

RMS Attachment 4 - Legacy Data Access Plan Niche Response

Note: This RMS Attachment 4, Legacy Data Access Plan provides the response provided as part of the Contractor's technical proposal for the New York State Police Records Management System project used as the benchmark to establish this Aggregate Agreement. The Contractor, Niche Technology Inc, and the Products offered under this Aggregate Agreement are required to adhere to the functionality contained in this response. An Authorized User should review the functionality described by the Contractor in this Attachment and should use this information as a baseline for the Statement of Work. Authorized Users should also determine if any changes are necessary to meet the specific project requirements when working with the Contractor to develop the Authorized User Agreement. Please see Attachment D, How to Use the Aggregate Agreement 18-02, for additional information when working with the Contractor to develop the Authorized User Agreement.

Contractor's Name: Niche Technology Inc.

Requirement Type - Legacy Data Access Plan

Instructions:

- For each requirement contained within this document a response is required.
- If additional space is needed the Contractor should clearly label their response with the requirement identifier.
- NYS reserves the right to allow the Contractor to correct obvious errors of omission.

Assumptions

- All answers to legacy data access requirements must fully comply with NYS and CJIS security policies and standards referenced within this RFQ (<http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center> and <https://www.its.ny.gov/eiso/policies/security>)
- For Requirement LD2 below NYS will be responsible for data cleansing.

Background

The New York State Police is committed to providing access to legacy data from within the new RMS. The quality and integrity of the data is difficult to assess. Often there are duplicate master names created either by importing of data from other systems, user error, or because of insufficient information.

The Contractor shall provide a comprehensive description of options that satisfies the requirement including capabilities, features, considerations, constraints, and limitations.

Rqmt. No.	Requirement Description
LD1	<p>The Contractor shall provide a solution for the NYSP to access legacy data with in the SJS records management system from the new RMS.</p> <p>The Contractor’s response shall include detailed information on the technical approach as well as a description of how the data and search results are visually represented from an end user perspective.</p> <p>Refer to RMS Appendix 4 – SJS Overview for NYS Police legacy RMS database information.</p>
	<p>Contractor’s LD1 Response:</p> <h3 style="color: #4F81BD;">NicheRMS access to legacy data held in external systems</h3> <p>It is expected that NicheRMS will access SJS data through the use of NicheRMS application plugins. Application plugins are commonly used to access data in an external data store. Application plugins can broadly be classified as:</p> <ul style="list-style-type: none"> • Search plugins: These plugins allow users to search external data stores from the COTS NicheRMS search views. These plugins have the following characteristics: <ul style="list-style-type: none"> ○ External data stores can be searched concurrently with NicheRMS, providing that both systems understand similar search criteria. For example, it will be able to perform an incident number search against both NicheRMS and SJS, providing that the available SJS APIs exposes an incident number search. ○ Results are displayed alongside NicheRMS search results, but are visually distinguishable from NicheRMS results. That is, users will be able to differentiate SJS results from NicheRMS results. ○ Results from external data store plugins can implement their own expanded data format and implement their own operations. For example, the SJS search plugins could implement a "View in SJS" operation, providing that there is a method of launching the SJS browser app that can be used by the plugin. • Instance plugins: These plugins allow users to access external data stores from individual records within NicheRMS. We expect that NicheRMS users could access SJS data through the use of a "View in SJS" plugin that would take a known identifier (e.g. an SJS incident ID) and map it to an appropriate URL or other identifier in SJS. <p>The benefit of the external data store approach is that it does not require data conversion and limits risk of comingling or corrupting new ‘clean’ production data. It also ensures that there is no question of whether it looked differently in its system of origin, because it is still in the system of origin.</p> <p><i>Prerequisites</i></p> <p>The NicheRMS plugin approach to external data store access has the following prerequisites:</p> <ul style="list-style-type: none"> • SJS must continue to run; we assume that this must be the case with SJS, as the requirement does not specifically call for a legacy data conversion and import. • SJS must provide suitable APIs for executing searches and returning results to NicheRMS; this includes, where appropriate, a method of authenticating the current

	<p>NicheRMS end user through the API, or executing all commands through a lowest common denominator service user that executes all searches on behalf of the NicheRMS user. This will ideally take the form of an XML web service.</p> <ul style="list-style-type: none">• It must be possible for NicheRMS to launch the SJS viewer/web app in a way that automatically navigates to a target record in SJS, following successful authentication by the user.
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Rqmt. No.	Requirement Description
LD2	<p>The Contractor shall provide a detailed plan to import a pre-selected subset of data. At the time of implementation this subset of data will be approximately 150,000 records. This subset of Master Names will include data records that are proven clean and unique (relying on NYS SID), thus requiring minimal cleaning for conversion. The intent is to seed the new RMS with proven quality Master Names to be available for users. Refer to RMS Appendix 3 - Data Samples, Livescan Descriptors for Master Name Index (MNI) Import for sample field names.</p>
	<p>Contractor's LD2 Response:</p> <h3 data-bbox="277 636 1252 678">Niche's Approach to Data Conversion and Migration</h3> <p data-bbox="277 701 1369 768">Data conversion is a very common project activity and Niche Technology has proven processes for reliable data migration and conversion.</p> <p data-bbox="277 789 1344 856">Niche has experience with very large, complicated, multi-agency/multi-system data conversions. For example, the Queensland Police data conversion included:</p> <ul data-bbox="370 863 802 1003" style="list-style-type: none"> • Data from 4 different systems • 4 million person records • 3 million address records • 500,000 mug shots <p data-bbox="277 1024 1451 1092">There are many options and variations for the treatment of legacy data which can be mixed and matched. Here are the most common ones:</p> <p data-bbox="285 1119 1135 1161">(1) Convert legacy data into an active NicheRMS domain</p> <p data-bbox="277 1171 1459 1274">With this approach, the legacy data is usable in the same way as new NicheRMS data. This approach works if the legacy data is of good quality and the structure of the source system lends itself to conversion.</p> <p data-bbox="277 1302 1117 1344">(2) Convert legacy data into a legacy NicheRMS domain</p> <p data-bbox="277 1354 1484 1528">Here, legacy data is converted into a separate domain (e.g., "Legacy converted") so that the can only view the data or interact with it in a limited way. In the UI, it is obvious to the user that they are viewing legacy data. This approach has been used when the legacy data is of poor quality, but the agency wants to be able to view the data within NicheRMS. This requires a lower data conversion effort than #1 above.</p> <p data-bbox="277 1556 1414 1598">(3) Maintain legacy data in an external repository – accessed via NicheRMS</p> <p data-bbox="277 1608 1463 1778">A NicheRMS client plug-in interface would allow users to access the legacy data. This provides an easy way for users to search both NicheRMS and the legacy data in a single operation. This requires the development/population of the central database(s) accessed by the plug-in and the development of the plug-in itself. The central repository can be a data warehouse or the source system(s).</p>

(4) Maintain legacy data in an external repository – accessed outside NicheRMS

This is really the same as approach #3 above except that the tool used to access the central repository is not a client plug-in, but typically a simple Web-based application that queries both the legacy system and NicheRMS simultaneously. It can be used as part of a staged user migration strategy as it provides users who have not been moved to the new system a way of querying both old and new data.

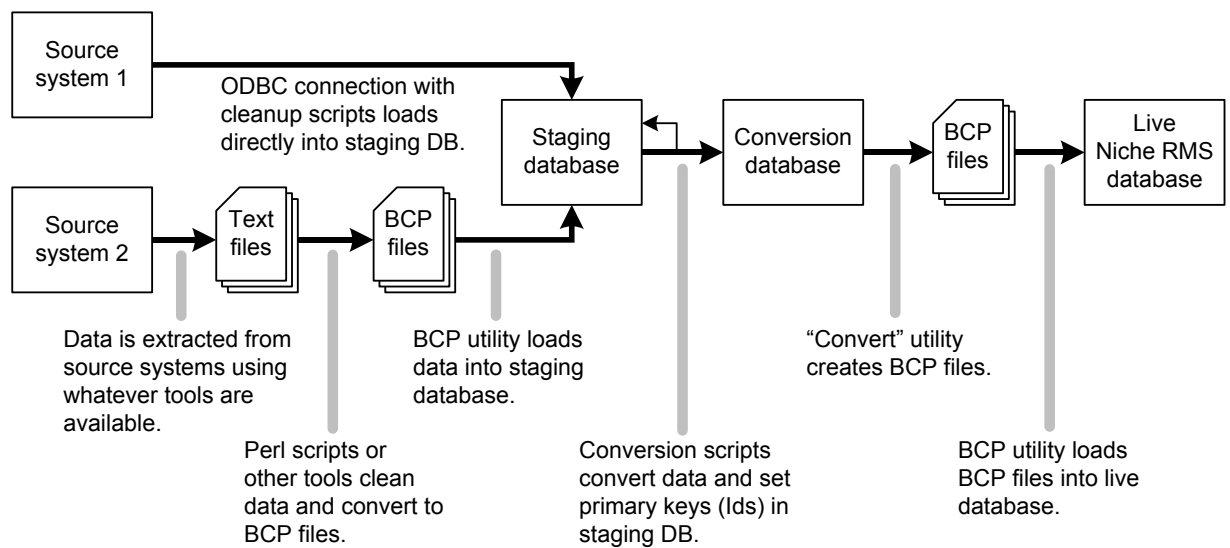
The following are the most common steps for data conversion tasks. The Niche project team will work with NYSP to develop a plan that is specific to the data to be converted.

- (1) **Data extraction.** The entire data set to be converted is extracted from the source system. The method of extraction depends on the capabilities of the source system. With older systems that do not support ODBC connections, data is typically extracted into a set of delimited text files. If ODBC connections are an option, the extract can be performed directly into the staging database (see below).
- (2) **Initial data cleanup.** If necessary, the source data is cleaned using ODBC and/or text processing tools like Perl. The purpose of the cleanup is to correct common errors and/or inconsistencies, such as formatting of date/time, numbers, names, locations, etc. before loading into the staging
- (3) **Load into staging.** The source data is loaded into a Microsoft SQL Server staging database with the same schema as the source system. If the source system extract was into text files, the files are converted into BCP files and loaded using the BCP utility.
- (4) **Staging cleanup, analysis and mapping.** SQL scripts are run to perform any cleanup not done prior to loading into staging. Specifically, constrained values (i.e. pick lists) must be validated and cleaned so that they contain only valid codes. Similarly, SQL scripts are used to find, repair or clean up referential integrity problems. As with the initial cleanup, these operations can be fully automated.
- (5) **Create conversion database.** The conversion database is created. This is a database that is a fully normalized version of the NicheRMS database. It is essentially equivalent to the application data model of the NicheRMS system.
- (6) **Transformation.** SQL scripts are used to perform the actual conversion. Primary keys for all entities created in the NicheRMS database are added to the staging database and data is transformed as the conversion database is populated.
- (7) **BCP file creation.** A Niche utility is run to generate SQL Server BCP files from the conversion database. These files contain all the data that will be loaded into the live NicheRMS database.
- (8) **Production load.** The SQL Server BCP utility is run to load the BCP files into the live database. This can be done while the system is in operation, but at times of low load. Note that the conversion process does not propagate configuration information. It is expected that the live database has already been fully configured prior to conversion.

- (9) **Business logic application.** There are numerous calculated columns in the NicheRMS database, including phonetic codes for names, pre-computed cached values for displayable values, etc. SQL scripts are used to populate these columns.
- (10) **Index and database cleanup.** In some cases, indexes in the live database may have been dropped for the load. These are recreated. Also, the database statistics are updated to ensure that the query optimizer has a proper understanding of the data distribution statistics for all the indexed columns (which will have been changed by the load) and produces proper query plans.
- (11) **Post-conversion testing and cleanup.** The converted data is tested and validated. The customer sends Niche log files (after steps 7 and 11) to identify any problems with the process itself. After step 11 the customer can further validate the newly-imported data. Cleanup scripts are run to perform final conversion and cleanup tasks in the live database.

If the import is performed during a system outage, steps 8 through 11 would run in the outage. Then customers could do a sanity check of how the data looks through the RMS before releasing it to all users. During this step, there is an opportunity to roll the database back to a pre-import state. If the BCP load is performed online, it would still be possible to roll back the imported records
- (12) **Production fixes.** In some cases, systematic errors in the conversion process may be discovered after go-live. These can usually be fixed by writing custom SQL scripts that use data in the staging database (with the primary keys created during transformation) to relate the original records to the transformed records and fix the transformed records as required. These changes are made on the live database.

For the final conversion, the entire process is automated into a handful of tested, documented steps, with a known runtime and expected outputs for each step. All of the infrastructure of the conversion process is reused for each project. The main work is creating the conversion mappings – both the simple field-level one-to-one mappings and the more complex, but less common, multi-table conversion queries. The process is diagrammed below:



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Rqmt. No.	Requirement Description
LD3	<p>The Contractor shall provide a solution for the NYSP to access legacy data within the Intelligence Case Management System from the new RMS.</p> <p>The Contractor’s response shall include detailed information on the technical approach as well as a description of how the data and search results are visually represented from an end user perspective.</p> <p>Refer to RMS Appendix 5 – Data Structure Intel Case Management for NYS Intelligence Case Management System database information.</p>
	<p>Contractor’s LD3 Response:</p> <p>Access to the Intelligence Case Management System data will be provided using the same approach discussed for SJS in our response to requirement LD1. That is, we expect to provide a family of NicheRMS application plugins that will allow search and view access of ICMS. View access will primarily be facilitated through the launch of existing ICMS viewers. Please see the response to LD1 for full details of the approach and its benefits.</p> <p><i>Prerequisites</i></p> <p>The NicheRMS application plugin approach to providing ICMS search and viewing has the following prerequisites:</p> <ul style="list-style-type: none"> • ICMS must continue to run; we assume that this must be the case with ICMS, as the requirement does not specifically call for a legacy data conversion and import. • ICMS must provide suitable APIs for executing searches and returning results to NicheRMS; this includes, where appropriate, a method of authenticating the current NicheRMS end user through the API, or executing all commands through a lowest common denominator service user that executes all searches on behalf of the NicheRMS user. This will ideally take the form of an XML web service. • It must be possible for NicheRMS to launch the ICMS viewer/web app in a way that automatically navigates to a target record in ICMS, following successful authentication by the user.