Web Site Functional Specification

This document outlines the functional requirements for the SPK web site, and provides rationales for key choices.

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Introduction

The System for Population Kinetics (SPK) delivers its services to its users via the World Wide Web. This method of delivery was chosen because it is available to scientific users everywhere. The user needs a workstation, an Internet connection and browser software. Any of the major operating systems will work, including Windows, MacIntosh, Linux and Unix.

The services provided to the SPK user fall into the following categories:

- SPK portal.
- Personal portal.
- Distribution and updating of software.
- Modeling and analysis tools.
- Execution of models and delivery of results.
- Archiving of models and datasets.
- Comprehensive history of all past runs.
- Customer service, including problem tracking and resolution.

Subsequent sections will outline each of these services and how they relate to the design of the web site.

Service Descriptions

I. SPK Portal.

A set of web pages through which RFPK presents SPK to the world. It is the "home page" for SPK and is accessible to everyone. Most of the content is *static*, in that it is not generated on demand by computer software. The majority of the material is provided and maintained by the RFPK Science Team.

A. Greeting and introduction.

1. Welcome.
2. Link to personal portal login page.
3. RFPK, its affiliation, and funding, with a link to the RFPK home page.
4. SPK, a brief snap shot.

5. SPK news (releases, installations, etc.)
6. SPK training schedule.

B. Overview of population kinetics.

C. Overview of SPK.

D. SPK user manual. This is the same manual that is available to users of SPK as on-line help.

E. The SPK installation operated by RFPK.

1. Description of the community that is served.
2. Facilities.
3. How to become a user.

F. Other SPK installations.

G. SPK product road-map.

II. Personal portal.

A set of web pages which are accessible to a single user. Much is this content is *dynamic*, in that it is created by software as needed. Primary responsibilty for the personal portal is borne by the RFPK Software Team.

A. Server authentication. The user's browser is able to determine the authenticity of the SPK site through the use of authentication certificates based upon public key encryption. This service protects the user against the danger of revealing proprietary models or private subject data to an impostor web site.

B. User authentication. The user is authenticated by the web server, which demands to know his or her username and password. This protects the user against the danger that someone else might access his or her personal information.

C. Encrypted communications for all messages passing between the personal portal and the user's workstation.

D. Download page, where the user can acquire the latest version of SPK, along with supporting software.

E. MDA launch. This link will start the MDA on the user's workstation, unless there is a later version of the MDA on the web site. In this latter case, the MDA will be automatically downloaded and installed on the user's workstation and then started.

F. Job status. This page shows the status of all jobs that the user has submitted to the system.

G. Results. This page provides access to the results of any of the jobs submitted by the user which have completed, and provides tools for transforming results into file formats required by various analysis programs.

H. Bugs. Here the user can report bugs, check the status of bugs that he or she has submitted for resolution, and check the status of any bug that anyone else has submitted.

III. Distribution and updating of software.

A. Documentation for the download and installation process.

B. Link to Sun Microsystems sites where Java WebStart and the Java Runtime Engine can be download, if they are not already installed in the user's machine.

C. Link for downloading the MDA.

D. Automatic, secure updating of the MDA whenever a new version is available. This occurs when the user access the "Launch MDA" link at the personal portal.

E. Java WebStart does not allow a version of the MDA that has been modified since downloaded to communicate with the rest of SPK. This protects all users of SPK against maliciously altered software.

IV. Modeling and analysis tools.

A. Model Design Agent (MDA).

B. Analysis tools within the MDA.

C. Results converters, for transforming results into formats required by other analysis tools.

V. Execution of models and delivery of results.

In short, this is what SPK does.

VI. Archiving of models and datasets.

All models and datasets of a user are stored in a database in RCS archival format. This allows for the refinement of models and datasets to create new versions, while retaining all previous versions.

In addition to the archives of an individual user, certain generally useful models and datasets are made available to all users of an SPK installation. At a yet higher level, certain models and datasets are available to all users of all SPK installations that wish to participate in this sharing arrangement.

VII. Comprehensive history of all past runs.

The complete history of every job is retained in the database. A user can access any previous job as the starting point for a new job. This history is also very valuable to the SPK Software Team, so that they can analyze bugs, repair the software and then rerun any job that failed.

VIII. Customer service, including fault tracking and resolution.

Using the Bugzilla fault tracking and resolution system, all bugs are recorded, characterized, prioritized, and resolved. This software is accessible to the user via the personal portal and via the MDA.