PRIMAVERA CONTRACT MANAGEMENT (PCM) CLOSEOUT PROGRAMMING SOLUTION

Rudy Ising

DRMcNatty and Associates, Inc.

www.drmcnatty.com

Abstract:

With the retirement from active support, many firms who have been using Primavera Contract Management (PCM) are shifting to other packages to manage projects. While companies can continue to use PCM, many are choosing to shift to another software tool to maintain current and active support for updates and changes in technology. Oracle's tool identified as this replacement, for example, is Unifier. For most products, there is no simple data migration strategy, and so the question comes up as to how to maintain historical data without continuing to maintain the older system (PCM) permanently. This document illustrates a method of programmatically extracting PCM data into PDF format and maintaining these documents for archival purposes.

Background:

Oracle Primavera Contract Management (PCM) has been one of the core project management software packages used in the construction industry for well over 30 years. With the acquisition of the Unifier software package, Oracle has chosen to stop active support for PCM, and has identified Unifier as the replacement. While there are potentially manual options for mapping and importing the data from PCM to Unifier, the general practice is to use Unifier (or some other tool) for projects going forward, and maintaining the older historical data in PCM.

While there are multiple scenarios for data archival, the primary options would include:

1. **Migrate ALL data** from older system to new system.
   a. This option is not typically recommended because of cost to perform, but also because each system operates differently, and the migrated data would not exactly match the original system of record once migrated.
2. **Maintain the PCM system** for the length of data needs.
   a. This option requires a legacy system to be maintained, which can be ultimately problematic with the updates to operating systems and hardware, and may be a security risk for certain operations as well.
3. **Convert the historical data** to a searchable PDF format.
   a. This is the option discussed here, and involves printing the data entry record to PDF format and appending copies of the attached documents to that record. Since these are PDF, they can be searchable; can be accessible to those needing the data and does not require maintenance of a PCM environment.

PCM is used typically to record, process and store various construction documents, both cost and document types. Examples are Request for Information, Submittals, Change Proposals, Change Orders, as well as correspondence, notices, periodic reporting (Meeting Minutes, Daily Field Reports) and more.

PCM stores all key information for these documents in the database, then provides a repository to upload associated external documents and link them to these records. Lastly, PCM provides the means to print out an individual record or run a status report on these documents. Depending upon the PCM version used, these documents are printed using either Infomaker or Oracle Business Intelligence (BI) software.

For an external copy of the PCM record, it is important that the input data (what prints on the PCM 'form') can be printed out, while the associated attachments can be linked in the new system and easily accessed.
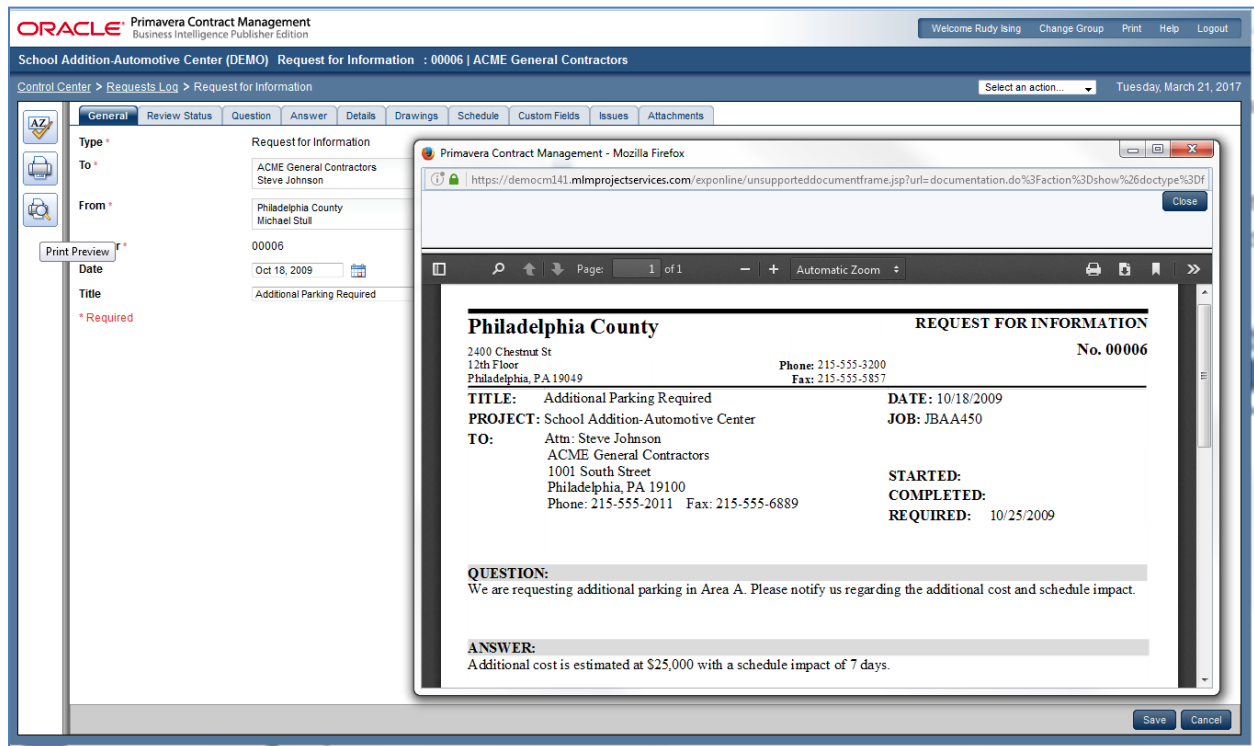

Figure 1-Print Form captures key data

Solution:

DRMcNatty developed a solution to print the default form from PCM to PDF format, logically stored and named generally by project, document number and title for easy reference. Then the solution also prints the records attachments to PDF and appends them to this same document. This results in a single PDF that has the key data input in PCM and also ALL attachments associated with that record. These PDF files can then be stored on a physical drive or uploaded into a new repository and eliminates the need to maintain a PCM environment to access this historical data. In addition, this eliminates any significant data migration requirements to map existing PCM data to Unifier or any other product.

Another benefit of this approach is allowing a client to develop their PCM replacement software to its full capabilities, and not limit its design to PCM data requirements.
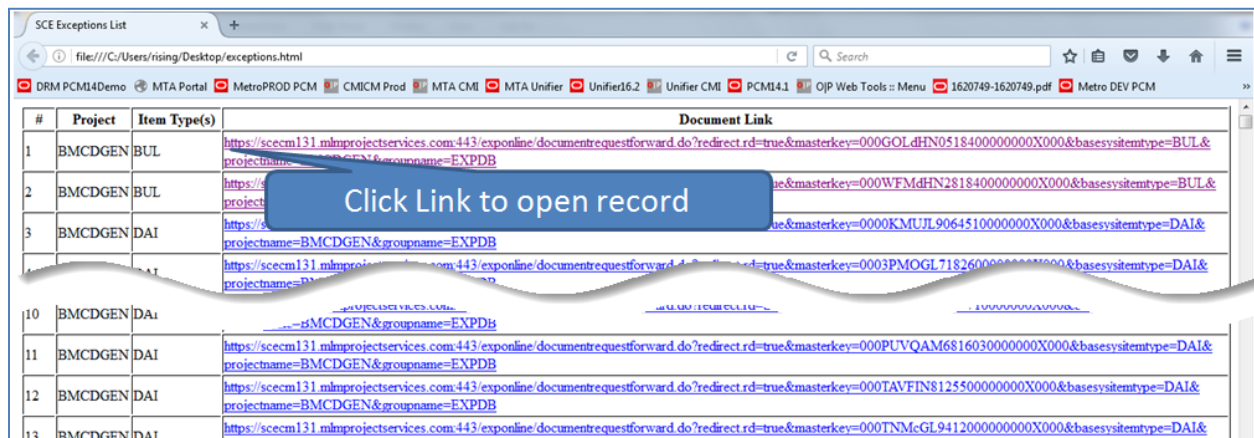
The cost to implement this kind of solution would be less costly than continuing to maintain an operating PCM environment, solely for the purpose of accessing archived data.

Architecture:

As a programmed solution, this uses database scripts along with pre-packaged software components to perform some of the tasks. For PCM versions 13.1 and earlier, these use the Infomaker runtime engine to print out the PCM records based on the default Infomaker forms used by PCM. For versions 14.0 and higher, the PCM records are printed using the default Oracle BI forms found on the server.

For the appended file attachments, this programmed solution would include all records which have PDF, DOC, DOCX, XLS, XLSX, JPG, JPEG, TIF, PNG file types.

For records that have non-standard attachments that cannot be easily read programmatically (ZIP, DWG, XER, etc.) these would be excluded from the programming and would be handled manually by the client. However, this solution includes providing an exception list with a direct URL to each record for simple retrieval. Once these are processed manually by the client, they can be added to the programmed solution delivered by DRMcNatty.

Figure 2--Example of Exception Report

By default, files would be organized into file folders, by Project, then Document Type, and then the individual PDF files would be named using a convention of Document Number/Document Title combination to maintain unique filenames and simplify the search and navigation of these files.
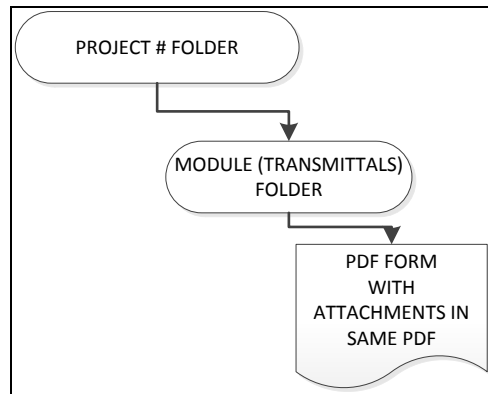

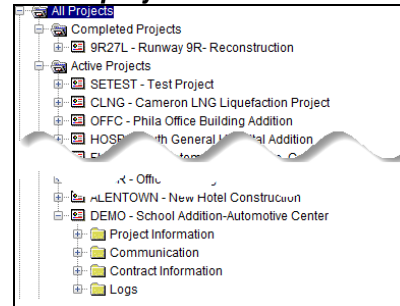**Figure 3-Folder Organization**

This solution is modular, so a client can choose what to migrate. If projects are past their retention requirements, those projects can be skipped; if only select modules are required to be maintained, then only those modules (document types) can be included. Otherwise, if all document types and projects are needed, that can be accomplished.

You decide what to include:

Which *document types*:

Which *projects*:

Design and Operation:

The first steps include working with you to define the scope of the operation (which document types, which projects) and then initial queries to get approximate data counts. Also, these are used to build the "exception list" which includes the documents the client must manually handle. In most cases, this represents a very small percentage of the total document count.

The processing steps include the creation of the folder structure, the printing of the record, the attachments to PDF, and merging those into single PDF's for each record. While these processes are running, sample documents are checked for completeness and accuracy. Once all the processes are complete and the final data set is ready, a second check of sample documents is performed, comparing them to the information found in PCM.

By default, these files are organized in file folders on the server organized by project and document type. However, it is potentially possible to transfer these files to another repository (like SharePoint) at runtime if that is desired.

As a last step, these finalized files are turned over to the client for their review and cross check.
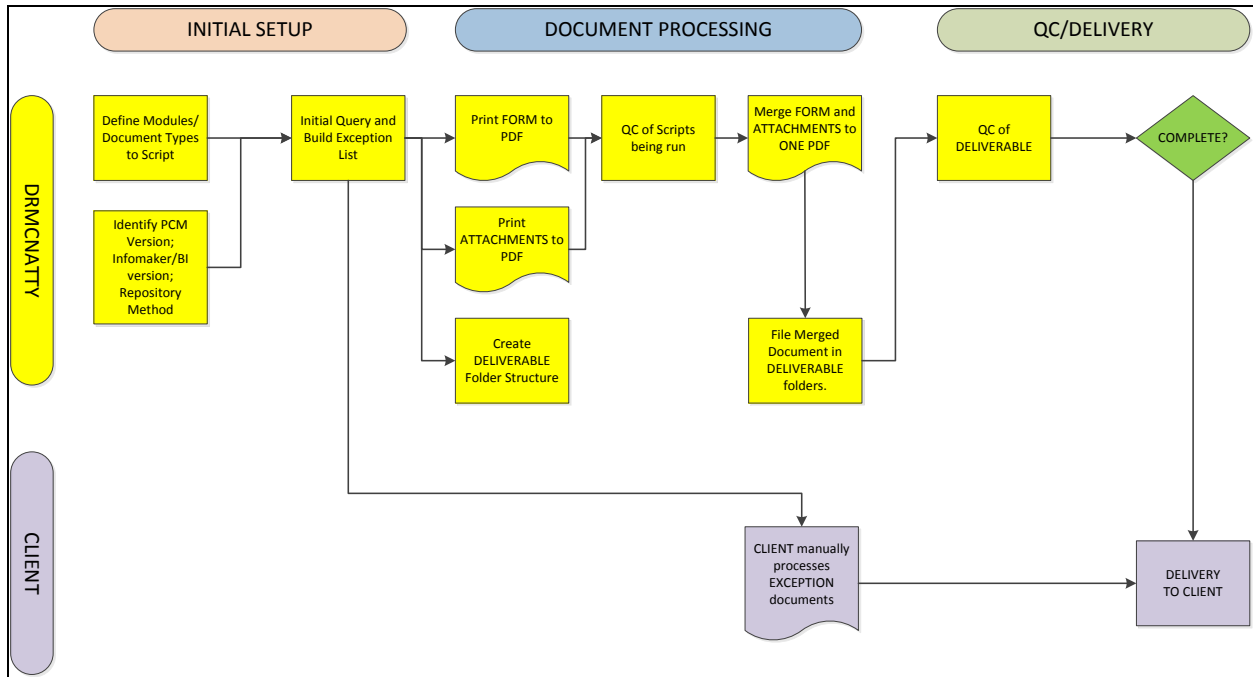
Below is a schematic of the process:

Figure 4--Process Steps

Deliverable:

When completed, the client will have a series of physical files (PDF) with file names that describe the document number, document title (or other key information), organized by project and then by document type.

As mentioned previously, another option would be to store the PDF files in a repository of the client's choosing. This would require some additional setup and presumes appropriate permissions are provided.

In each PDF file will be a print of the PCM record (the form print in PCM) followed by all the attachments to that record.

In this way, no special software is required to access these files, and they can be stored anywhere the client chooses.

Requirements and Considerations:

Scripts are typically run directly on the PCM server, where access to the form libraries and attachments already exist. In addition, certain software elements may be required to exist on the server (such as MS

Office 2007 or later) and other runtime software may need to be installed on this server to operate the script.

It is important that no changes to the PCM data are made once the closeout process has begun because changes to the data might not be reflected in the final data if that happens. Typical practice for this is to either turn off access to PCM users once the process starts or to set their access to read only.

Given sufficient system resources, multiple scripts can be run concurrently to expedite the process. However, this will put a performance burden on the server, and if users are still access the system (even just read only) their access may be slower than usual.

With variations in PCM versions and environments, the solution may require some changes to code when implemented for different systems.

Conclusions:

With Oracle's retirement of the Contract Management application support, many clients will look to move to current, supported systems in lieu of PCM. This solution provides a simple way to maintain access to historical PCM data without the costly data migration steps or having to maintain the PCM system after the switch to another system.

For more details about cost and time for running this closeout process, please contact:

Dan Beck

dbeck@drmcnatty.com

949-367-7994