages are specific and unambiguous. For example, if a hold request is unsuccessful, the error message should say why (hold limit reached, no available copies, etc.).		
Related Reqs: 1652 7220	Related Process	