Data Manager Web Application Business Requirements Document

Rebecca Ramnauth

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1 Executive Summary

The purpose of this Business Requirements Document (BRD) is to express the requirements of the Compliance Management team and stakeholders to be served by the deliverables of the Data Manager project. The primary audience for the document is the project team as well as the functional groups that must determine how to implement the application. This BRD contains both functional and non-functional requirements, an overview of the current process, as well as the proposed process once the solution is implemented.

2 Project Description

Data Manager is a web application that is responsible for the end-to-end management and administration of compliance regulation data processes. The management model involves four general components:

- 1. the configuration of feed subscriptions for regulatory content,
- 2. a comprehensive inventory of regulations for Compliance Tracking System (CTS)-Archer data feed,
- 3. file publication and high-level version control of sub-projects (e.g., XML parsers, batch loads, and web forms) on the resources server, and
- 4. status tracking of all related jobs.

In all, the objective of the Data Manager project is to create an integrated web site that projects a consolidated and consistent regulatory inventory for the Compliance Management team before CTS.

3 Project Scope

3.1 Technical Constraints

The following are relevant technical constraints that are involved with some of Data Manager's features:

- 1. For features that allow exporting to Microsoft Office 2016 (.xlsx),
 - a maximum of 1,048,576 rows allowed on a given worksheet
 - a maximum of 32,767 characters allowed in a given cell
- 2. For features that allow **null** DateTime values for ASP.NET calendars and calls a stored procedure with a DateTime parameter,
 - the *minimum* of a SqlDateTime object is January 1, 1753 12:00:00 AM whereas the *minimum* of a C# DateTime object is January 1, 0001 12:00:00 AM

• the maximum of a SqlDateTime object is December 31, 9999 11:59:59 PM whereas the maximum of a C# DateTime object is December 31, 9999 11:59:59 PM

3.2 Assumptions

The following are assumptions regarding Data Manager features:

- 1. Data Manager is responsive and should successfully display with full functionality in the following browsers. Display details may vary:
 - Internet Explorer 8.0 (Windows)
 - Firefox (Windows, Mac)
 - Chrome (Windows, Mac)
 - Safari (Mac)
 - Mobile Browsers (e.g., iOS Safari and Android browsers) on current devices

4 Requirements

	Category	Value	Description
R1	$egin{array}{c} Accounts \end{array}$	critical	Users are authenticated using windows integrated security and Con Edison network account (via the Active Directory).
R2	Accounts	critical	Permissions are assigned using distribution lists for each user role (i.e., Administrator, Compliance Management (CM) Team, and Guest).
R3	Content Views	high	The application will permit authorized users to view, insert new, and update existing data rows to specific data tables of a secure connected database.
R4	Content Views	low	The application will allow users to extract a view of a data table as a Excel spreadsheet.
R5	Content Views	medium	Users can filter certain columns of a view of a data table through the application.
R6	File Views	medium	The application will allow administrators to view certain files on a specified server-located directory ¹
R7	File Views	high	The application must allow administrators to upload and replace files on a specified server-located directory ¹ .
R8	Code	high	Administrators can manage sub-sites, modules, and extensions of the Data Manager application through the website using a File View as previously described.

5 Views

As previously discussed, there are two primary views, 'content' and 'file' views. A content view allows users to view, insert, and update (based on their specific user permissions/role) rows in an existing data table with an existing database connection. On the other hand, a file view allows users to view, insert, and update files of a specified server-side directory. Access to a file view, however, is more exclusive to the more knowledgeable users (i.e., administrators).

The following sections outline examples of views that are essential to the Data Manager web application.

5.1 Content Views

These views concern regulatory content as extracted by parsers such as the LexisNexis XML Parser and necessary for CTS.

5.1.1 Job Tracking

The **job view** allows authorized users to browse current or past 'jobs', the execution of related projects. Figure 1 demonstrates requirements R4 and R5. This content view is of the data table dbo. [Reg_Change_Job_Logs] of the dbo. [Lexis Export] database.

Filtering Job Type (by dropdown menu), job Start Time (by AJAX Calendar Extender), or job End Time (by AJAX Calendar Extender) causes the ASP.NET gridview to refresh using the stored procedure GetJobsByFilters.

Requirement R1 is demonstrated using Windows Authentication. The username is located at the top right of every page in Data Manager.

Additionally, summary cards are provided on the same page below the view. As shown in figure 2, a summary of the job distribution, a bar chart of the number of each job attempted, and a list of incomplete jobs can offer a quick overview of the data in the view.

5.1.2 File Tracking

The files view allows authorized users to browse current or previously parsed 'files', usually .txt documents containing XML or feed data from an external source and downloaded into a server-side repository using the LexisNexis Bulk Download or similar processes. Figure 3 demonstrates requirements R4 and R5. This content view is of the data table dbo.[Reg_Change_Extract_Tracking] of the dbo.[Lexis Export] database.

Filtering Subscription (by dropdown menu), file Start Time (by AJAX Calendar Extender), or file End Time (by AJAX Calendar Extender) causes the ASP.NET gridview to refresh using the stored procedure GetFilesByFilters.

Similar to that of the Job View, summary cards are provided on the same page below the Files View. As shown in figure 4, a summary of the subscription distribution, a bar chart of

¹Specifically for related projects of CTS, such as the LexisNexis XML Parser and LexisNexis Bulk Download. This allows for the easy detection and resolution by administrators of exceptions or errors as recorded in log files on the server

DATA MNGR V1 Jobs Summary of jobs is provided as the table below. To download the table as an Excel spreadsheet, click the 'Extract Details' button above ■ Regulatory Summary ID Job Type Start Time End Time File Extracts Regulations 2/15/2019 2:52:52 PM 9b820726-ede5-4040-bda9-1e31f18b5f33 Lexis Nexis Parser 2/15/2019 2:46:34 PM b9188a2b-df11-4650-985d-2b816845a4f3 Lexis Nexis Parser 3/5/2019 8:17:52 AM 3/5/2019 8:18:48 AM f25e3541-ba71-442c-9663-41f7ac3029ae Lexis Nexis Parser 3/2/2019 1:22:01 PM 3/2/2019 2:58:42 PM 2/24/2019 7:35:28 AM f3444915-1978-4d7a-b9db-4db116d8a803 Lexis Nexis Parser 2/24/2019 7:34:47 AM 98e46a7b-5c50-4bef-a622-7f85496d3274 Lexis Nexis Parser 2/18/2019 2:31:40 PM 2/18/2019 2:47:52 PM 9d3dfd1b-f081-49d6-a92e-8da4d928d529 3/1/2019 8:56:09 AM 3/1/2019 8:56:41 AM Lexis Nexis Parser

Figure 1: Example of a Job View

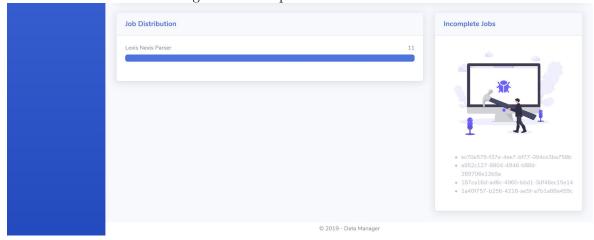


Lexis Nexis Parser

2/18/2019 8:35:26 AM

2/18/2019 8:36:07 AM

7866b54d-f480-40a2-affb-bc7c8bfb104a

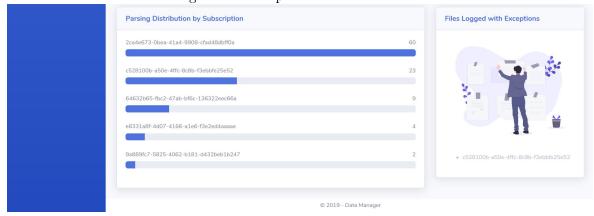


the number of parsed files per subscription, and a list of files logged with exceptions can offer a quick overview of the data in the view as well as the status of that data on the server.

DATA MNGR V1 Rebecca Ramnauth Extract Details **Files** Summary of parsed files is provided as the table below. To extract full file summary, click the 'Extract Details' button above Summary ID Subscription Name Start Time **End Time** 08268093-57a0-468e-bb68-2ca4e673-0bea-41a4-9908-13326-3/1/2019 9:15:23 3/1/2019 9:15:23 0013147243a7 cfad48dbff0a 13327 e0bdffec-82b1-44d8-b988-2ca4e673-0bea-41a4-9908-13335-3/5/2019 8:18:47 3/5/2019 8:18:47 07191324cf2d cfad48dbff0a 13336 8adea6f8-ea0f-4c41-b7fbc528100b-a50e-4ffc-8c8b-3/2/2019 1:22:01 1105-1106 3/2/2019 1:22:27 f3ebbfe25e52 0940dbdb69e7 PM 5e08b6d0-c94d-4de6-acf4c528100b-a50e-4ffc-8c8b-3/1/2019 8:56:09 3/1/2019 8:56:09 1104-1105 09ff8d432927 f3ebbfe25e52 AM AM 0cc20527-6cee-496a-9946c528100b-a50e-4ffc-8c8b-1104-1105 3/5/2019 8:17:52 3/5/2019 8:17:52 0dcc809b3fb9 f3ebbfe25e52 AM AM

Figure 3: Example of a Files View





5.1.3 Regulation Tracking

The **regulations view** allows all users to browse current or previously parsed 'regulations', the result of a parser such as the LexisNexis XML Parser. Figure 5 demonstrates requirements R4 and R5. This content view is of the data table dbo.[Reg_Change_Content] of the dbo.[Lexis Export] database.

Filtering regultion Citation (by dropdown menu on attribute [Reg_Body]), regulation Jurisdiction (by dropdown menu), or regulation Action (by dropdown menu) causes the ASP.NET gridview to refresh using the stored procedure GetRegulationsByFilters.

DATA MNGR V1 · · · . Rebecca Ramnauth Regulations Summary of parsed regulations is provided as the table below. To download the table as an Excel spreadsheet, click the 'Extract Details' button Citation Jurisdiction Content Updated Action ▼ ALL 26 CFR 1.274-5T 8/6/2015 8:08:03 PM United States 26 CFR 1.706-1 United States 8/6/2015 8:08:03 PM 26 CFR 1.6662-3 United States 8/6/2015 8:08:03 PM add 26 CFR 301.6402-2 United States 8/6/2015 8:08:03 PM

Figure 5: Example of a Regulations View

5.2 File Views

These views allow authorized users to view, insert, and update files in a server-side directory that is related to a CTS sub-project (e.g., LexisNexis XML Parser source code and resulting logs).

5.2.1 Sub-project Source Code

A file view of a directory containing the source code of a related CTS project allows authorized users to browse the files in that directory and make changes to source code within reason. All changes to the view are recorded. Figure 6 implements requirements R6 and R7 through a file view of the LexisNexis XML Parser source code. For each file in the directory, there are the options to view, download, or delete the given file.

An authorized user can view a file on the same page below the ASP.NET gridview such as shown in figure 7.

5.2.2 Sub-project Configuration

A file view of a directory containing the configuration files or all files of a specified directory matching a certain pattern (e.g., *.config) allows authorized users to view and, if/when needed, change the configuration of a CTS-related project. All changes to the view are recorded. This configuration file view follows the same design as a source code view, such as figure 6.

5.2.3 Sub-project Log Files

A file view of a directory containing the logs of a related CTS project allows authorized users to browse or delete the logs stored in that directory. All changes to the view are recorded. Figure 8 implements requirements R6 and R7 through a file view of the LexisNexis XML

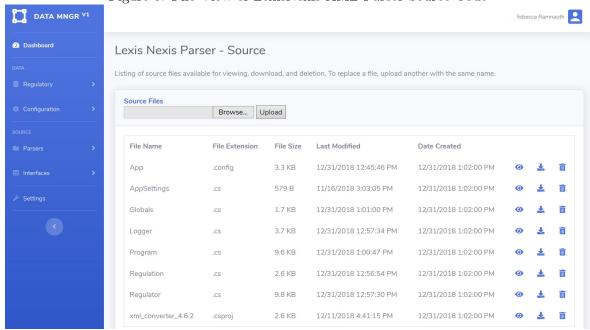


Figure 6: File View of LexisNexis XML Parser Source Code

Figure 7: File View of LexisNexis XML Parser Source Content

```
Content

/* Copyright (c) 2018 Rebecca Ramnauth */

using System;
using System.Collections.Generic;
using System.Linq;
using System.Linq;
using System.Xml.Linq;

namespace xml_converter
{
    class Regulation
    {
        private readonly string file;
        private List<string> file_items = new List<string>();
        private List<string> content_items = new List<string>();
        private List<string> user_items = new List<string>();
        private List<string> regulation_items = new List<string>();
        private List<string> regulation_items = new List<string>();
```

Parser source code. For each file in the directory, there are the options to view, download, or delete the given file.

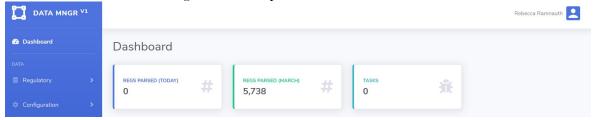
Similar to other file views, an authorized user can view a file on the same page below the ASP.NET gridview.

5.3 Dashboards

A dashboard is a custom page of set modules that summarize content throughout views as illustrated in figure 9.

DATA MNGR V1 Rebecca Ramnauth Logs Listing of log files available for viewing, download, and deletion Browse... Upload File Name File Extension File Size Last Modified **Date Created** 3/1/2019 10:37:43 AM 3/1/2019 8:55:37 AM lexis_xml_parser_03012019 5.3 KB lexis_xml_parser_03022019 3 KB 3/2/2019 2:58:42 PM 3/2/2019 1:22:01 PM 2 KB 3/5/2019 8:18:48 AM 3/5/2019 8:17:51 AM lexis_xml_parser_03052019 Content PARSING [LOG LEVEL 1] , on 3/1/2019 at 8:55:37 AM DEBUG@3/1/2019 8:55:38 AM Program.cs: [MESSAGE] Job started Figure 9: Example of a Dashboard View

Figure 8: File View of LexisNexis XML Parser Logs



6 Use Cases & Data Flow

The following figure 10 illustrates the three primary user roles (i.e., Administrator, Compliance Management Team member, and guests). To highlight the distinction between a files and content view, only administrators can read (r), write (w), or execute (e) on these views. The read permission allows users to simply access the resource, whereas write allows authorized users to edit or insert rows in that view, and execute permits users to update or commit their changes to that view and, thus, to the underlying data table.

Furthermore, these high-level view types are broken down by purpose such as viewing the logs of a related project or reviewing the users of Data Manager. In addition, these more specific views are related to example projects, for instance, the LexisNexis XML Parser.

User roles build upon each other. For example, it is implied that a Compliance Management Team member will already have the permissions of a current Con Edison employee; a

Data Manager administrator will have the permissions of both a CM member and a guest user in addition to the administrator's elevated permissions.

Source Code View Configurations View LexisNexis Bulk Logs View Download Administrator Users View Data Manager Web Content View Application History View Compliance Job View Management Team ➤ LexisNexis XML Parser Files View Regulations View Current Con Edison Employee

Figure 10: Roles, Permissions, and Use Cases

The data from each view ultimately flow from Data Manager to the Con Edison staging database.