
Software Requirements Specification

for the

System Interfaces

of an

Integrated Library System

Version 3.0 final

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Revision History

Name	Date	Reason For Changes	Version
Lucien Kress	10/21/08	Initial Draft	1.0 draft
Lucien Kress	12/1/08	Revisions, Requirements workshop	2.0 draft
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1. Introduction

1.1 Purpose and Perspective

This Software Requirements Specification (SRS) describes the functional and nonfunctional requirements for the System Interfaces 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.

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

1.2 Product Scope and Features

The System Interfaces facilitate communication with external vendors, applications, and services that augment the ILS. Specifically, the System Interfaces support the following processes and services, among others:

- Patron authentication to allow access to licensed or limited resources
- Electronic resources such as subscription databases
- Automated Materials Handling processes
- Self Check-in and Self Check-out stations
- Telephone notification and renewal services
- Text notification services
- Holds delivery services
- Ecommerce and Collections processes

The current specification presupposes the general functionality of an ILS and specifies only those requirements that directly or indirectly relate to external vendors, applications, and services. King County Library has previously published specifications for Acquisitions and Serials Management, Circulation, and Cataloging modules. Requirements for OPAC, web services, and management reporting are currently under development.

Moreover, the current specification is focused on functional characteristics of System Interfaces. 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 approach to System Interfaces 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.
Managers	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: System Interfaces 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: System Interfaces shall operate on a Linux or Solaris server.
- OE-3: System Interface configurations shall be accessible through a web-browser or a Windows-compatible client.
- OE-4: If web-browser based, System Interface configurations shall be accessible through Microsoft Internet Explorer (v.6.0 and later) and Mozilla Firefox (v.2.0 and later).
- OE-5: System Interface configurations 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: System Interfaces shall use a fully relational database back-end.
- CO-2: System Interfaces shall produce standards-compliant HTML.

- CO-3: System Interfaces 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.
- CO-5: These requirements shall not constrain functionality or features of the Online Public Access Catalog (OPAC) module.

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

System Requirements

Category: Interfaces: General

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: 7001 **Source:** WEB **Priority:** 3

Name: authentication gateway

Description: System serves as an authentication gateway for online subscription databases and other electronic resources and external services. For example, patron clicks to access a subscription database on the Library website; system prompts for username or patron barcode, and password or PIN; system authenticates patron and redirects to subscription database with an authorized session cookie and/or an authorized referring URL. In case of an invalid username, patron barcode, password, or PIN, the system returns a customizable error message to the patron. On successful authentication, the patron's "last electronic use date" field is updated with the current date. System supports single login for multiple resources. Session cookies can be configured to expire after a specified time period. Referring URL can be configured per subscription database and updated at will.

Related Reqs: 6101

Related Process

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:	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:	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:	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: 6121	Source: INT	Priority: 3
Name: external application monitoring		
Description: Ability to view and log system load placed by external applications using SIP2, NCIP2, Patron API, and other ports and APIs. Ability to isolate load per port, device or workstation, and/or transaction type.		
Related Reqs:		Related Process

Category: Automated Materials Handling

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: 6152	Source: INT	Priority: 3
Name: batch check-in		
Description: System provides a batch check-in utility that can be accessed by external materials handling systems to manipulate batches of item records, change statuses in batch, etc.		
Related Reqs:		Related Process

Req ID: 6123	Source: INT	Priority: 3
Name: SIP2 emulator support		
Description: System supports 3M SIP2 emulator.		
Related Reqs:		Related Process

Category: Notifications

Req ID: 6122 **Source:** INT **Priority:** 3**Name:** notices engine**Description:** System provides a single "notices engine" that defines conditions for sending notifications, generates data for all notification systems, receives feedback from all notification systems, and provides a single target for statistical queries related to notices. Each type of notice can have a configurable default notification method, can be configured to allow patrons to (or disallow patrons from) opting in or out of the notification, and can be configured to allow patrons to (or disallow patrons from) changing their preferred notification method.**Related Reqs:** 1938 5111 521 **Related Process**

Req ID: 7121 **Source:** WEB **Priority:** 3**Name:** notification preferences**Description:** Patrons can select notifications they would like to receive; specify one or more methods for receiving each type of notice; specify preferred frequency of notifications; and specify whether to receive repeat notices (e.g. receive hold pickup notices every day until hold is picked up or expired, or receive one hold pickup notice per item). See Requirements 1938, 5101, 5109, 5111, 5211, 5384, and 7229 for related requirements.**Related Reqs:** **Related Process**

Req ID: 5224 **Source:** CIR **Priority:** 3**Name:** patron notification log**Description:** Log all notices sent to patron, including patron barcode, date/time, notice type, delivery method (email, telephone, text, mail, direct communication), item record number, and success/error status. Provide a link from patron record to the log. Log can be printed from patron record.**Related Reqs:** 5206 **Related Process**

Category: Telephone Notifications

Req ID: 6071	Source: INT	Priority: 3
Name: telephone notices: definition		
Description: System provides a telephone notification system, by which patrons receive automated telephone calls for specified events, e.g. courtesy notices, overdue notices, hold pickup notices. The telephone notification system supports multiple trunks.		
Related Reqs:		Related Process
Req ID: 6072	Source: INT	Priority: 3
Name: telephone notices: features		
Description: Telephone notification administrators set criteria for telephone notices; record spoken scripts; define variables such as branch names; and define schedule of calls including days, hours, and number of tries. Telephone notification system speaks patron name at beginning of call.		
Related Reqs: 6071		Related Process
Req ID: 6075	Source: INT	Priority: 2
Name: telephone notices: advanced features		
Description: Telephone notification system provides patrons the ability to record their spoken names for use in future calls. System provides patrons an "opt-out" or "do-not-call" option.		
Related Reqs: 6071		Related Process
Req ID: 5207	Source: CIR	Priority: 3
Name: telephone notices schedules		
Description: Ability to maintain separate telephone notice calling schedules for weekdays and weekends.		
Related Reqs: 6071		Related Process

Req ID: 1637	Source: INT	Priority: 3
Name: telephone notices: call grouping		
Description: Telephone notifications are grouped, so that patrons receive a maximum of one call per notice type per day.		
Related Reqs: 6071		Related Process

Req ID: 6073	Source: INT	Priority: 2
Name: telephone notices: multiple phone numbers		
Description: Telephone notification system can use multiple phone numbers per patron.		
Related Reqs: 6071		Related Process

Req ID: 1638	Source: INT	Priority: 3
Name: telephone notices: prioritization		
Description: Telephone notifications can be prioritized by several criteria, including the type of notification; the number of notifications that will be included in a single call; and whether previous call attempts have failed. Call queue is prioritized prior to beginning the day's calls.		
Related Reqs: 6071		Related Process

Category: Telephone Renewal System

Req ID: 6051	Source: INT	Priority: 3
Name: telephone renewal system: definition		
Description: System supports incoming telephone renewal; requires patron to enter username or barcode, and password or personal identification number; provides titles of checked-out items in due-date order; allows patrons to skip to next title; allows patron to renew all items, or specific item by selecting a keypad command when the item is spoken by the system; allows patrons to return to beginning of list.		
Related Reqs:		Related Process

Req ID: 6053	Source: INT	Priority: 1
Name: telephone renewal system: speech recognition		
Description: System provides interface for a speech recognition system, for use in telephone renewals.		
Related Reqs: 6051		Related Process

Req ID: 6052	Source: INT	Priority: 1
Name: telephone renewal system: advanced features		
Description: System provides advanced options for telephone renewal system: ability to list holds, freeze or unfreeze all holds or a specific hold, and cancel a specific hold; ability to hear account balance and list fines and charges.		
Related Reqs: 6051		Related Process

Category: Text Notifications

Req ID: 6004	Source: INT	Priority: 3
Name: text messaging: definition		
Description: System supports management of text-message notifications. Patrons may select text messaging for courtesy (item due soon) notices, first overdue notices, hold pickup notices, and hold expiration notices.		
Related Reqs:		Related Process

Req ID: 6011	Source: INT	Priority: 3
Name: text messaging: message control		
Description: System sends one text message per item for each type of notice requested, by default. I.e., patron receives one courtesy reminder per item; one first overdue message per item; one hold pickup notice per item. (However, see REQ-7121 re patron preferences.)		
Related Reqs: 7121		Related Process

Req ID: 6005 **Source:** INT **Priority:** 1

Name: text messaging: advanced features

Description: System supports interactive text message processing. Patrons can register text-messaging device through patron account, and access account information by text messaging. For example, patrons can text keywords such as "checked out", "due soon", "overdue", "on hold", "hold shelf", "balance", "help", etc. and receive corresponding information by text message. Patrons can renew items and cancel holds by text message.

Related Reqs:

Related Process

Category: Mailing of Holds

Req ID: 6006 **Source:** INT **Priority:** 2

Name: mail delivery: definition

Description: Patrons can elect to receive held items by mail. Patrons specify a delivery address and a cost accrual limit.

Related Reqs:

Related Process

Req ID: 6007 **Source:** INT **Priority:** 2

Name: mail delivery: system settings

Description: System supports mail delivery of patron holds. Delivery charges can be set on a per item, per item format, and/or per package basis. Delivery charges can be differentiated by service area (e.g. delivery outside local service area has different costs than local delivery). System manages delivery charge accrual and can place patron blocks when delivery charges are overdue by X days or more (X configurable). System flags patron accounts with bad mailing addresses and does not attempt to mail to those patrons until address is reverified.

Related Reqs:

Related Process

Req ID: 6125 **Source:** INT **Priority:** 2

Name: mail delivery: over-limit

Description: When shipment costs reach the patron-specified limit, the system can be configured to either 1) send all of the day's remaining holds, and send subsequent holds to the holdshelf until the balance is paid down; or 2) send all remaining and subsequent holds to the holdshelf until the balance is paid down.

Related Reqs:

Related Process

Category: PC Management

Req ID: 6101 **Source:** INT **Priority:** 3

Name: public computer management: definition

Description: System supports external public computer management systems through SIP2, NCIP2, and/or a patron API. System provides access to patron barcode, record number, patron type, patron name, account balance, birthdate, telephone number, filtering level, expiration date, and patron blocks. System logs authentication to the patron record so that "last electronic use" field is up to date.

Related Reqs: 7001

Related Process

Category: Ecommerce

Req ID: 6008 **Source:** INT **Priority:** 3

Name: ecommerce: definition

Description: System interfaces with third-party ecommerce gateway providers and leading shopping cart software solutions and supports multiple forms of payment (e.g. Paypal, credit cards, electronic checks). Payment forms, if provided by the system, are customizable. System records and stores transaction number, patron record number, IP address, date/time stamp, configurable payment type, payment amount, transaction description, and transaction status (success/failure). System provides option to print and/or email a configurable transaction confirmation to patron, including the vendor transaction number and other payment details.

Related Reqs:

Related Process

Req ID: 5129	Source: CIR	Priority: 3
Name: credit card payments		
Description: Accept credit and debit card payments at accounts desks, self check-out stations, and through the public web interface. Payments should be visible in the patron account immediately, and related blocks should be removed immediately.		
Related Reqs:		Related Process

Req ID: 5128	Source: CIR	Priority: 3
Name: charge types		
Description: Ability to record charge type for every transaction. Charge types include Overdue, Replacement, Donation, Manual Charge, Copying, etc. Additional charge types can be configured.		
Related Reqs: 6008		Related Process

Req ID: 6010	Source: INT	Priority: 3
Name: ecommerce: patron interface		
Description: Payment interface should be identical, whether online or at a self-check station. Payment form should be staged ("Enter your billing address and click Next to continue...") and include mouse-tip help and full help links. Patrons can select one, several, or all items; see the payment due in each case; and make a payment in that amount.		
Related Reqs:		Related Process

Req ID: 1652	Source: INT	Priority: 3
Name: ecommerce error messages		
Description: The system is able to parse vendor error codes, in order to provide specific and user-friendly error messages.		
Related Reqs: 5216		Related Process

Req ID: 5401	Source: CIR	Priority: 3
Name: payment receipts		
Description: Payment receipts show date, branch and workstation, vendor transaction number, patron record number, patron name, form of payment, last four digits of credit card, fines/charges detail, payment amount, account balance. System provides multiple configurations for payment receipts (e.g. self-check station receipts may use a different paper size and layout). Ability to print a separate "lost and paid" receipt.		
Related Reqs:		Related Process

Req ID: 6009	Source: INT	Priority: 3
Name: ecommerce: reporting		
Description: System provides monthly reports showing vendor transaction number, date and time, form of payment, summary and detail of transactions. Transactions are categorized by transaction type (overdue fine payment, lost/damaged payment, donation, etc.), payment location (online, onsite) and station (public computer, self-check station, customer service desk, etc.).		
Related Reqs:		Related Process

Category: Collections

Req ID: 5121	Source: CIR	Priority: 3
Name: collections flagging		
Description: Flag patron record for Collections processing if account is greater than some configurable limit, and some configurable number of days have elapsed since sending of a billing notice. Eligibility limits may differ per patron type.		
Related Reqs:		Related Process

Req ID: 6081	Source: INT	Priority: 3
Name: collections processing		
Description: System exports patron records and recent transaction records in configurable format for processing by external collections vendor. Patrons with "no collections" flag are omitted. In the case of minors, parent/guardian information is included. System supports automatic delivery method for collections data (e.g. FTP, email). System supports test run of collections export without sending files.		
Related Reqs:		Related Process

Req ID: 5120	Source: CIR	Priority: 3
Name: remove fines-related block		
Description: Remove fine-related blocks (maximum fines block, collections block, etc.) immediately when charges are paid down to required threshold, whether payment is at customer service desk, at self check-out station, or online.		
Related Reqs:		Related Process

Req ID: 5119	Source: CIR	Priority: 3
Name: report: payment plans and collections		
Description: Generate report of patrons by home branch who have payment plans or suspended collections to assist staff in tracking and managing these accounts.		
Related Reqs:		Related Process

Category: Weeding

Req ID: 5901 **Source:** INT **Priority:** 3**Name:** item deletion utility

Description: System provides an item deletion utility that allows processing of large quantities of items. Items are scanned in succession with no intermediate keystrokes required. If the item cannot be deleted (see below), a visible and audible alert notifies staff member to put the item aside. When a batch of items have been scanned, the utility logs the items and deletes the item records. The utility logs the items that cannot be deleted, with the reasons, as follows: item is still checked out; item is needed to fill a hold; item is the last copy in the system. Criteria for refusing deletion can be added, modified, and deleted. Log file is stored on server.

Related Reqs:**Related Process**

Req ID: 2195 **Source:** ACQ **Priority:** 3**Name:** audit trail

Description: System creates a transaction log when records are updated or deleted during batch processes.

Related Reqs:**Related Process**

Req ID: 5902 **Source:** INT **Priority:** 3**Name:** deleted items history

Description: Deleted items remain accessible for reporting and statistical purposes for at least 13 months.

Related Reqs:**Related Process**