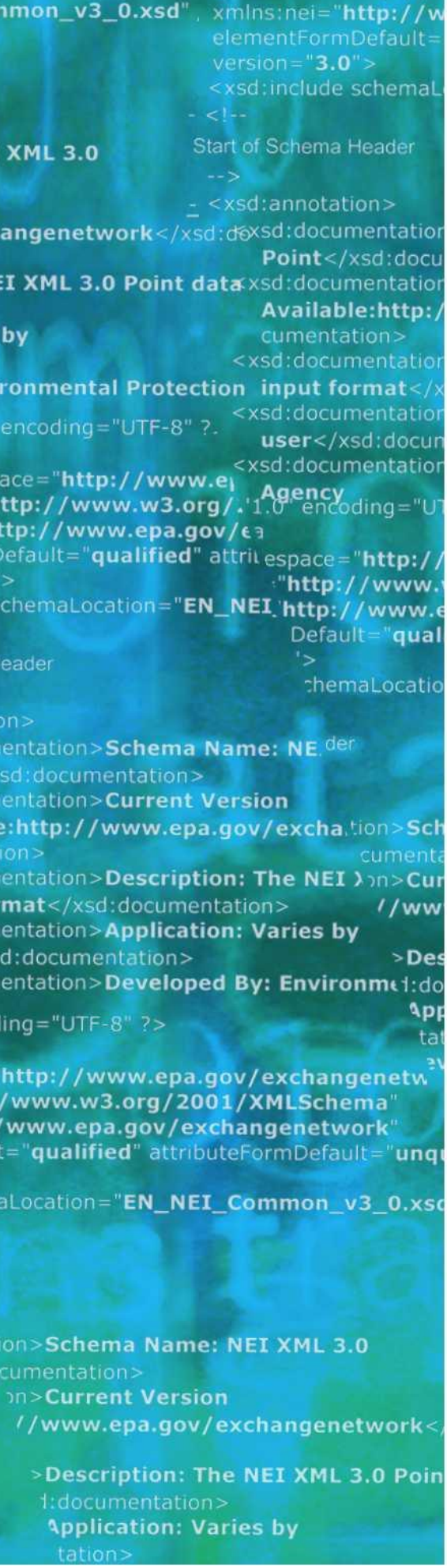

OpenNode2

RCRAInfo Outbound 5.7 Data Exchange Implementation Guide (Java)

Date: 9/27/2019

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Environmental Information exchange Network

Revision History

Date	Author	Changes	Version
12/7/2016	Windsor	Initial version	1
4/11/2018	Windsor	Updated for version 5.6 schema.	1.1
6/17/2019	Windsor	Updated for version 5.7 schema.	1.2
9/27/2019	Windsor	Updated to include implementation instructions for the new RCRA Reporting database.	1.3

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Data Exchange Overview

The purpose of this document is to provide detailed instructions for the installation and configuration of the Exchange Network Resource Conservation and Recovery Act information system (RCRAInfo) Outbound data exchange on the Java implementations of the Exchange Network OpenNode2 (OpenNode2).

The RCRAInfo Outbound data exchange offers a data service that is used to **solicit and retrieve** data from the EPA RCRAInfo system and load the data into the RCRA Outbound staging tables.

Further detail about the RCRAInfo Outbound data exchange is available in the Flow Configuration Document (FCD) published at exchangenetwork.net.

The RCRAInfo Outbound data exchange configuration process involves two main steps: 1) install and configure the RCRAInfo data flow 2) configure exchange services and node job schedules. The rest of this document will describe these two processes in detail. To download the latest Java Node and obtain the RCRA Outbound plugin, please click Download Java at the following GitHub website: https://windsorsolutions.github.io/opennode2/.

Terminology

Outbound data flow refers to the ability to obtain (solicit, query) data from the EPA. In other words, it is data outbound from the EPA.

Inbound data flow refers to the ability for a partner to push data to another partner. In the case of EPA, the data is going from the State, and data is coming Inbound into the EPA.

This document describes the RCRA **Outbound** data flow. Separate documentation can be found on GitHub that describes the RCRA Inbound data flow.

RCRA Reporting Database

A new optional component has been included with the overall RCRA Outbound data flow plugin. This new component includes a database structure, called RCRA_REPORTING and a set of database views and procedures. The purpose of this new component is to provide States the ability to replicate the data located in RCRA Info for the State, into a local environment.

The RCRA outbound staging tables contain a subset of data, based on the data solicited from the EPA. The staging tables can be considered more of a temporary holding tank, or pass-through, where it is removed/deleted during the next solicit. For example, if Hander data is solicited with a Change Date of 01/01/2019 and an End Date of 1/30/2019, then the staging tables will be filled with Hander data that has been inserted or updated between those dates. During the next solicit, Handler data is requested with a Change Date of 2/1/2019 and an End Date of 2/28/2019, then the previously held data is removed, and this new February dataset is inserted. This works well when the data is moving from this staging database to another database, such as a local Hazardous Waste program database. But it does not provide a full picture of RCRA data for the State.

The RCRA Reporting database and associated components provides the ability for the data to be incremented over time. Seeding the database going back to the 1980's for most payloads, and June 2018 for eManifest data provides a baseline of data. Then running the solicits on a nightly basis allows the data to be incremented using smaller datasets, where any new or updated data will be incorporated in the RCRA Reporting database. The views and procedures included take the data from staging and incorporate it into the RCRA Reporting database. This entire process can be initiated and maintained automatically using the current RCRA Outbound plugin in OpenNode2.

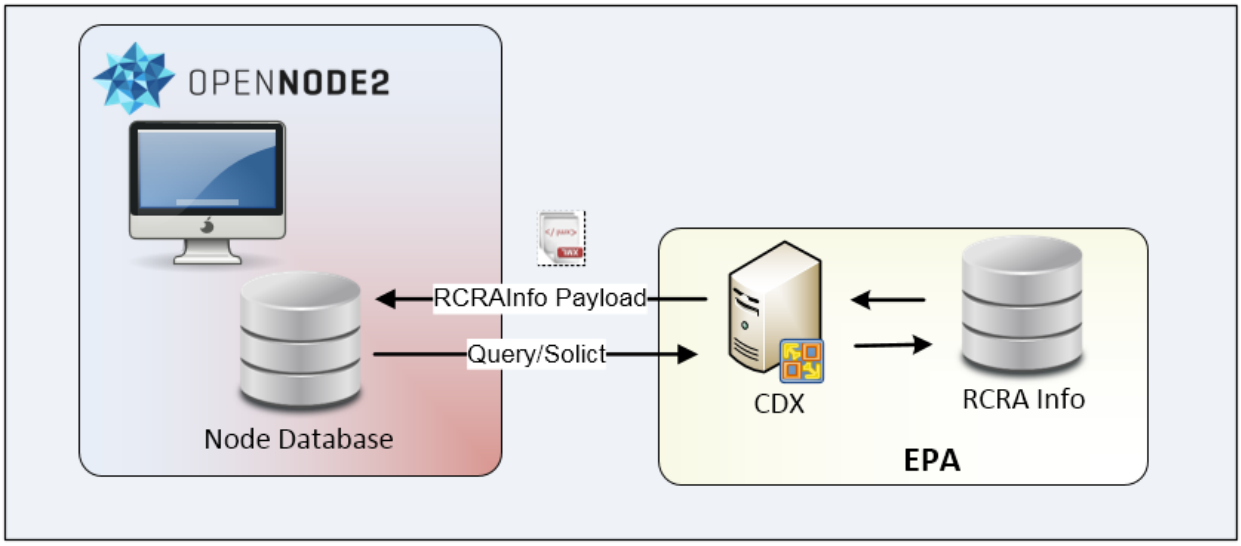
Instructions on implementing the RCRA Reporting components has been included in this Data Exchange Implementation Guide.

Important 5.7 Updates

The newest schema version, 5.7, introduced several important changes. The new GeEMByState and GetEMHandlerByID allows users to download the new eManifest data. Additionally, new attributes have been added to the Handler payload (GetHDDataByState) including Acknowledge Flag Indicator, Include In National Report Indicator, LQHUW Indicator and HD Report Cycle Year. The Current Handler (Report Universe) xsd file name was changed, making it unusable using the 5.6 plugin. In order to obtain Current Handler data, you must upgrade to 5.7.

Plugin Architecture

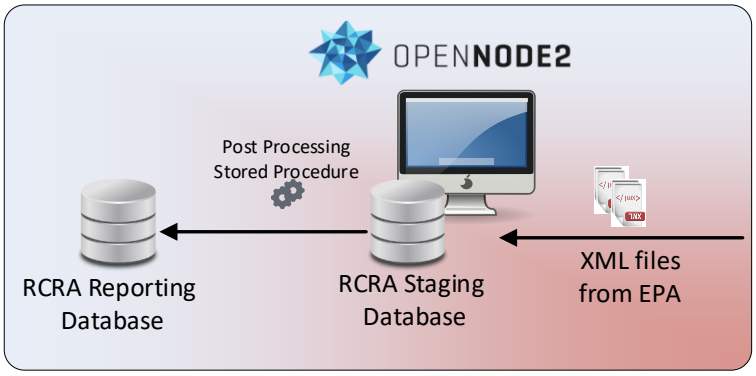
The diagram below shows the architecture of a typical OpenNode2 Outbound plugin and how services that access the plugin's functionality are configured by a node administrator.



A plugin contains one or more **implementers**. Implementers are canned functionality that are specific to the data exchange. An implementer performs some task, such as composing XML from a series of staging tables.

A node administrator exposes the functionality in an implementer by creating **services**. When a service is created, an implementer must be chosen. Each service may have one or more configuration arguments, defined by the implementer. For example, the service may require that a database connection or node partner URL be provided. Services can be made available to external partners in the form of a query or solicit or as an inbound submission processor. "Task" services are internal only and are accessed via a **schedule**. Schedules also can have configuration arguments which are used by the plugin implementer assigned to the schedule.

An additional component that can be implemented as part of this plugin is the RCRA Reporting database. The diagram below depicts how this component extends the typical plugin implementation. When XML files are obtained from the EPA, the data is loaded into the staging database. If a post processing stored procedure is established in the plugin setup, then this will be executed automatically, and will migrate the data into the RCRA Reporting database.



RCRAInfo Data Flow Deployment

NOTE: This deployment and configuration guide is for the **Java version** of OpenNode2 with an **Oracle or SQL Server** database platform. If you are planning on implementing he RCRA Reporting components described above, you can follow the below steps in order, and then read the ***Installing the RCRA Reporting Components*** section of this document.

Install Data Objects for RCRAInfo Data Flow

1. Open **Oracle SQL Developer (or other Oracle SQL tool) or SQL Server Management Studio**
2. It is recommended to set up a new schema for this outbound database, (typically called NODE_FLOW_RCRA).
3. For brand new installations of this plugin, you will want to set up the staging tables using the full CREATE scripts. Open and execute RCRA_5.7_ ORA_DDL.sql for an Oracle environment, or RCRA_5.7_SQL_DDL.sql for a SQL Server environment.
4. If you already have existing version, you can use the upgrade scripts. Open and execute RCRA_5.6_to_5.7_ ORA_DDL.sql for an Oracle environment, or RCRA_5.6_to_5.7_ SQL_DDL.sql for a SQL Server environment.

Configure Partner and Data Sources

For the following steps, use the appropriate OpenNode2 Administration Utility.

Configure Network Partner (if needed)

1. Click the **Configuration** button
2. Click the **Network Partners** button
3. Click **Add Partner**, and enter the following values for the new Network Partner:
    - **Name**: CDX RCRA Production *["Test" or "Production"]*
    - **Endpoint URL** (test): *https://testngn.epacdxnode.net/ngn-enws20/services/NetworkNode2Service*
    - **EndPoint URL** (production): *https://cdxnodengn.epa.gov/ngn-enws20/services/NetworkNode2Service*

4. **Version**: Select *Node v2.0* from the drop-down list

Configure Node Data Sources (if needed)

1. Click the **Configuration** button
2. Click the **Data Sources** button
3. Click **Add Data Source**, and enter the following values for the Node Flow staging tables where the RCRA outbound tables are located:
    - **Name**: *RCRA-OUTBOUND*
    - **Provider:** *Select appropriate driver based on your database platform*

Connection: jdbc:oracle:thin:[database name]/[password]@[host name or IP address]:[port number, i.e. 1521]:[Oracle SID] or
(server=[servername];User ID=[user name];Password=[password];database=[database name])

Configure Node Exchange and Services

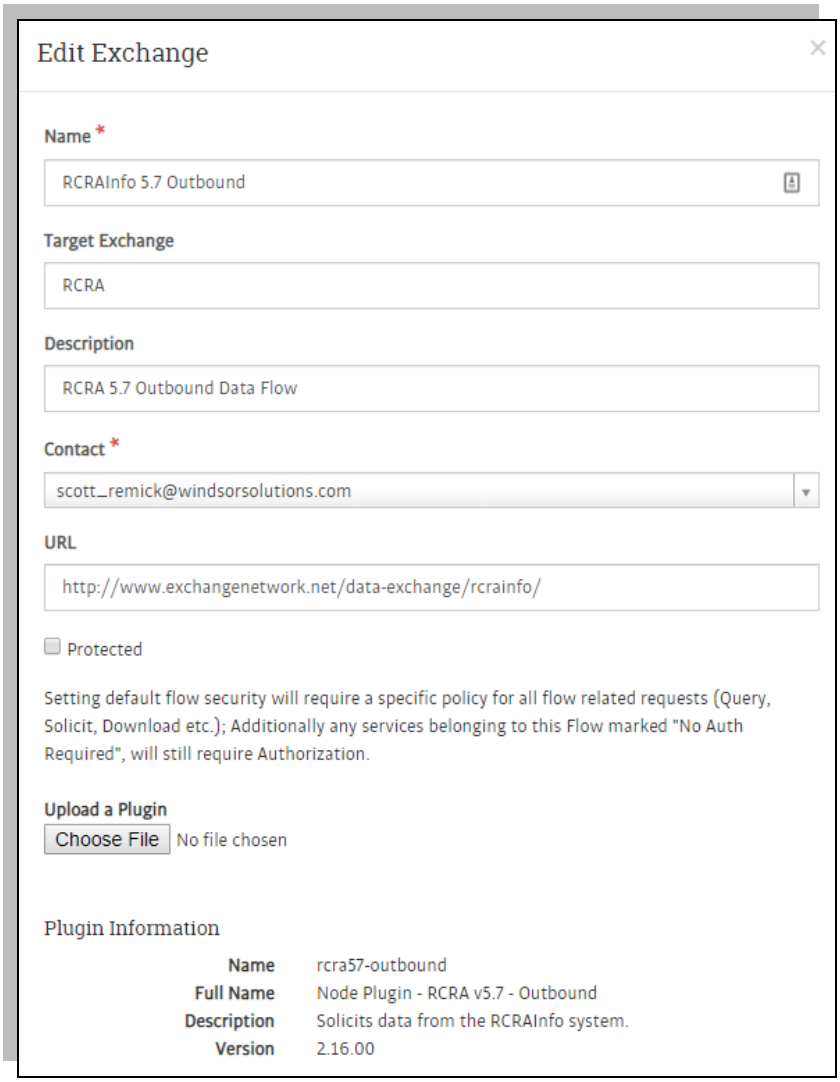
For the following steps, use the appropriate OpenNode2 Administration Utility.

Configure Exchange

1. Click on the **Exchanges** tab
2. Click the **Add a New Exchange** button**,** and enter the following values for the new Exchange:

    - **Name**: *RCRA Outbound*
    - **Target Exchange:** *RCRA Outbound*
    - **Description**: *RCRAInfo Outbound (from EPA) Data Exchange*
    - **Contact**: Select *YourEmailHere@State.gov* from the drop-down list
    - **URL**: http://www.exchangenetwork.net/data-exchange/rcrainfo/
    - **Protected**: Checked/True
3. Click the Choose File button under **Upload a Plugin**
4. Select the rcra57_outbound.zip file.

    OpenNode2 and all related Java plugins can be found at GitHub, by clicking Download Java.
5. Click the **Save** button



Configure Exchange Services

Solicits

Solicit services will provide the ability to obtain data from the EPA.

For each module that will be required (e.g., Compliance & Enforcement (CE), Handler (HD), Permitting (PM), Corrective Action (CA), GeoSpatial (GS), Financial Assurance (FA), Current Handler (CH), eManfiest (EM)) a corresponding exchange will need to be established. Each module can have separate exchanges for returning results by State or by Handler.

Processor

The processor looks for pending solicits and checks the status at the EPA. If the status at the EPA is "completed" then the processor will download the file and insert the data into the RCRA Outbound staging tables. Only one processor service needs to be established to accommodate all solicits.

Clear Pending

The clear pending service will set the local status of any solicits from pending to "failed". If a user ever encounters a message in the processor that says, a pending solicit already exists, this service can be run to clear out that pending solicit.

Establish Solicit Services

Note, By State is most common. There is no need to establish By Handler if you are looking for all data for a given state.

Be sure to ask Node Helpdesk to associate your operator/runtime account to your RCRA Info ID. The RCRA Info ID must have the ability to solicit data for your state.

Get CE By State

Under the **RCRA Info Outbound** exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get CE By State*
- **Implementer**: Select *SolicitOpCEByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get CE By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get CE By Handler*
- **Implementer**: Select *SolicitOpCEByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get HD By State

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get HD By State*
- **Implementer**: Select *SolicitOpHDByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service

- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get HD By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get HD By Handler*
- **Implementer**: Select *SolicitOpHDByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get PM By State

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get PM By State*
- **Implementer**: Select *SolicitOpPMByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get PM By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get PM By Handler*
- **Implementer**: Select *SolicitOpPMByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service

- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get CA By State

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get CA By State*
- **Implementer**: Select *SolicitOpCAByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get CA By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get CA By Handler*
- **Implementer**: Select *SolicitOpCAByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get GS By State

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get GS By State*
- **Implementer**: Select *SolicitOpGSByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service

- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get GS By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get GS By Handler*
- **Implementer**: Select *SolicitOpGSByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get FA By State

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get FA By State*
- **Implementer**: Select *SolicitOpFAByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get FA By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get FA By Handler*
- **Implementer**: Select *SolicitOpFAByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service

- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get Current Handler By State (HREPORT_UNIV)

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get Current Handler By State*
- **Implementer**: Select *SolicitOp**CH**ByState* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get Current Handler By Handler (HREPORT_UNIV)

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get Current Handler By Handler*
- **Implementer**: Select *SolicitOp**CH**ByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Stored Procedure:** Name of the post processing stored procedure located on the target data provider database. This accommodates data migrating to another source database. If not post processing, then leave blank. (optional)
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get EM By State

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

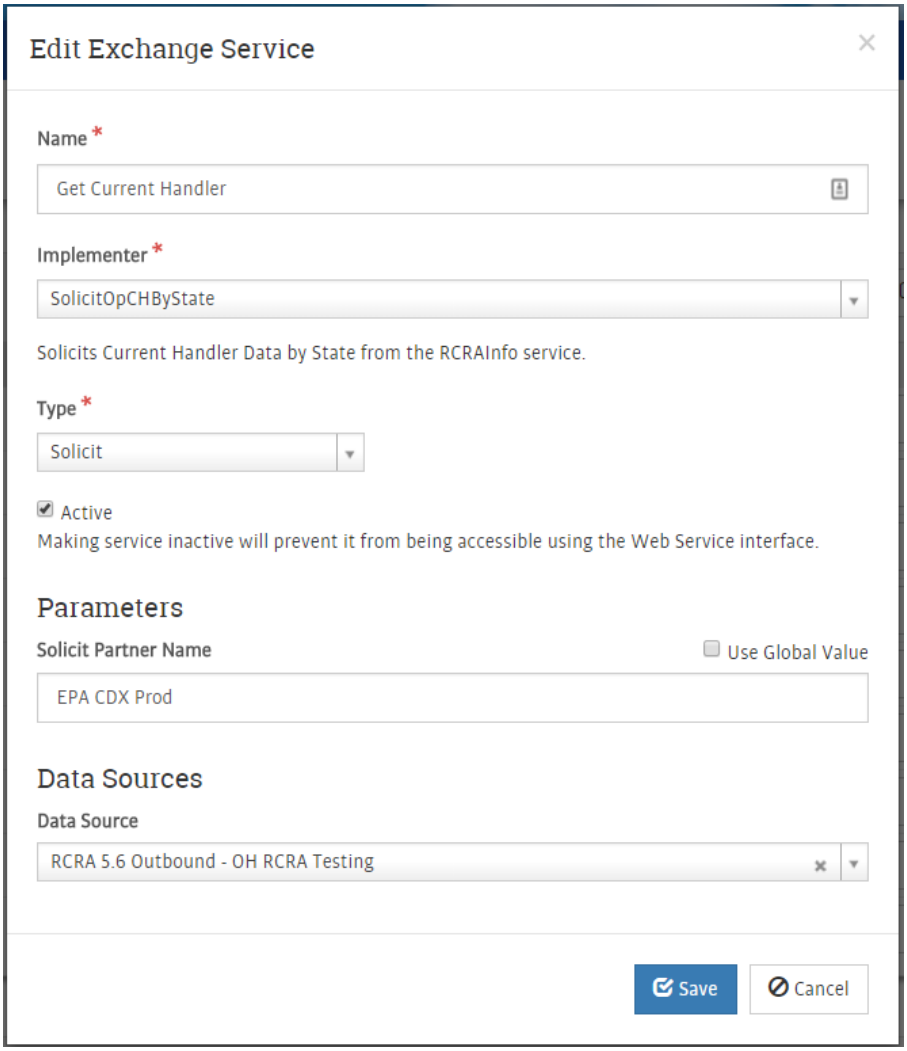
- **Name**: *Get EM By State*
- **Implementer**: Select *SolicitOpEMByState* from the drop-down list
- **Type**: *Task*

- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

Get EM By Handler

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Get EM By Handler*
- **Implementer**: Select *SolicitOpEMByHandler* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Solicit Partner Name**: *EPA CDX Prod (for example) ["Test" or "Production"] (note: must match exactly to the partner name set up in the configuration – network partners section.)*
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)



Current Handler

(example Exchange Service Configuration)

Establish Processor Service

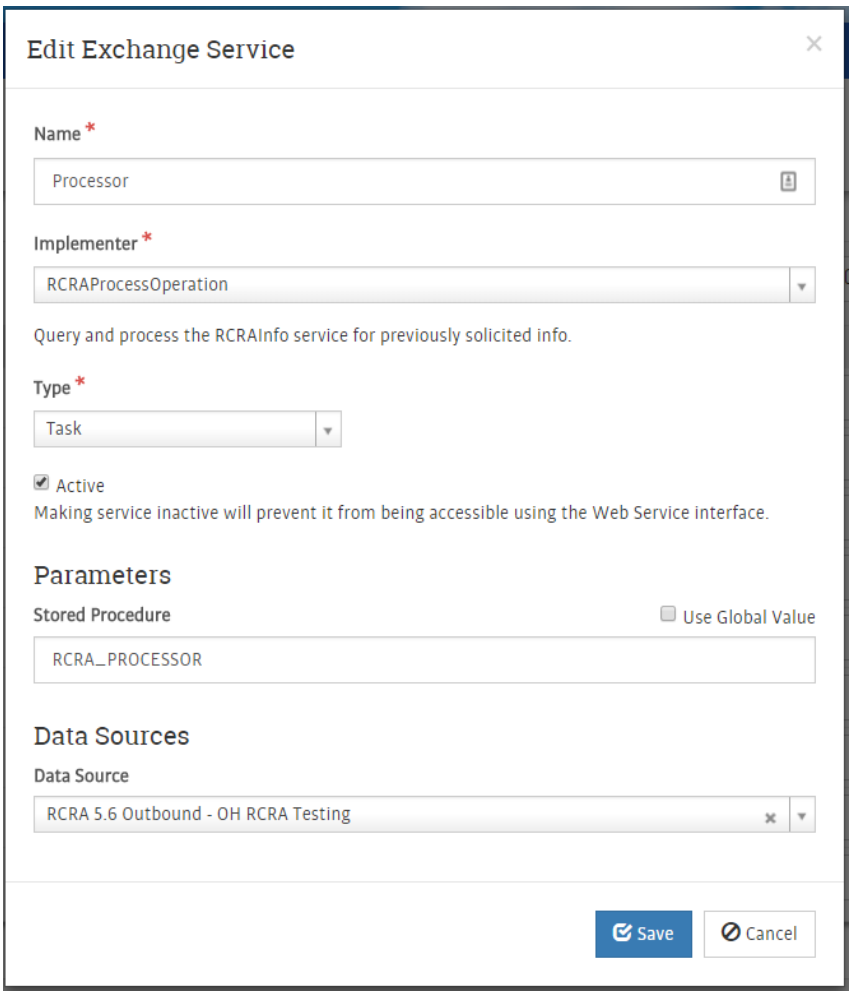
Processor (download and import)

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Processor*
- **Implementer**: Select *RCRAProcessOperation* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Stored Procedure:** Name of the post processing stored procedure located on the target data provider database. This accommodates data migrating to another source database. If no post

processing is involved, then leave blank. Note: If installing the RCRA Reporting database, please see the ***Installing the RCRA Reporting Components*** section of this document.

- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)

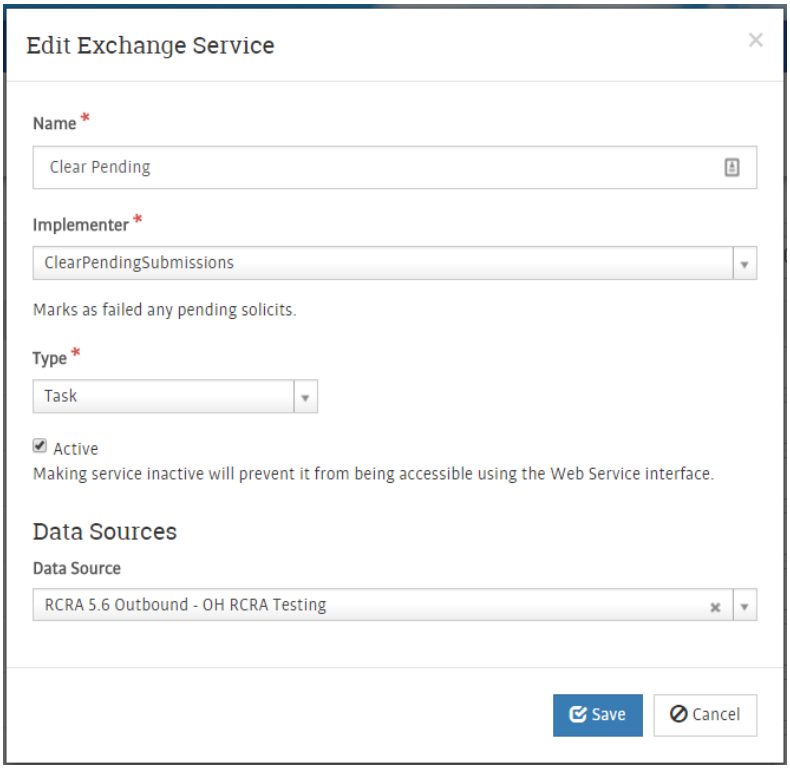


Establish Clear Pending

Clear Pending

Under the RCRA Info Outbound exchange, click the **Add Service** button  , and enter the following values for the new Service.

- **Name**: *Clear Pending*
- **Implementer**: Select *ClearPendingSubmissions* from the drop-down list
- **Type**: *Task*
- **Active**: check the box to enable the service
- **Data Source**: Select *appropriate data source* from the drop-down list. (location of the staging tables)



Configure Node Job Schedules

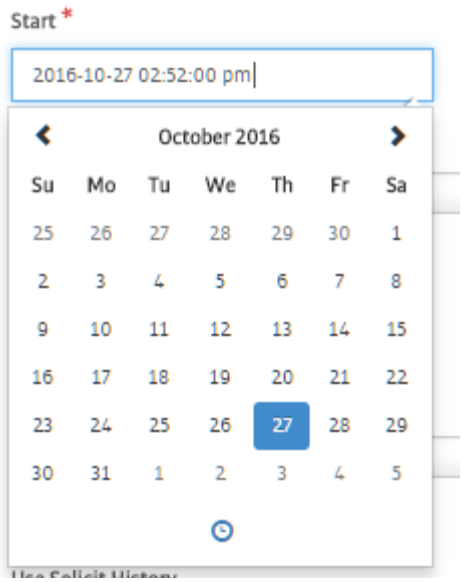
Scheduled Node jobs will be required for the RCRAInfo Outbound Data Flow implementation. Select Schedules from the main menu bar, and locate the RCRA Outbound exchange that was established during the last step. These steps will be repeated to solicit additional modules. Each Data Exchange created will have an accompanying Schedule block automatically created. The examples below are for HD by State and HD by Handler.

Additionally, a schedule will need to be created for Processor (to download and import the solicited data) and Clear Pending services.

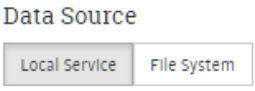
Configure "HD By State" Schedule

1. Click **Schedule** in the main menu
2. Click the **Add Schedule** (+) button for the RCRA Outbound exchange, and enter the following values for the new Schedule

- **Name**: *HD By State*
- **Active:** *Check box selected*
- **Start**: *<Select Date> by typing or selecting date/time from picker tool.* For an exact time, select the clock icon at the bottom of the calendar.



- **End**: *<Select Date> by typing or selecting date/time from picker tool.*
- **Frequency**: *This is a number incrementer – set this to the frequency numeric which will combine with the "Every" field to the right. Example "1 every Week"*
- **Every:** *Choose the appropriate time frame to correspond to the frequency field to the left. Example "1 every Week"*
- **Data Source**
  - i. *Select the* **Local Service** *option*



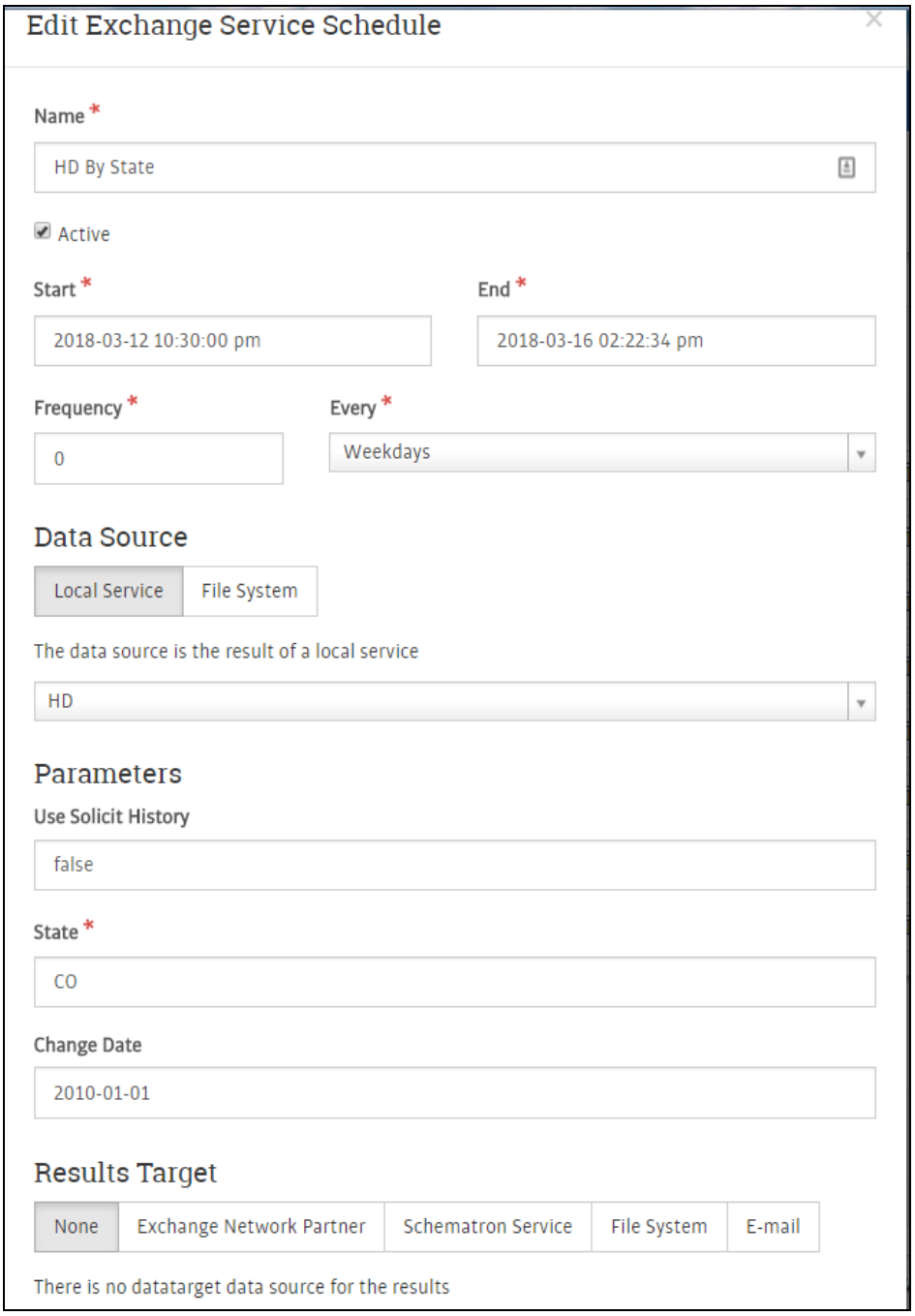
  - ii. *Select* **HD By State** *from the drop-down list*
- **Parameters**
  - i. **Use Solicit History: '***true' or 'false' (see usage in the Schedule Using Submission History section of this document)*
  - ii. **State**: *Two Letter State Code (e.g. 'OH')*
  - iii. **Change Date**: *enter a date in the* ***YYYY-MM-DD*** *format (this will obtain all RCRA data that has been added or edited at RCRAInfo since data entered)*
  - iv. **End Date:** *(optional – and only available for Handler, Current Handler and eManifest). By using end date (same format as Change Date), you can obtain data using a date range.*
- **Results Target**
  - i. Select the **None** option

3. Click the **Save** button

Configure "HD By Handler" Schedule

1. Click **Schedule** in the main menu

2. Click the **Add Schedule** (+) button for the RCRA Outbound exchange, and enter the following values for the new Schedule
    - **Name**: *HD By Handler*
    - **Active:** *Check box selected*
    - **Start**: *<Select Date> by typing or selecting date/time from picker tool.*
    - **End**: *<Select Date> by typing or selecting date/time from picker tool.*
    - **Frequency**: *This is a number incrementor – set this to the frequency numeric which will combine with the "Every" field to the right. Example "1 every Week"*
    - **Every:** *Choose the appropriate time frame to correspond to the frequency field to the left. Example "1 every Week"*
    - **Data Source**
        i. *Select the* **Local Service** *option*
        ii. Select **HD By Handler** *from the drop-down list*
    - **Parameters**
        i. **Use Solicit History:** *'true' or 'false' (see usage in the Schedule Using Submission History section of this document)*
        ii. **Handler ID:** *ID code for Handler whose data you wish to return*
        iii. **Change Date**: *enter a date in the* ***YYYY-MM-DD*** *format (this will obtain all RCRA data that has been added or edited at RCRAInfo since data entered)*
    - **Results Target**
        i. Select the **None** option
3. Click the **Save** button



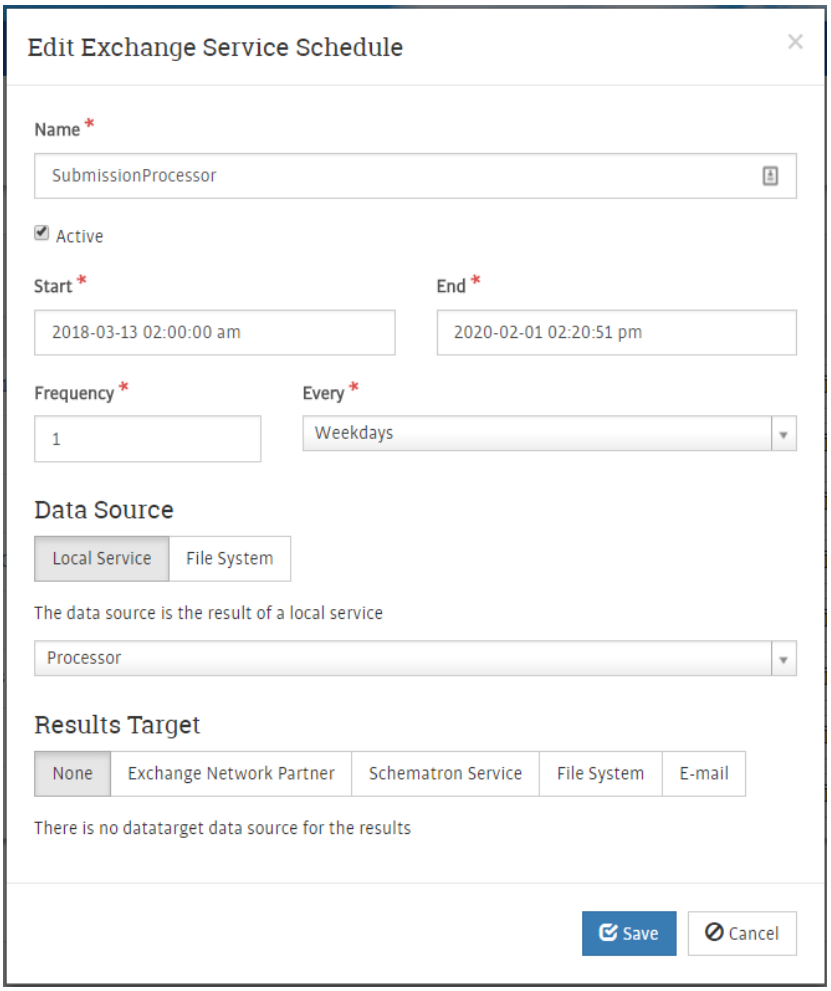
Get Handler By State Schedule

Configure "Processor" Schedule

Typically, you would schedule the processor service 30 mins to an hour after the last solicit schedule is run. This will allow enough time for the solicit to be completed by the EPA, so that the solicit file can be downloaded and imported into the staging tables.

1. Click **Schedule** in the main menu

2. Click the **Add Schedule** (+) button for the RCRA Outbound exchange, and enter the following values for the new Schedule
    - **Name**: *Submission Processor*
    - **Active:** *Check box selected*
    - **Start**: *<Select Date> by typing or selecting date/time from picker tool.*
    - **End**: *<Select Date> by typing or selecting date/time from picker tool.*
    - **Frequency**: *This is a number incrementer – set this to the frequency numeric which will combine with the "Every" field to the right. Example "1 every Week"*
    - **Every:** *Choose the appropriate time frame to correspond to the frequency field to the left. Example "1 every Week"*
    - **Data Source**
        i. *Select the* **Local Service** *option*
        ii. Select **Processor** *from the drop-down list*
    - **Results Target**
        i. Select the **None** option
3. Click the **Save** button



Processor Schedule

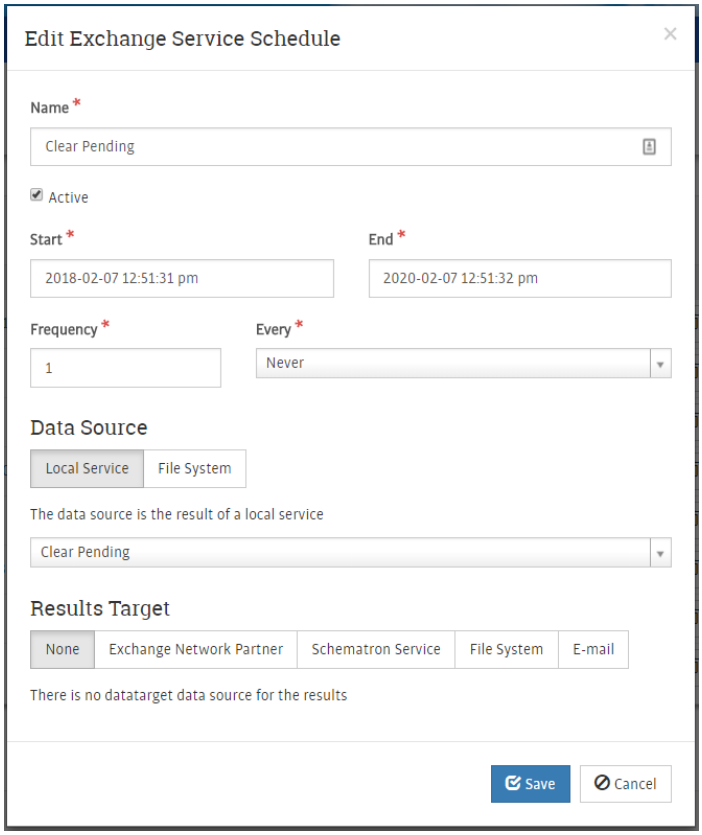
Configure "Clear Pending" Schedule

Note, this is not a schedule that you would typically set u to run automatically/nightly. But you will need to create the schedule, set the dates to anything, and set frequency to 1 and Every to Never. This will allow you to run the schedule manually by clicking the run now button.

1. Click **Schedule** in the main menu
2. Click the **Add Schedule** (+) button for the RCRA Outbound exchange, and enter the following values for the new Schedule
    - **Name**: *Clear Pending*
    - **Active:** *Check box selected*
    - **Start**: *<Select Date> by typing or selecting date/time from picker tool.*
    - **End**: *<Select Date> by typing or selecting date/time from picker tool.*
    - **Frequency**: *This is a number incrementer – set this to the frequency numeric which will combine with the "Every" field to the right. Example "1 every Week"*

- **Every:** *Choose the appropriate time frame to correspond to the frequency field to the left. Example "1 every Week"*
- **Data Source**
    i. *Select the* **Local Service** *option*
    ii. Select **Clear Pending** *from the drop-down list*
- **Results Target**
    i. Select the **None** option

3. Click the **Save** button



Clear Pending Schedule

Schedule Using the Submission History

In addition to manually choosing a "change date" to indicate what data should be pulled from RCRA Info, you can also have the schedule use the most recent successful pull date. The "change date" field is used on the first run; if the run is successful then the plugin will note the date and time of the successful run as well as the RCRA Info function that was used (this is located in the RCRA_SubmissionHistory table). During the next run, the "change date" field will be ignored and the last successful run date will be used instead.

All of the schedules that support this function will have a field called "Use Solicit History", if you would like to use this feature then type "yes" or "true" into this field. When the schedule is run, you will be able to confirm that the correct date was used by clicking on the "Last Run Info" link. You will see output similar to the following:

```
Using submission history...
Submission history change date: 2016-07-01
```

Typing in "no" or "false" will ignore the submission history feature. A history record will not be written to the database, and the solicit will use the 'Change Date' to determine which data to solicit from the EPA.

Other RCRA Info Functions/Modules

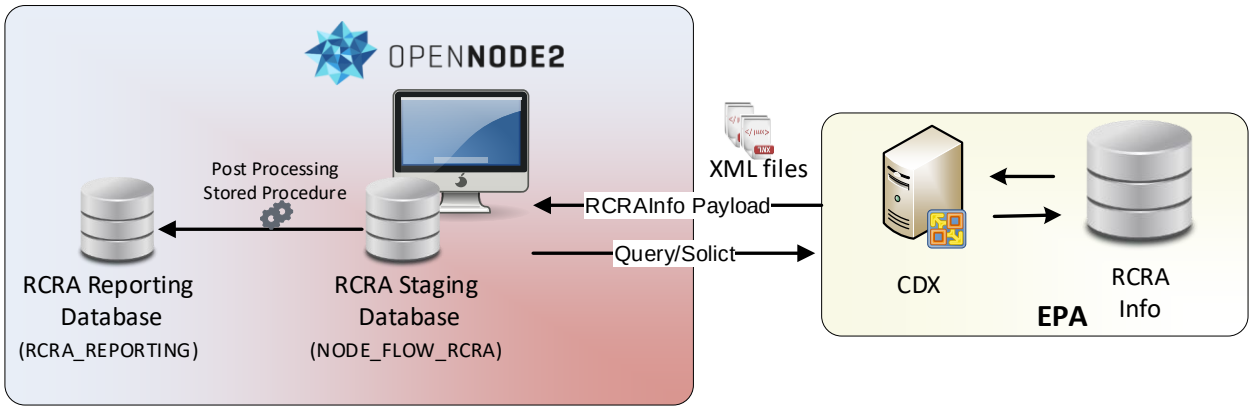
All of the other RCRA Info functions are setup in the same way. Configure the service in the exchange and then the schedule; note that there is only one schedule required for each RCRA Info function. The following functions are supported by this plugin:

- CE By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpCEByHandler
- CE By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpCEByState
- HD By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpHDByHandler
- HD By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpHDByState
- CA By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpCAByHandler
- CA By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpCAByState
- PM By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpPMByHandler
- FA By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpFAByHandler
- FA By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpFAByState
- PM By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpCEByState
- GS By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpGSByState
- GS By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpGSByHandler
- Current Handler By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpCHByState
- Current Handler By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpCHByHandler
- EM By State, com.windsor.node.plugin.rcra57.solicit.SolicitOpEMByState
- EM By Handler, com.windsor.node.plugin.rcra57.solicit.SolicitOpEMByHandler

Installing the RCRA Reporting Components

To host your State's RCRA dataset locally, including eManifest data, then you may be interested in installing the RCRA Reporting components. This is mainly comprised of installing data objects, including tables, views and stored procedures.

Installing RCRA Reporting provides a means to "seed" RCRA data for your State going back to 1980. After the seeding process, you can then run a nightly or weekly process that updates the RCRA Reporting database incrementally.



Install Data Objects for RCRAInfo Data Flow

1. Open **Oracle SQL Developer (or other Oracle SQL tool) or SQL Server Management Studio**
2. Create a new database (SQL Server) or schema (Oracle) called RCRA_REPORTING.
3. For brand new installations of the RCRA Reporting components, you will want to set up the tables using the full CREATE scripts. Open and execute RCRA_REPORTING_5.7_ORA_DDL.sql for an Oracle environment, or RCRA_REPORTING_5.7_SQL_DDL.sql for a SQL Server environment.
4. Special Note: Because synonyms are used to point back to the staging tables, it is important to know the name of the RCRA outbound staging database. The scripts assume that the name is NODE_FLOW_RCRA as the initial instructions imply. If this is not the name of your staging schema, then you will need to alter the RCRA Reporting SQL by locating the CREATE SYNOMYN scripts and replacing NODE_FLOW_RCRA with your staging database/schema name.
5. If you already have existing version of the RCRA Reporting components, you would typically use the upgrade scripts. Since this is the initial introduction for these components, there are no upgrade scripts presently.
6. Once the database is established, ensure that the user that has rights to the NODE_FLOW_RCRA database also has the same permissions to the RCRA_REPORTING database. At a minimum this user will need SELECT, INSERT, DELETE, UPDATE, and EXECUTE permissions. It is important to use the same user in this instance.

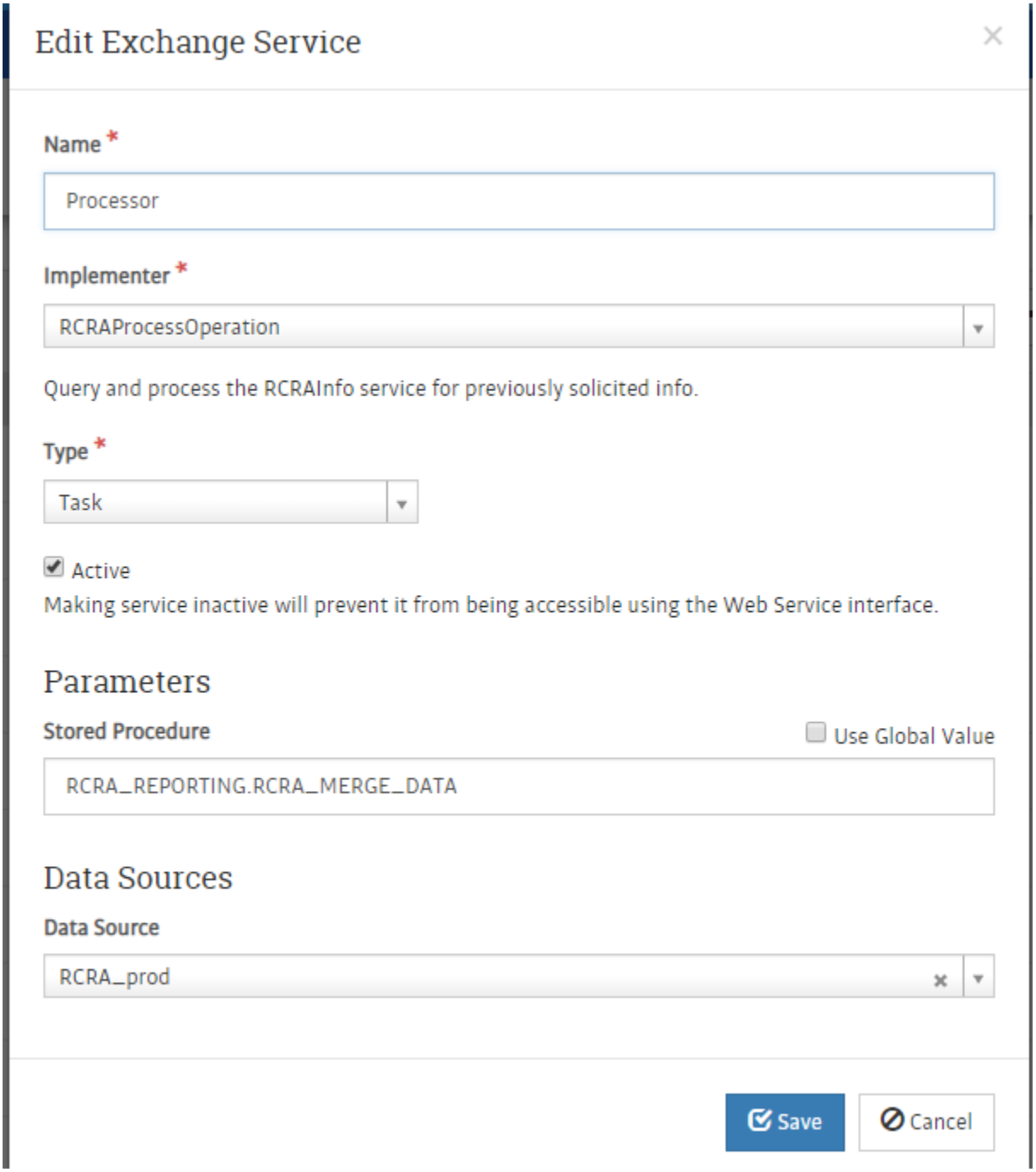
Setting up the Plugin to utilize the RCRA Reporting Database

The data services and schedules already set up as part of the previous instructions can all be used to assist the population of the RCRA Reporting database. Note The following section assumes that the RCRAInfo Data Flow Deployment starting on page 4 has been completed.

Configuring the Processor Data Service (download and import)

Under the RCRA Info Outbound exchange, find the service called Processor. This is the service that downloads solicited XML files and loads them into the NODE_FLOW_RCRA staging database. In order to move the data from the staging NODE_FLOW_RCRA database, a stored procedure should be entered.

- **Stored Procedure:** Name of the post processing stored procedure including in the installation package, called **RCRA_MERGE_DATA.** This stored procedure will run after the data has been successfully loaded into the staging tables (NODE_FLOW_RCRA). Note: you may need to fully qualify the stored procedure name by appending the database/schema name to the front.
- **Data Source**: This will still be pointed at the staging NODE_FLOW_RCRA database.



Configuring the RCRA Solicit Schedules

Seeding the database

The first step is to load RCRA data going back to 1980 when the RCRA program started. Each payload schedule needs to be configured by setting the **Change Date to 1980-01-01**. To ensure that the Change Date is being used, you will need to set the **Use Solicit History to false**.

The schedule should then be manually run. This process can take a long time, up to 8 hrs depending on the payload (HD take a long time, while FA typically takes less then 30 mins). For HD, the payload

accepts an END Date parameter. This allows you to obtain data incrementally. To do this you can enter **Change Date to 1980-01-01 and End Date 1990-01-01**. You will want this to fully complete before you do another 5- or 10-year increment.

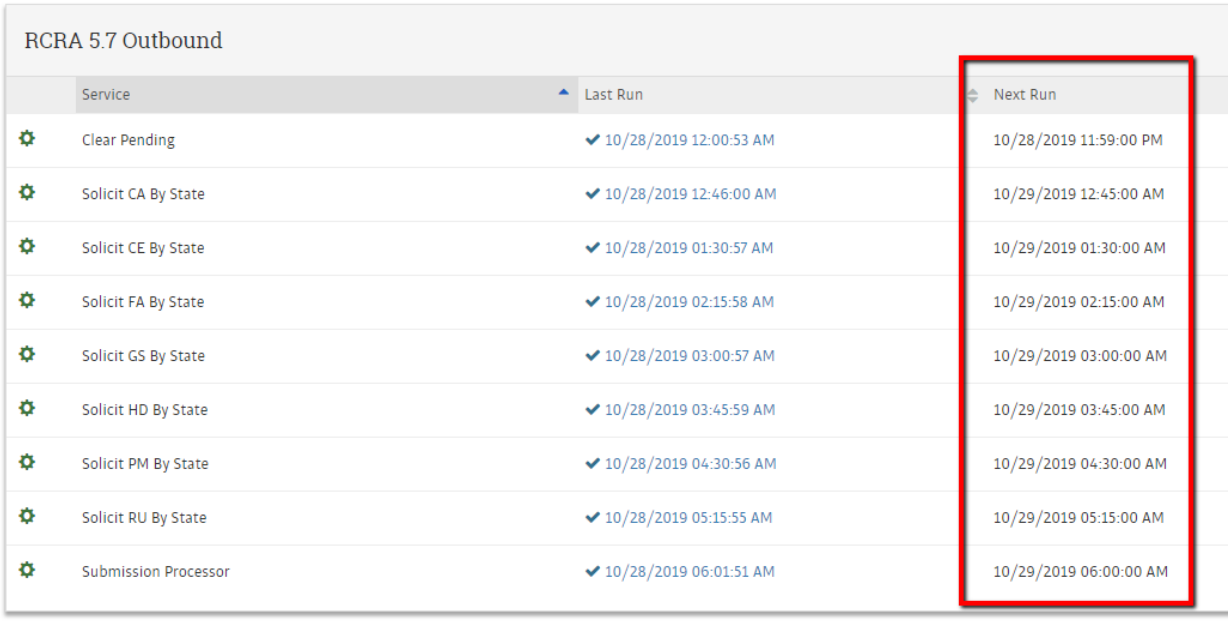
After the solicit completes (refreshing the status), you can then run the submission processor (above), which will download the XML and load it into the staging and then RCRA Reporting database. This as well can take a while depending on the file size.

It is recommended to do this one payload at a time, for example, start with FA, solicit the data going back to 1980, then run the submission processor. Once complete move onto CA, then PM, etc, etc.

Nightly Process

After the data has been seeded, it is time to set up the schedules to run on a nightly basis. You will want to set the **Use Solicit History to true.** This will provide the ability to solicit back to the last successful data flow. If you seeded the HD dataset on Monday, and today is Friday, the change date will automatically use Monday's date to obtain Handler data.

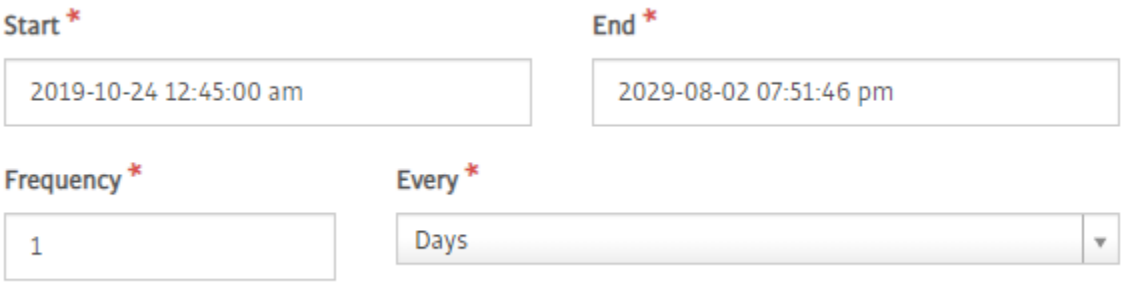
It is recommended to set these schedules up starting late in the evening or early morning in 30- to 45-minute increments. And then have the processor schedule set up one hour after the last solicit is scheduled. The example below shows schedules starting at 11:59am, and then the subsequent schedules in 45-minute increments.



RCRA 5.7 Outbound

Service	Last Run	Next Run
Clear Pending	10/28/2019 12:00:53 AM	10/28/2019 11:59:00 PM
Solicit CA By State	10/28/2019 12:46:00 AM	10/29/2019 12:45:00 AM
Solicit CE By State	10/28/2019 01:30:57 AM	10/29/2019 01:30:00 AM
Solicit FA By State	10/28/2019 02:15:58 AM	10/29/2019 02:15:00 AM
Solicit GS By State	10/28/2019 03:00:57 AM	10/29/2019 03:00:00 AM
Solicit HD By State	10/28/2019 03:45:59 AM	10/29/2019 03:45:00 AM
Solicit PM By State	10/28/2019 04:30:56 AM	10/29/2019 04:30:00 AM
Solicit RU By State	10/28/2019 05:15:55 AM	10/29/2019 05:15:00 AM
Submission Processor	10/28/2019 06:01:51 AM	10/29/2019 06:00:00 AM

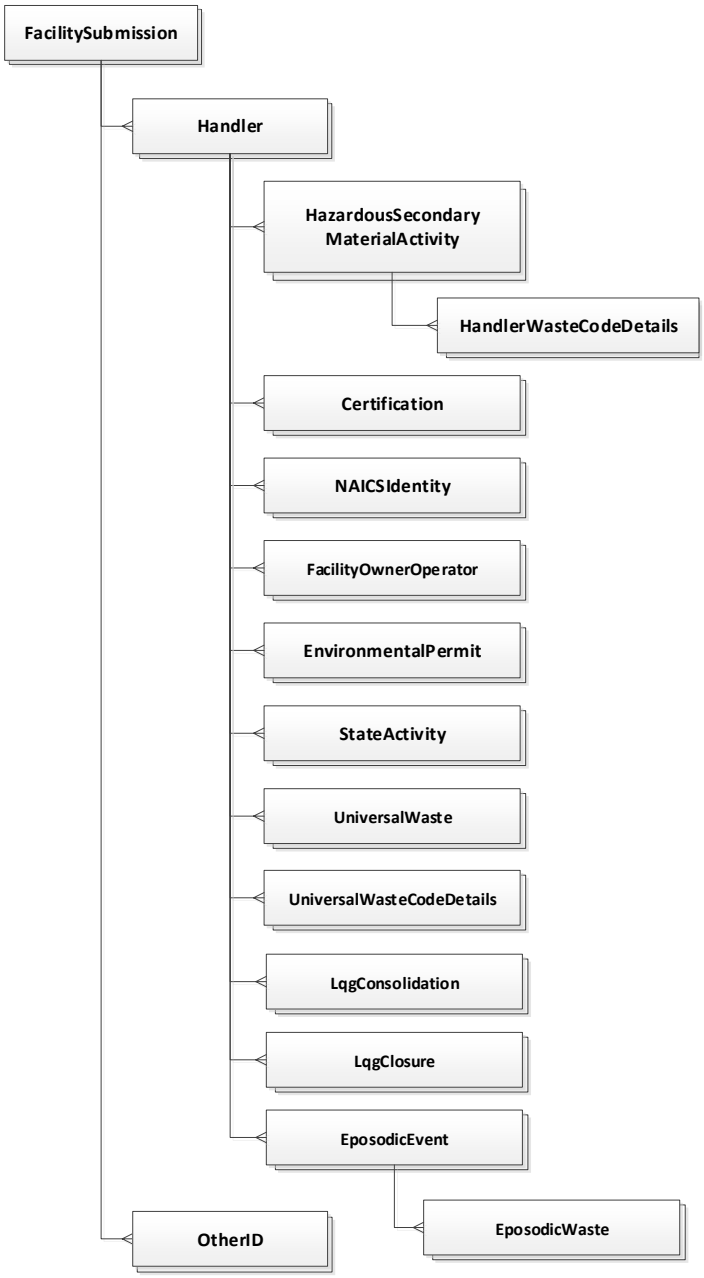
Schedule example:



RCRA Info Outbound Schema Structure v5.7

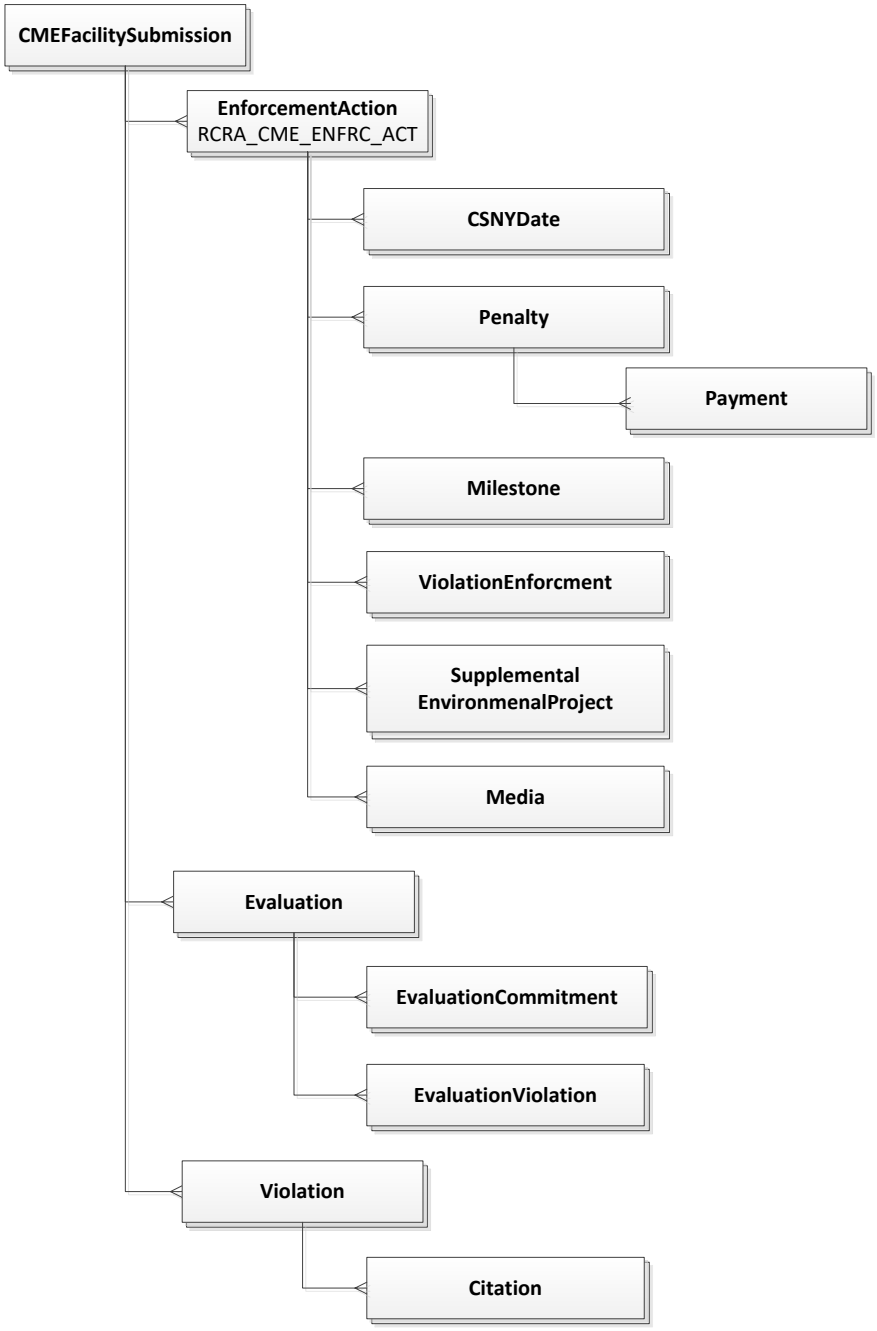
HD By Handler and HD by State

Handler information is top level basic RCRA information, including Owner, Certification, Permits and Waste details. The following provides a diagram for the Handler XML schema:



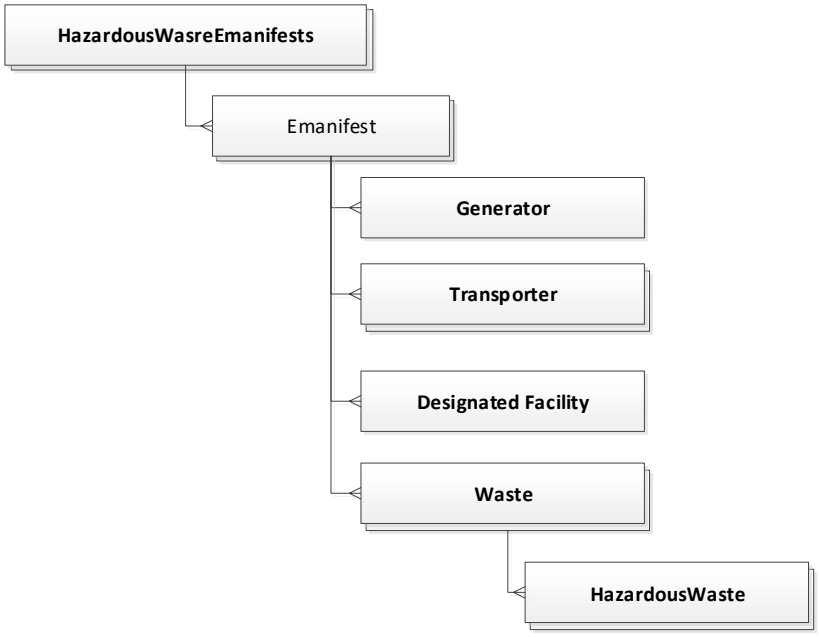
CE By Handler and CE by State

The Compliance Monitoring and Enforcement module covers all aspects of RCRA related to the legal citation process. The following provides a diagram for the compliance enforcement schema:


CMEFacilitySubmission
EnforcementAction
RCRA_CME_ENFRC_ACT
CSNYDate
Penalty
Payment
Milestone
ViolationEnforcment
Supplemental
EnvironmenalProject
Media
Evaluation
EvaluationCommitment
EvaluationViolation
Violation
Citation

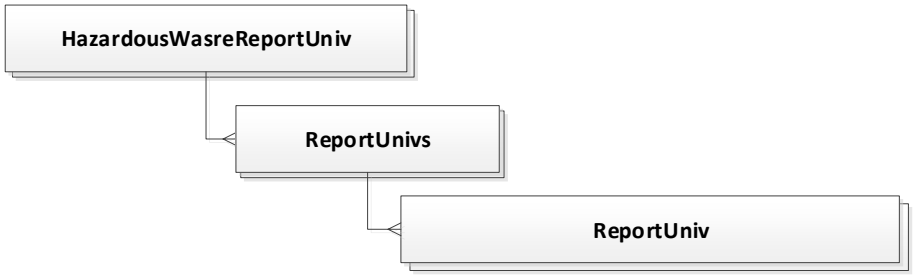
EM By Handler and EM by State

The eManifest contains manifest records, containing the main manifest data, generate, transporter and designated facilities involved in the manifest, along with detailed waste information contained on the manifest. The following provides a diagram for the eManifest schema:



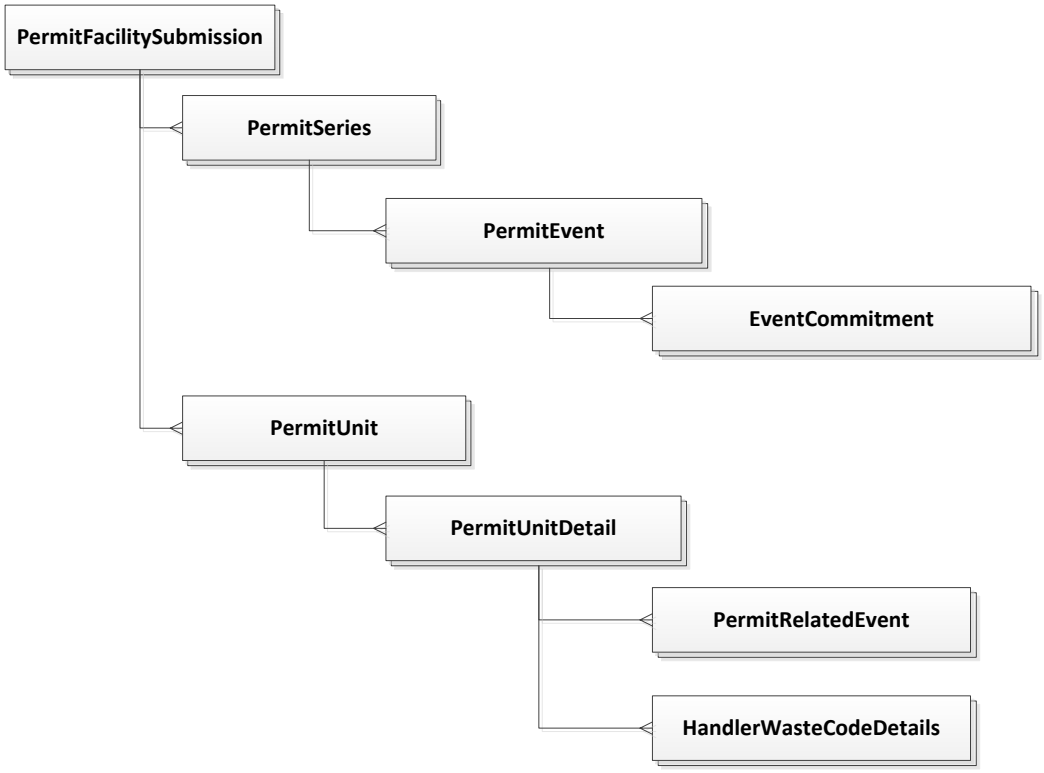
CH By Handler and CH by State

The current handler (also known as Report Universe) contains a flatted structure of the current snapshot of the Handlers most recent data. The following provides a diagram for the current handler schema:



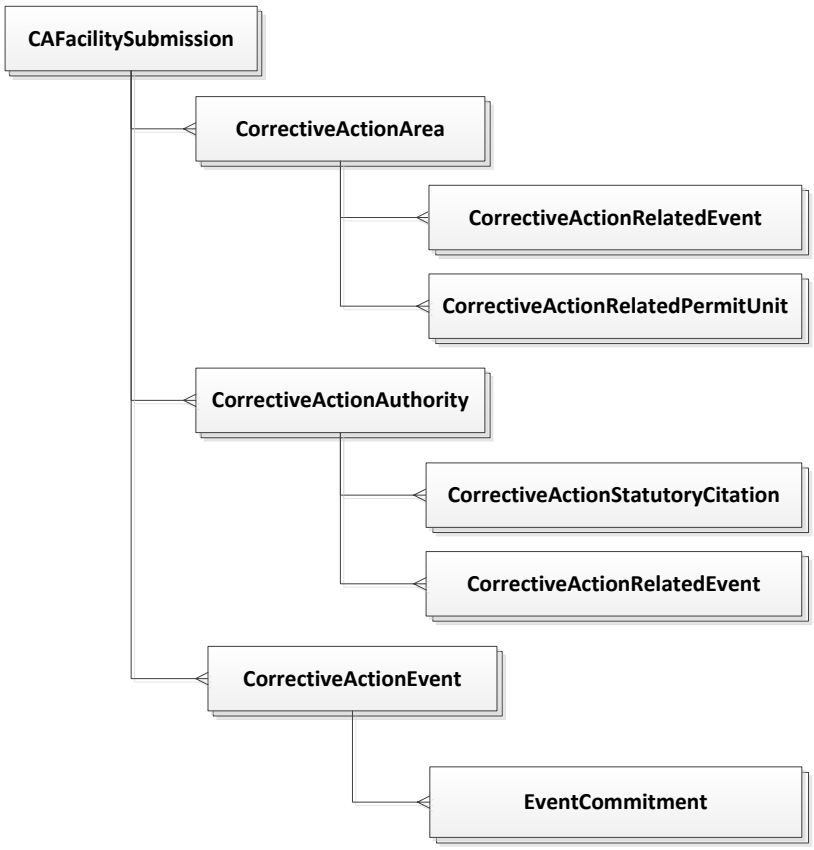
PM By Handler and PM by State

The permitting module covers data related to permits, permit events, and permit units. The following provides a diagram for the permitting schema:


PermitFacilitySubmission
PermitSeries
PermitEvent
EventCommitment
PermitUnit
PermitUnitDetail
PermitRelatedEvent
HandlerWasteCodeDetails

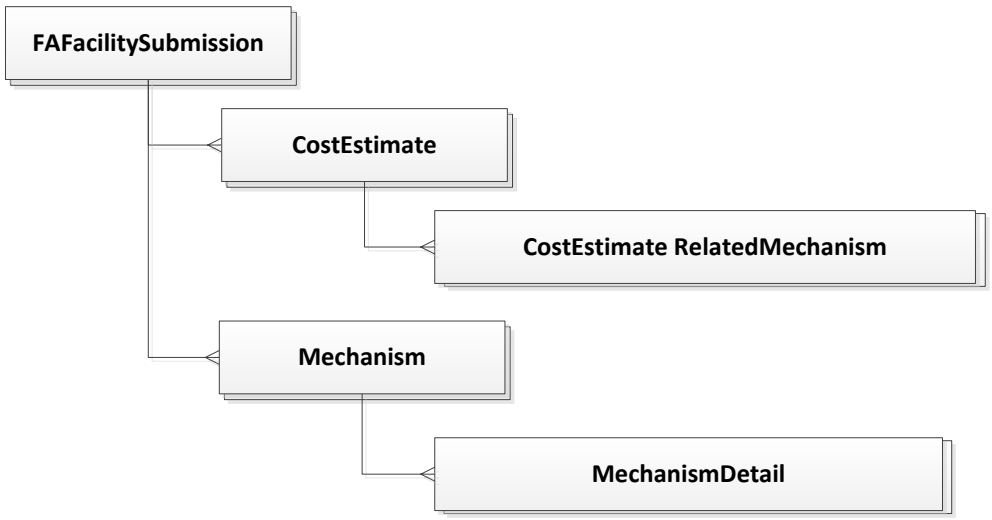
CA By Handler and CA by State

The corrective action module covers Citations, Events, and Area information. The following provides a diagram for the corrective action schema:



FA By Handler and FA by State

The Financial Assurance module logs information relative to FA mechanisms and cost estimatesThe following provides a diagram for the financial assurance schema:



GS By Handler and GS by State

The geospatial module contains spatially related data such as Latitude and Longitude information. The following provides a diagram for the corrective action schema: