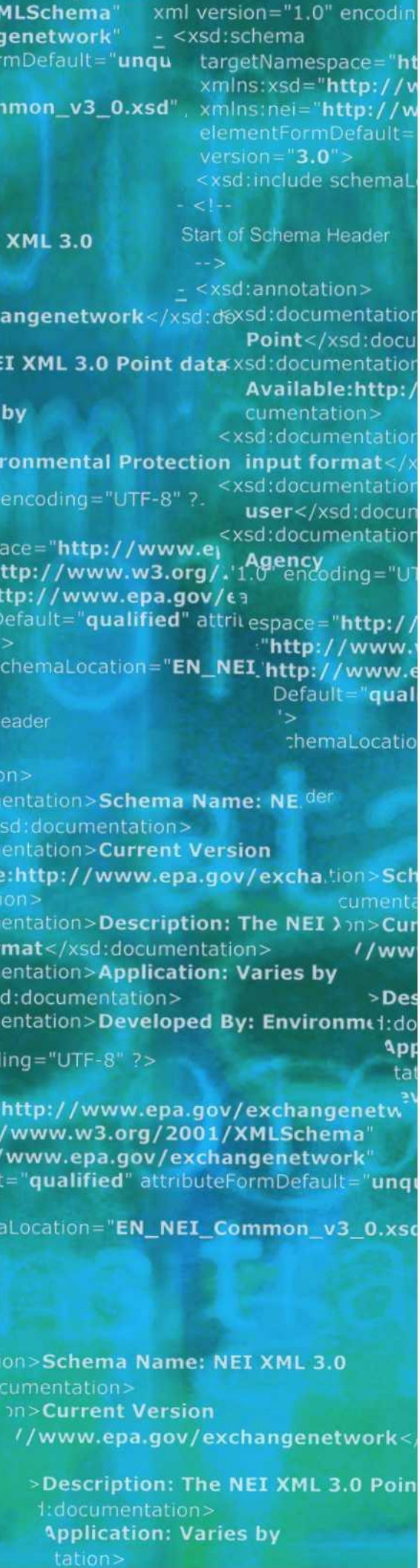

OpenNode2

UIC 2.0 Data Exchange Implementation Guide (Java)

Revision Date: 12/19/2016

Prepared By:

WINDSOR SOLUTIONS

4386 SW Macadam Ave, Suite 101
Portland, OR 97239
(503) 675-7833

Environmental Information exchange Network

Revision History

Date	Author	Changes	Version
12/19/2016	Windsor	New guide.	1.0

Table of Contents

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Data Exchange Overview

The purpose of this document is to provide detailed instructions for the installation and configuration of the Underground Injection Control (UIC) data exchange on the Java implementation of the Exchange Network OpenNode2 (OpenNode2).

The Underground Injection Controls (UIC) data exchange allows Network partners to share information on underground injection wells. The UIC data exchange offers a data service that is used to prepare and submit quarterly UIC data to the Environmental Protection Agency (EPA) UIC system.

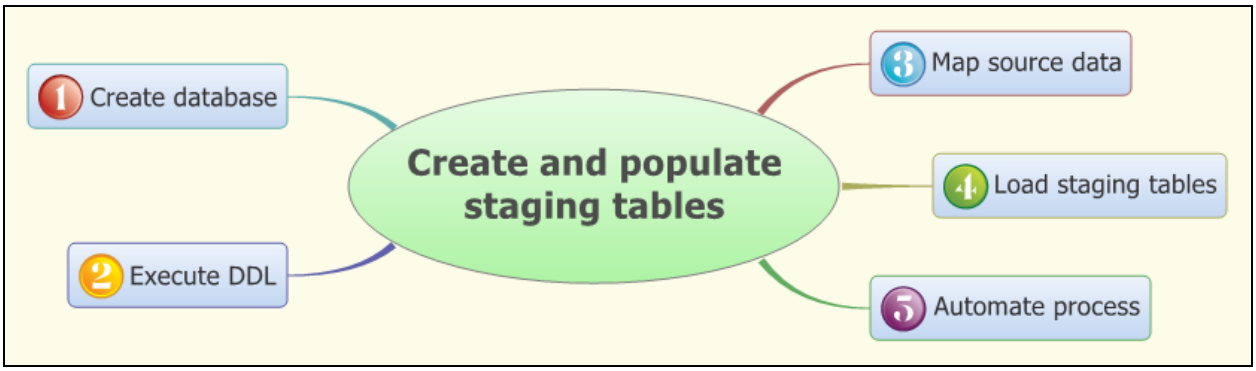
Further detail about the UIC data exchange is available in the Flow Configuration Document (FCD) published at exchangenetwork.net.

The UIC data exchange configuration process involves two main steps: 1) create and populate the UIC staging tables and 2) install and configure the UIC data flow. The rest of this document will describe these two processes in detail.

Create and Populate UIC Staging Tables

OpenNode2 uses a plugin-based architecture to support data exchanges with EPA and other Exchange Network partners. Data must first be loaded into a set of staging tables before it can be extracted by the plugin and shared through the UIC data exchange. This section outlines the steps required to set up the UIC data exchange database staging tables.

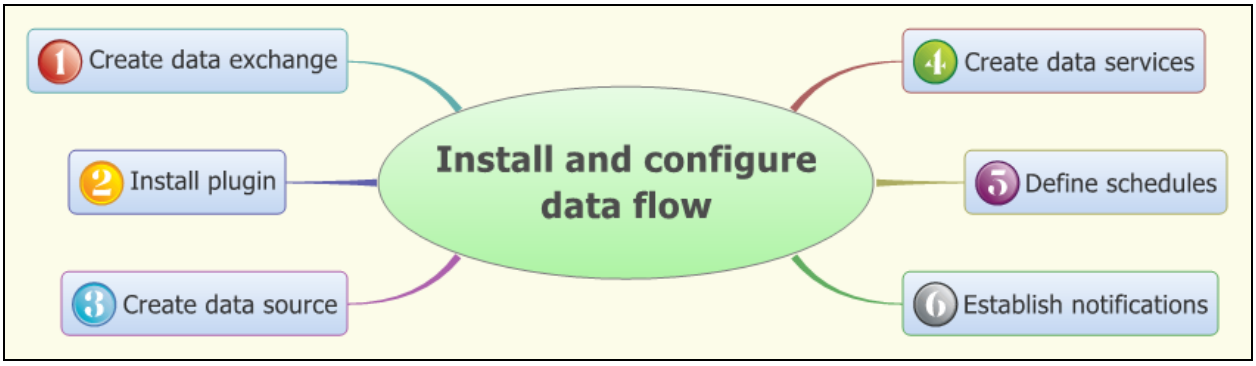
The following figure illustrates these steps:



1. The first step is to create the staging database itself if one has not already been established to support another data exchange (typically named NODE_FLOW).
2. Once the staging database itself is created, a Database Definition Language (DDL) script included in the OpenNode2 deployment package can be executed to create the staging tables that will be used to store the data being made available through the UIC data exchange.
3. With the staging environment established, data must now be mapped from the source database to the equivalent fields in the UIC staging tables. The staging tables closely reflect the structure and naming of the UIC XML schema, and it is recommended that the Data Exchange Template (DET) published at exchangenetwork.net be used to facilitate this mapping.
4. Once the mapping is complete, a database routine should be developed to populate the tables in the staging database using the mapping prepared during the earlier step. This should be a repeatable process that will empty and replace all of the data in the staging tables, or a procedure that will incrementally add, update and remove data as it changes in the source system.
5. Once the data extract process has been developed, it should be automated to execute on a regular schedule as appropriate to the needs of the organization for submissions to EPA.

Install and Configure UIC Data Flow

This section describes the steps required to install and configure the UIC data exchange on the Java implementation of the OpenNode2 using the Node Administration Web application (Node Admin).



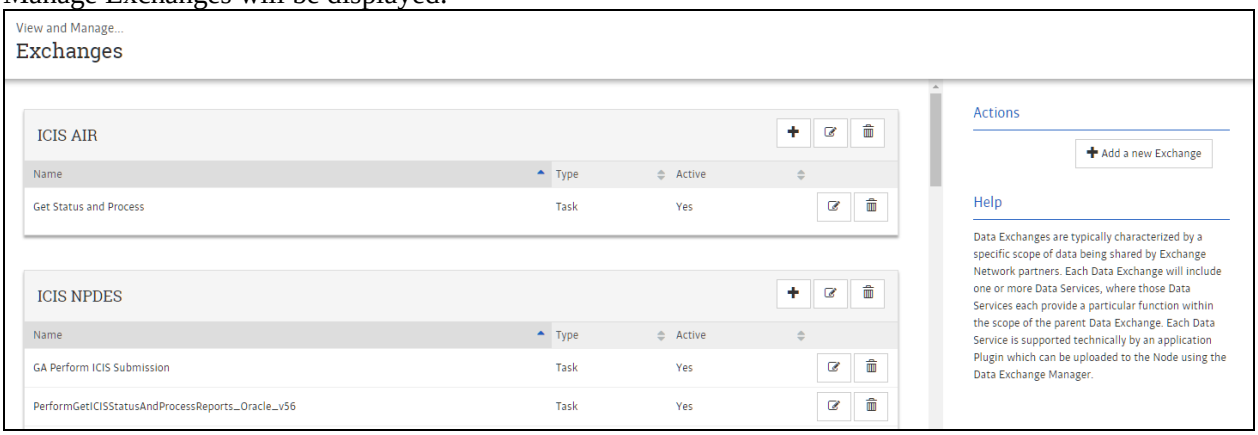
Install Data Objects for UIC Data Flow

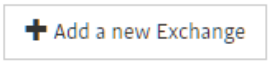
1. Open a SQL Editor tool (E.g. Oracle SQL Developer or Microsoft SQL Server Management)
2. Select the existing Node Flow schema (typically called NODE_FLOW). A new schema can be created if desired.
3. Open and execute "UIC_2.0- ORA-DDL.sql" for an Oracle platform and "UIC2.0-SQL0DDL.sql" for a SQL Server platform.

Create UIC Data Exchange

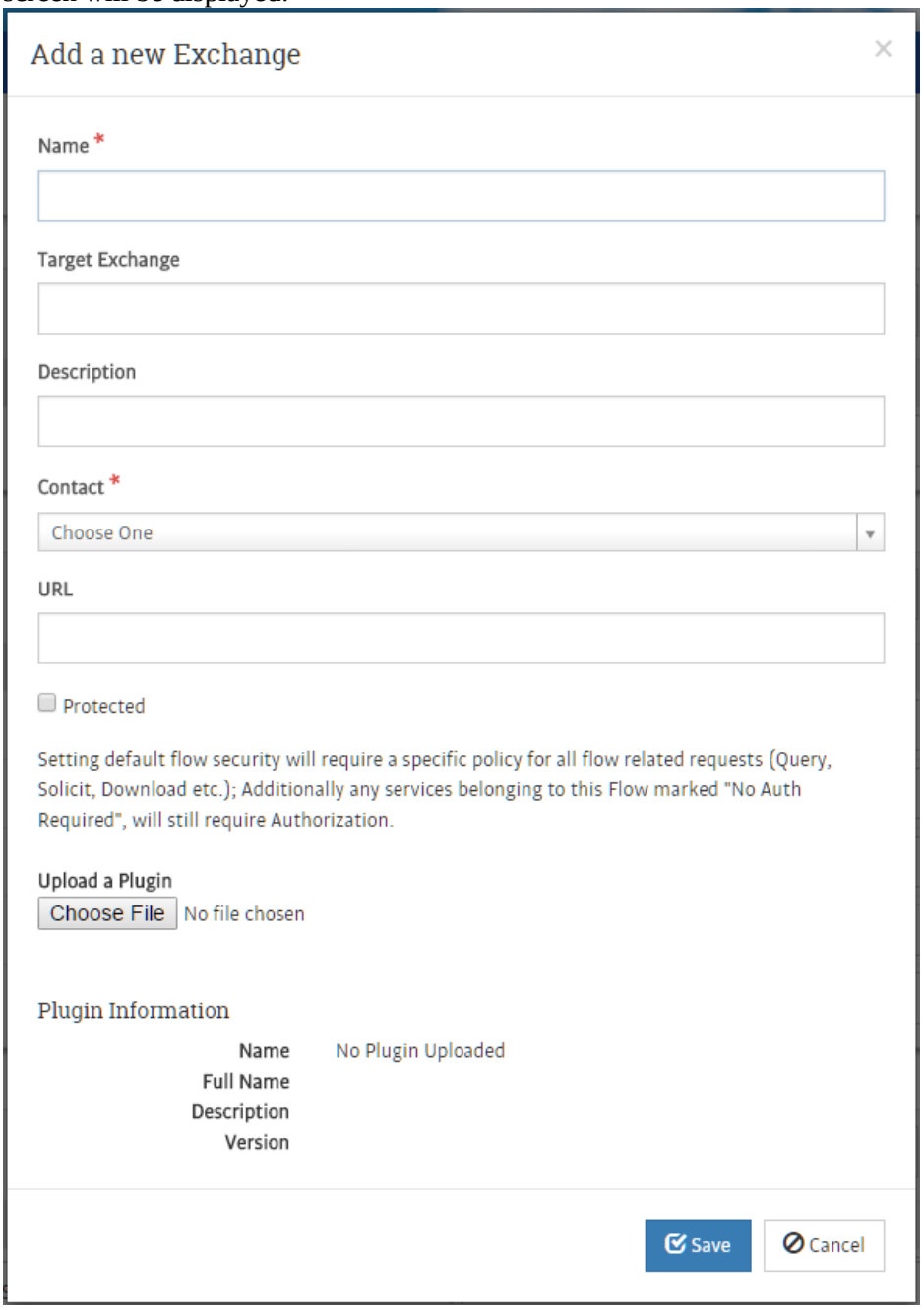
The first step to implement the UIC data exchange on the OpenNode2 is to create the data exchange using the Node Admin Data Exchange Manager.

1. After logging into the Node Admin, click the **Exchange** tab on the top navigation bar. View and Manage Exchanges will be displayed:



2. Click the 

button on the top right of the page. the new exchange manager screen will be displayed:



3. Type *UIC* in the **Name** field.
4. Leave **Target Exchange** field blank. (This is used by other node flows only)
5. Type a short description in the **Description** field, e.g., *Underground Injection Control data exchange*.
6. Select a user account name from the **Contact** drop-down menu. Contacts are populated with all accounts that have been set up on the OpenNode2. See the **Security** tab for a list of available accounts.

7. Type any valid URL in the **URL** field. Ideally, this will be the page on the Exchange Network Web site that describes the UIC data exchange:

   http://www.exchangenetwork.net/exchanges/water/UIC.htm

8. It is recommended that the **Protected** box be checked. This will limit external access to the UIC data services. External access should not be required at this time given the current purpose of this flow is solely as a means of data submission to EPA.
9. Click the Choose File button under **Uploaded a Plugin**
10. Select the **java_uic2_plugin_v2.12.zip** file
11. Click **Save** to save the data exchange.

The newly uploaded plugin code will be placed in the OpenNode2 plugin repository. Any previous plugin versions will be retained in the repository but won't be accessible through the Node Admin.

Configure Exchange Services

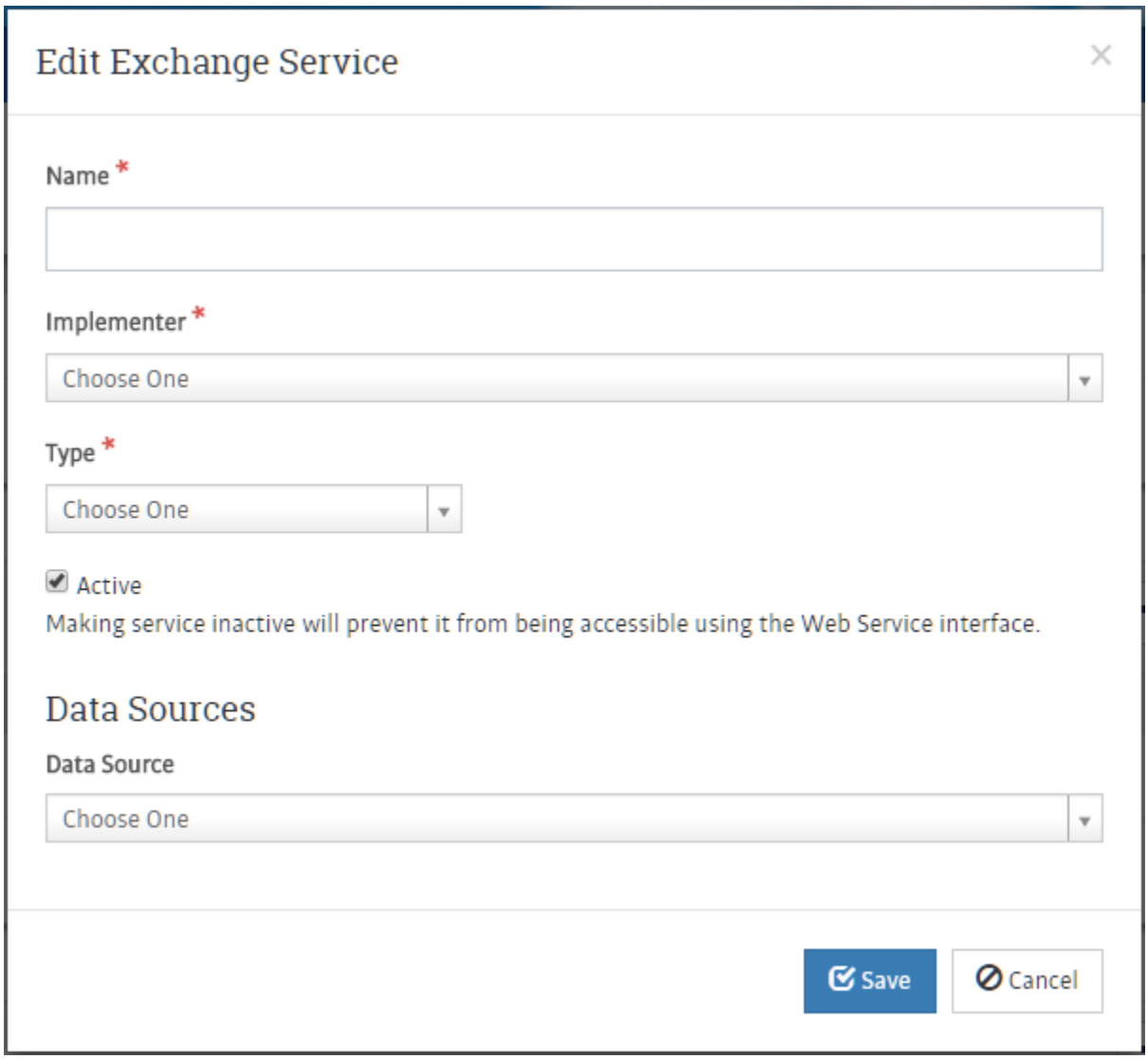
Exchange services are distinct functions provided by a plugin to support a given data exchange. For the UIC data exchange, there is a single service provided by the plugin:

– Delete-Insert

Exchange services must be created and configured before it can be accessed through the OpenNode2 endpoints.

Delete-Insert Data Service

1. From the **Exchange** tab, locate the UIC data exchange in the list of available exchanges.
2. Click the  button located to the right of the UIC data exchange label. The following page will be displayed to allow a new data service to be added.



3. In the **Name** field, enter *Delete-Insert*.
4. Select the implementer from the **Implementer** drop-down menu.

   Note: When the implementer is selected, several arguments and data sources will appear. The Node Admin will obtain these properties directly from the loaded UIC plugin.
5. From the **Type** drop-down menu, select *Solicit*.
6. Enable the service by checking the **Active** checkbox.
7. Based on the selection made from the implementer drop-down menu, the Node Admin will determine what argument and data source requirements the plugin has and will refresh the page to display the relevant data entry fields as follows:

   i. In the argument labeled **Author**, enter the text you wish to include in the payload header's <Author> element.

   ii. In the argument labeled **Contact Info**, type the name of the person who should be contacted regarding any submission created from this service. Also enter this person's

email address and phone number. For example, enter *John Smith, (999) 999-9999, john@smith.com*, etc.

iii. Set the **Data Source** to the data source that connects to the UIC staging tables. Reference the *Create and Populate UIC Staging Tables* section in this document for further details.

Data sources can be created from the **Configuration** tab in the Node Admin. Reference the OpenNode2 Administration User Guide for more information.

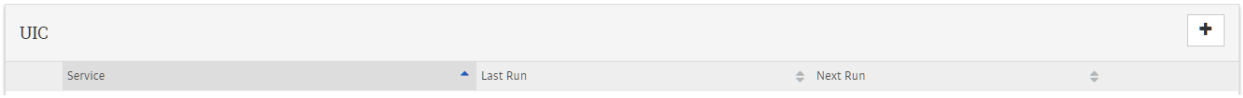
8. Click the **Save** button to save the data service.

Define Data Exchange Schedules

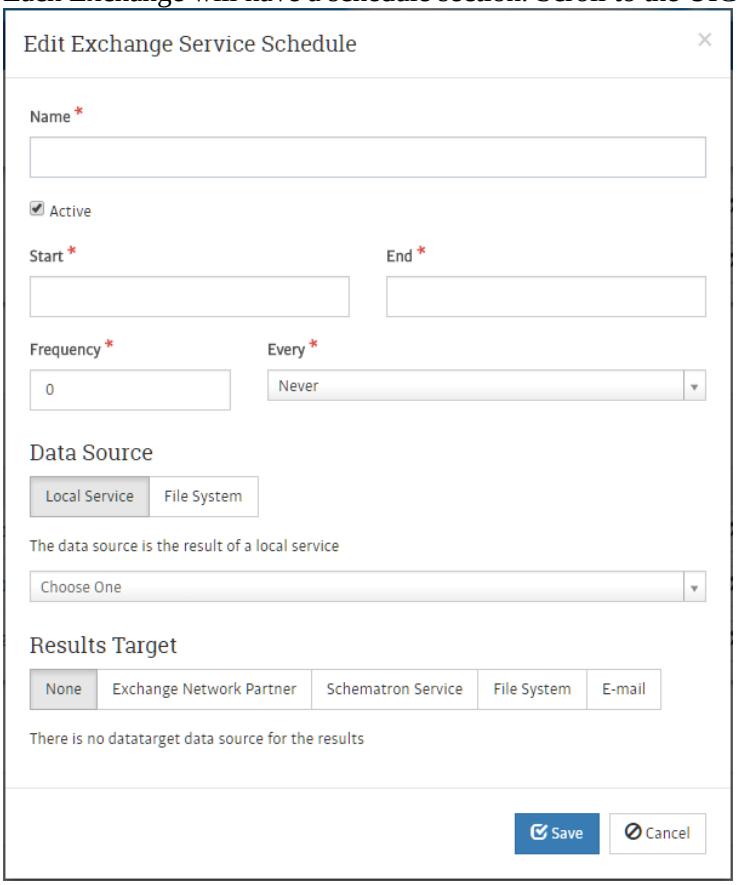
Scheduled jobs can be configured in the OpenNode2 to perform automated tasks, for example, submitting data to external Exchange Network partners or processing received files. The Node Admin will be used to create a UIC submission schedule. This scheduled job will extract data from the UIC data exchange database staging tables, generate an UIC XML document that is formatted according to the *UIC_v2.0* schema, and submit the UIC XML document to EPA CDX for validation and processing.

The following parameters should be used in creating the UIC submission schedule within the OpenNode2 Node Admin:

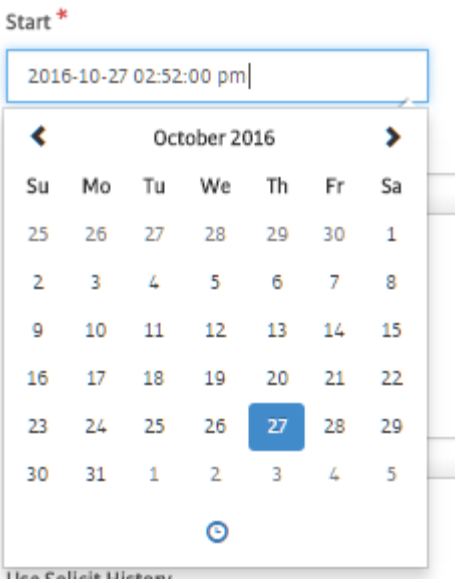
1. Click the **Schedule** tab. The schedule manager screen will appear.



2. Each Exchange will have a schedule section. Scroll to the UIC section and click the + button.



- **Name**: *Get UIC*
- **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.



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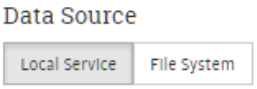
- **End**: *<Select Date> by typing or selecting date/time from picker tool.*
- **Frequency**: *This is a number incrementer – set this to the frequency numeric which will combine with the "Every" field to the right. Example "1 every Week"*
- **Every:** *Choose the appropriate time frame to correspond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



  - *Select* **appropriate source** *from the drop-down list*
- **Parameters**
  Org ID: *The ORG_ID in the UIC_ORG staging table for the organization's data to send. Typically, agencies will only send their own UIC data and will therefore only have one record in the UIC_ORG staging table. This parameter allows OpenNode2 to send different UIC payloads for different organizations if required.*
- **Results Target**
  Check the radio button labeled ***Exchange Network Partner****. Select the value corresponding to the name of the EPA CDX Node endpoint from the drop-down.*
- **Click the Save button**

Please see the OpenNode2 Administration User Guide for more information on scheduling data exchanges.

Contact CDX to Establish Data Exchange Settings

Once the UIC data exchange is installed and configured, contact the CDX Node Help Desk and ask them to grant Submit permissions to the UIC data exchange for the OpenNode2 NAAS runtime account.

Establish Email Notifications

If desired, using the Node Admin, a Node administrator may create NAAS accounts for one or more users and set up email notifications for the any OpenNode2 events related to the UIC data exchange. Please see the OpenNode2 Administration User Guide for more information on creating data exchange email notifications.

Monitor Flow Activity

The OpenNode2 will track all UIC data exchange activity and can be accessed to monitor and debug related flow activities. Please see the OpenNode2 Administration User Guide for more information on accessing and searching the available OpenNode2 activity reports.

Appendix A: UIC Staging Table Block Diagram