
Software Requirements Specification

for the

System Administration

of an

Integrated Library System

Version 3.0 final

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Revision History

Name	Date	Reason For Changes	Version
Lucien Kress	9/26/08	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 Administration Module 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 Administration Module 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 Administration Module facilitates the management of every aspect of the Integrated Library System. Specifically, the System Administration Module support the following activities, among others:

- Configuring the ILS to enable and support features and processes required for management of the Library branches, patrons, collections, and circulation transactions.
- Monitoring, troubleshooting, and controlling server performance.
- Monitoring, troubleshooting, and controlling database and application performance.
- Monitoring, troubleshooting, and controlling services, ports, and application programming interfaces.
- Managing user and group accounts and privileges.
- Managing server and client software installation, upgrades, and updates.
- Backing up databases, configuration files, log files, etc.

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

Moreover, the current specification is focused on functional characteristics of System Administration. 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 Administration 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: System Administration 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 Administration shall operate on a Linux or Solaris server.
- OE-3: System Administration shall be accessible through a web-browser or a Windows-compatible client.
- OE-4: If web-browser based, System Administration shall be accessible through Microsoft Internet Explorer (v.6.0 and later) and Mozilla Firefox (v.2.0 and later).
- OE-5: System Administration 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 Administration Module shall use a fully relational database back-end.

- CO-2: System Administration Module shall produce standards-compliant HTML.
- CO-3: System Administration Module 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 System Administration Module.
- 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 System Administration Module is part of an enterprise-level Library Automation System.
- AS-2: System Administration process are consolidated at a central location, and accept input and provide services to multiple locations.
- DE-1: The System Administration Module relies on the data structures and functionality of an enterprise-level Library Automation System, including Acquisitions and Cataloging modules.
- DE-2: The System Administration Module 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 System Administration Module interacts with a patron interface, also known as an Online Public Access Catalog (OPAC).

System Requirements

Category: Systems: 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: 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: 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: 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: 2428	Source: ITS	Priority: 3
Name: system documentation		
Description: System documentation is library-specific and follows standard formats for technical documentation. Documentation is specific to the particular version of the software in use at library. Documentation is web-based, indexed, organized by function, and easily searchable.		
Related Reqs:		Related Process

Req ID: 2431	Source: ITS	Priority: 3
Name: system upgrade guidelines		
Description: System upgrades and updates include written guidelines for updating servers and clients. Includes list of new, changed, and removed features.		
Related Reqs:		Related Process

Req ID: 2479	Source: ITS	Priority: 3
Name: configuration file access		
Description: System provides access to all configuration files.		
Related Reqs:		Related Process

Req ID: 2474	Source: ITS	Priority: 3
Name: log file access		
Description: System provides full access to all log files. Log files can be reviewed without stopping system. Logs can be enabled, disabled, and set to a specific retention threshold.		
Related Reqs:		Related Process

Req ID: 2470	Source: ITS	Priority: 3
Name: root shell access		
Description: System provides access to root shell.		
Related Reqs:		Related Process

Category: Systems: Consoles and Dashboards

Req ID: 6520	Source: ITS	Priority: 3
Name: dashboard configuration		
Description: System supports creation of custom dashboards that display current and historical data about system performance, record creation and modification, circulation transactions, etc. Administrators can create dashboards and give access to selected users and groups.		
Related Reqs:		Related Process

Req ID: 6501	Source: ITS	Priority: 3
Name: system monitoring		
Description: System provides full support for SNMP and supports monitoring of system resources, including disk space, CPU load, memory load, system processes, system interfaces and ports. Alert thresholds are configurable. Alerts can be sent via administrative dashboards, email messages, and text messages. Alerts can be sent to unlimited number of recipients via any or all alert methods.		
Related Reqs:		Related Process

Req ID: 7302	Source: ITS	Priority: 3
Name: record lock administration		
Description: Ability to set thresholds on the length of time records are locked and provide, for all record types, a list of records in sustained use/locked condition. Ability from the same console to unlock one or more records.		
Related Reqs: 6513		Related Process

Req ID: 2467 **Source:** ITS **Priority:** 3

Name: **system performance dashboard**

Description: System provides dashboard of performance monitoring and management tools. Identification of processes with process ID, owner username, IP address (if applicable), CPU utilization, memory utilization, run time. Runaway processes are identified. System status is represented by visual indicators (e.g. green and red lights).

Related Reqs: **Related Process**

Req ID: 2466 **Source:** ITS **Priority:** 3

Name: **server console**

Description: System provides a server management console including: software shutdown utility, software startup utility, server shutdown utility, server restart utility.

Related Reqs: **Related Process**

Req ID: 2464 **Source:** ITS **Priority:** 3

Name: **application dashboard**

Description: System provides an administrative dashboard displaying: last full and incremental backup; last planned and unplanned system reboot; last software upgrade; current software version; transactions waiting to be processed; size of log-files; current count of records by record type (item, bibliographic, patron etc), database utilization (size, processes running).

Related Reqs: **Related Process**

Req ID: 2430 **Source:** ITS **Priority:** 3

Name: **client management console**

Description: System provides a management console displaying workstations running client software; workstation name and IP address; and utilities for managing and killing client sessions.

Related Reqs: **Related Process**

Req ID: 6503	Source: ITS	Priority: 3
Name: circulation dashboard		
Description: System provides a circulation dashboard showing key performance indicators such as check-outs per hour, check-ins per hour, holds placed per hour, holds paged per day, etc. Indicators can be limited to a single branch or set to systemwide.		
Related Reqs:		Related Process
Req ID: 6517	Source: ITS	Priority: 3
Name: configuration file console		
Description: System provides a single console with access to all configuration files. Read and write permission to individual configuration files can be assigned to users and groups.		
Related Reqs:		Related Process
Req ID: 2433	Source: ITS	Priority: 3
Name: log-file dashboard		
Description: System provides a dashboard for locating and viewing log files.		
Related Reqs:		Related Process
Req ID: 6521	Source: ITS	Priority: 3
Name: job scheduling console		
Description: System provides a single interface for reviewing and controlling scheduled tasks, including staff-scheduled tasks, automated reports, scheduled imports and exports, software updates, etc.		
Related Reqs:		Related Process
Req ID: 6515	Source: ITS	Priority: 3
Name: email configuration		
Description: Ability to access and edit email configuration, including a quick menu of common settings (such as masquerading, log retention, bounce management).		
Related Reqs:		Related Process

Req ID: 6516	Source: ITS	Priority: 3
Name: SMTP support		
Description: System supports SMTP for email transport.		
Related Reqs:	Related Process	

Category: Systems: Business Rules

Req ID: 2445	Source: ITS	Priority: 3
Name: business rules		
Description: System supports restrictions based on business rules, e.g. restrictions on deleting item records that are in checked-out status, or restrictions on deleting bibliographic records with existing holds.		
Related Reqs:	Related Process	

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

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: Systems: Data Recovery

Req ID: 6502	Source: ITS	Priority: 3
Name: system backup		
Description: System provides capability to perform live incremental and full backups of data and transaction logs. System supports use of third-party backup software such as EMC NetWorker.		
Related Reqs:		Related Process:

Req ID: 6505	Source: ITS	Priority: 3
Name: data rollback		
Description: System logs data changes (such as record deletions) and provides "undo" functionality. Ideally, system provides revision control.		
Related Reqs:		Related Process:

Req ID: 2462	Source: ITS	Priority: 3
Name: server clustering		
Description: Ability to cluster servers for failover capability.		
Related Reqs:		Related Process

Category: Systems: Security

Req ID: 6510	Source: ITS	Priority: 3
Name: patron data security		
Description: Patron data is secure in all transfers to and from the system.		
Related Reqs:		Related Process

Req ID: 6509	Source: ITS	Priority: 3
Name: user account privileges		
Description: System administrative staff has full visibility and control of user privileges.		
Related Reqs:		Related Process

Req ID: 6511	Source: ITS	Priority: 3
Name: secure protocol support		
Description: System supports secure protocols, including SFTP, SSL, and SSH. SFTP is supported in both active and passive modes, configurable per vendor.		
Related Reqs:		Related Process

Category: Systems: Maintenance

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

Req ID:	6518	Source:	ITS	Priority:	3
Name:	record sets				
Description:	System supports an unlimited number of record sets, with the ability to import and export set members in batch. Record sets can be the basis for batch field updates; can be used as a limiting scope for queries; can be used to delete original records with the ability to review prior to deletion, write errors to a log file, and undo one or more deletions.				
	Related Reqs:	2204		Related Process	

Req ID:	2420	Source:	ITS	Priority:	3
Name:	staff account setup				
Description:	System provides a dedicated interface for creating new staff accounts. New staff account creation process provides configurable templates for account administrator use; provides granular privileges for account creation, modification, and deletion.				
	Related Reqs:			Related Process	

Req ID:	2419	Source:	ITS	Priority:	3
Name:	patron account setup				
Description:	System provides a dedicated interface for creating new patron accounts. Patron account creation process provides configurable templates for staff use; supports field validation and required fields; provides configurable defaults.				
	Related Reqs:			Related Process	

Req ID: 6507	Source: ITS	Priority: 3
Name: job scheduling		
Description: System supports scheduling of maintenance tasks, reports, and data exports. Jobs can be scheduled in sequence ("start job B when job A finishes") and can be modified or cancelled at any time prior to starting.		
Related Reqs:		Related Process

Req ID: 6508	Source: ITS	Priority: 3
Name: job scheduling: management		
Description: Staff can be given permission to schedule tasks, reports, and data exports. System administration staff can view and manage jobs scheduled by other staff.		
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

Category: Systems: Client Management

Req ID: 6514	Source: ITS	Priority: 3
Name: accounts independent from workstation		
Description: Staff and group accounts are independent from workstations; client install should not be tied to a specific location.		
Related Reqs:		Related Process

Req ID: 6504	Source: ITS	Priority: 3
Name: client software updates		
Description: Client software installation and updates must be centrally managed, using standard or proprietary network management tools, allowing streaming updates from server. Ability to specify specific clients to be updated. Client software can be managed with VNC and Remote Desktop.		
Related Reqs: 2430	Related Process	

Req ID: 6519	Source: ITS	Priority: 3
Name: client configurations		
Description: All client configuration files are server based; configurations can be exported and imported between clients.		
Related Reqs:	Related Process	

Category: Systems: Queries & Reports

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: 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: 5607	Source: MGT	Priority: 3
Name: report templates		
Description: System administrators can create report templates that are available to front-line staff, and can be run as is or modified to the staff person's particular needs.		
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: 2465	Source: ITS	Priority: 3
Name: record number report		
Description: System reports for each record type: current record number, current number of records, number deleted, and number purged. Record types include patron, bibliographic, item, order, invoice, etc. Access to record numbers is controlled at the user/group level.		
Related Reqs:		Related Process
Req ID: 2441	Source: ITS	Priority: 3
Name: printer support		
Description: Ability to define and select four types of printers: receipt printer, standard printer, label printer, and forms printer. All Windows printers are supported.		
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