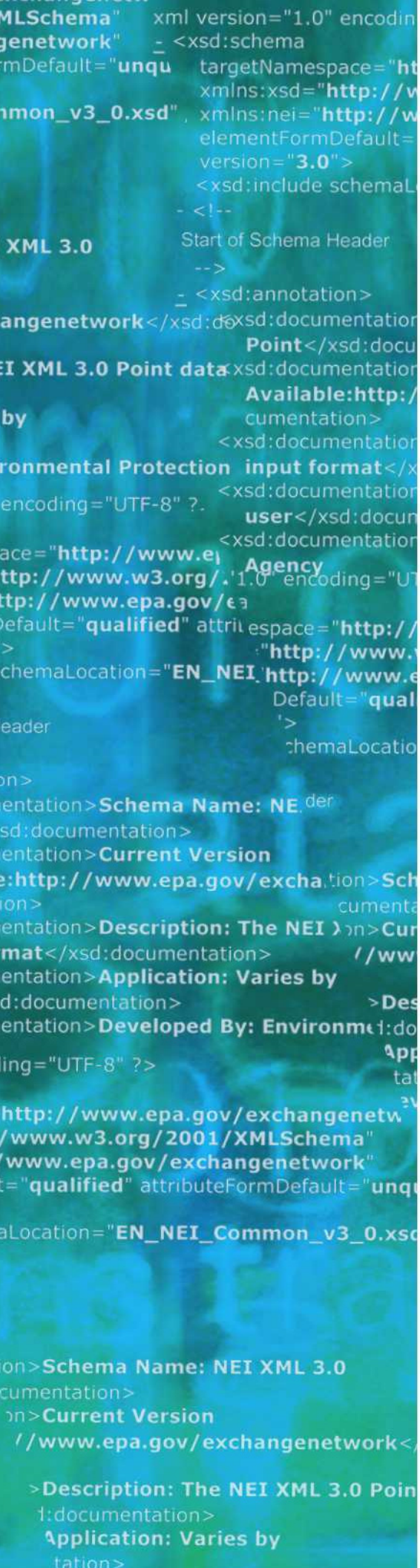

OpenNode2

EIS-Bridge Plugin Installation and Configuration Guide (.NET)

Revision Date: 7/9/2014

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Revision History

Date	Author	Changes	Version
6/11/2011	Windsor	Initial release	1.0
6/22/2011	Windsor	Updates based on enhanced functionality of plugin (schema validation, directory-based processing)	1.1
10/9/2013	Windsor	Revised cover page	1.2
7/9/2014	Windsor	Updated Install Plugin section to describe pre-bundled plugin process starting with OpenNode2 v2.6	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 Emissions Inventory System (EIS) Bridge plugin on the Microsoft .NET implementation of the Exchange Network OpenNode2 (OpenNode2).

Background

The Emissions Inventory System (EIS) is the information system developed by EPA to store all current and historical air emissions inventory data. It will be used to receive and store emissions data and generate annual NEIs beginning with the 2008 NEI, reported in 2010. The EIS system replaces the legacy NEI data system previously used by EPA for this purpose. EPA has significantly changed both the structure of the data to be submitted and the operation of the data flow for EIS when compared to NEI.

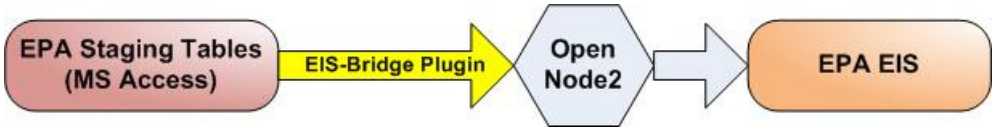
Data submissions to EIS must utilize the Exchange Network and XML documents to transport data to the EPA CDX Node. The XML documents must follow the CERS format, which is structurally quite different from the legacy NEI XML schema.

Operationally, for point source emissions, the EIS data flow requires that facility inventory information, e.g., facilities, emission units, processes, stacks, and control devices, be reported separately from the actual emissions information. This requires two data submissions for each reporting year, rather than the single submission that was acceptable for the NEI data flow.

About the OpenNode2 EIS-Bridge Plugin

The OpenNode2 EIS-Bridge plugin provides a substitute mechanism for converting data from populated EIS Staging tables into CERS XML. Because the plugin works with OpenNode2, functionality to submit the generated XML document to EPA is built in, going beyond the capabilities of the EIS Bridge Tool.

The diagram below depicts the overall processing conducted by the EIS-Bridge plugin.



EIS-Bridge Plugin Processing Workflow

Note: The EIS-Bridge plugin only implements the **Facility**, **Point** and **NonPoint** data categories. Other data categories are not supported.

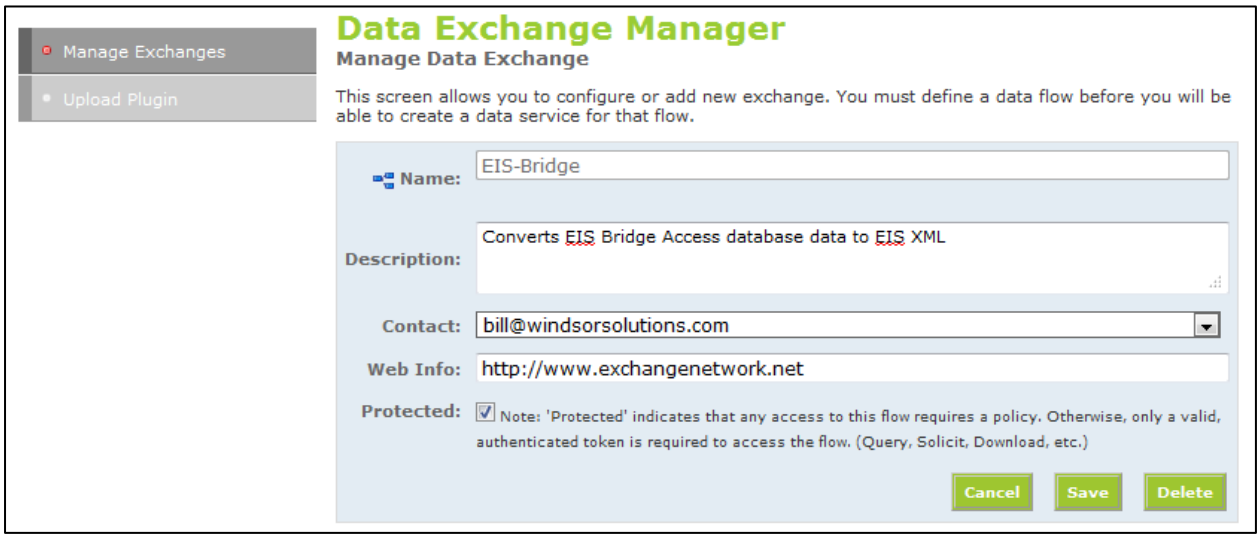
When the EIS-Bridge schedule runs the plugin scans a given folder for .mdb databases. If any databases are found, it will attempt to convert the data within the first Access database in the directory into CERS XML. A different folder and schedule must be specified for each EIS data category. The plugin then validates the file against the XML schema. Upon success, the plugin can be configured to delete the file so the same file will not be processed again the next time the schedule runs. Lastly, the XML data is returned to the OpenNode2 engine. The node will then do whatever the schedule is configured to do with the file such as submit it to CDX or email the result to a specific address.

Note that if the XML file does not pass schema validation, the schedule's transaction will be set to "failed" and the schema validation errors are attached as a document to the transaction for viewing and audit by a node administrator.

Setting up the EIS-Bridge Data Exchange

The first step is to create the EIS-Bridge data exchange using the Node Admin Web application.

1. After logging into the Node Admin, click the **Exchange** tab on the top navigation bar.
2. Click the **Add Exchange** button. The Manage Data Exchange screen will be displayed as follows:



3. Type "EIS-Bridge" in the **Name** field.
4. Type a short description in the **Description** field.
5. Select a user account name from the **Contact** drop down box. Contacts are populated with all accounts that have been set up on the OpenNode2. See the **Security** tab for a list of available accounts.
6. In the **Web Info** field, enter a URL where more information can be found about the EIS exchange. It is recommended that the following URL be used for this purpose http://exchangenetwork.net/exchanges/air/eis.htm.
7. It is recommended that the **Protected** box be checked. This will limit external access to the EIS 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.
8. Click the **Save** button to save the data exchange to the OpenNode2 metadata database.

Install the EIS-Bridge Plugin

Once the data exchange has been created, the next step is to upload the EIS-Bridge plugin into the OpenNode2 plugin repository.

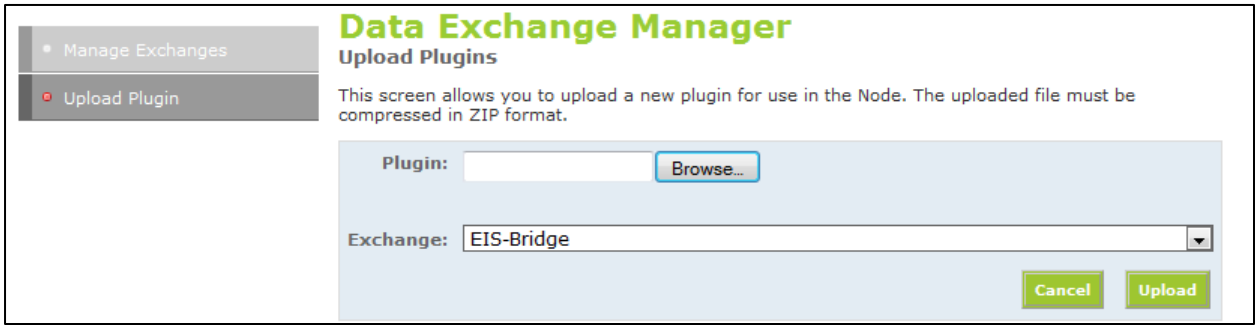
Note: If you are using OpenNode2 v2.6 or higher, this step is not necessary. Starting with v2.6, all

plugins are pre-installed with the OpenNode2 software installation package. By creating the exchange above, the plugin will automatically be loaded and associated with the exchange. To validate that the plugin was installed automatically, follow the steps below:

1. From the **Exchange** tab, scroll down the list of installed data exchanges until the WQX exchange is located.
2. Click the **Add Service** button located just beneath the WQX data exchange record. If the Implementer drop down box is not empty, then the plugin has been installed successfully.

If the steps above reveal that the plugin is not installed, perform the following steps to install it.

1. Navigate to the plugin directory in the **Plugins\[Flow Name]\[version number]** directory included with the OpenNode2 installation files.
2. Create a new zip file containing the two Windsor.Node2008.WNOSPlugin.[Flow name].dll and .pdb files.
3. Click the **Exchange** tab on the top navigation bar.
4. Click the **Upload Plugin** section on the left navigation bar. The Upload Plugin screen will be displayed as follows:



5. Click the **Browse** button which is located to the right of the **Plugin** field.
6. Locate and select the compressed (zipped) file containing the code component for the EIS-Bridge plugin you created in step 2 above.
7. Select the data exchange name “EIS-Bridge” that you created during the previous step from the **Exchange** dropdown box.
8. Click the **Upload** button to upload the plugin.

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. Only the latest version of any one plugin is made available during the next step to establish data services.

Create the EIS-Bridge Data Services

Data services are distinct functions provided by a plugin to support a given data exchange. In the case of the EIS-Bridge flow, there are three specific data services provided by the plugin:

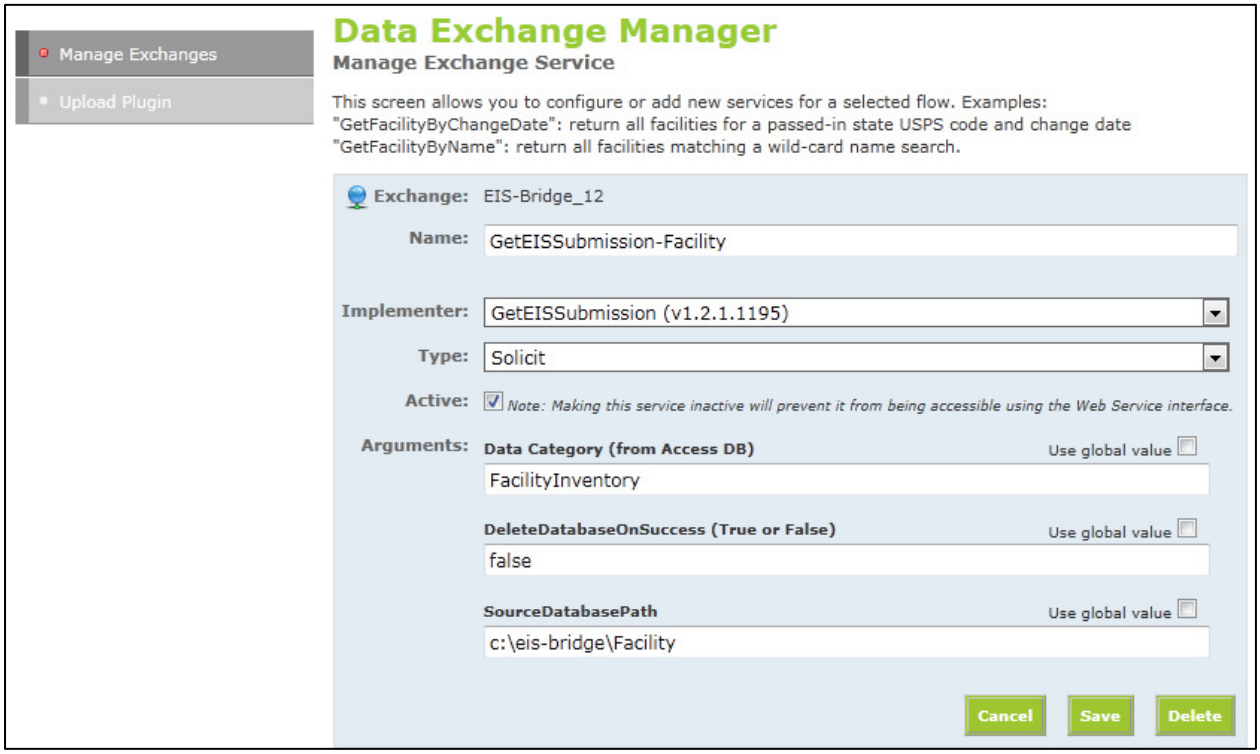
– GetEISSubmission-FacilityInventory

- GetEISSubmission-Point
- GetEISSubmission-NonPoint

Each of these data services must be created and configured before they can be accessed through the OpenNode2.

GetEISSubmission-FacilityInventory

1. From the **Exchange** tab, scroll down the list of installed data exchanges until the EIS-Bridge exchange is located.
2. Click the **Add Service** button located just beneath the EIS-Bridge data exchange record. The following page will be displayed to allow a new data service to be added.



3. In the **Name** field, type "GetEISSubmission-FacilityInventory".
4. From the **Implementer** drop down box, select the appropriate value for this data service.

   Note: When the implementer is selected, several additional arguments will appear. The Node Admin application will obtain these properties directly from the EIS-Bridge plugin.
5. From the **Type** drop down box, 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. For the argument labeled **DataCategory (from Access DB)**, type **FacilityInventory**. This instructs the plugin which mapping instructions to use since the structure of the database differs for each EIS data category.

ii. For the argument labeled **DeleteDatabaseOnSuccess**, enter either **true** or **false**. If set to true, the plugin will attempt to delete the source database when done composing and successfully validating the XML file. The file will never be deleted if schema validation fails.

iii. For the argument labeled **Source Database Path**, type the path to the directory where the one or more Access databases are located. The path must be accessible to the account under which the NOS Service runs.

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

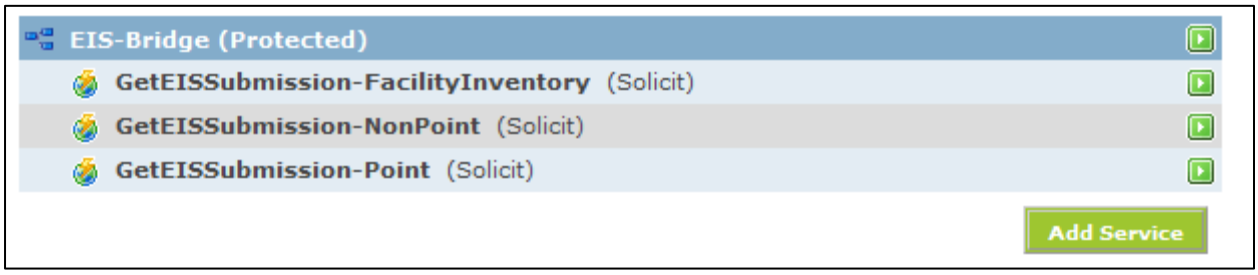
GetEISSubmission-Point

1. Repeat these steps to set up the equivalent service for point source data, setting the **Name** field to "GetEISSubmission-Point", and setting the DataCategory property to **Point**, and selecting a different directory for the **Database Path**.
2. Click the **Save** button to save the service.

GetEISSubmission-NonPoint

1. Repeat these steps to set up the equivalent service for point source data, setting the **Name** field to "GetEISSubmission-NonPoint", and setting the DataCategory property to **NonPoint**, and selecting a different directory for the **Database Path**.
2. Click the **Save** button to save the service.

The **Manage Exchanges** page for the EIS-Bridge data exchange should appear as follows:



Define Data Exchange Schedules

Scheduled jobs can be configured in the OpenNode2 to perform automated tasks such as submitting data to external partners or processing received files.

The EIS-Bridge data exchange implements three schedules, one for each EIS data category. Each is set up nearly identically. The assumption is that the submission will be run as-needed, executed manually from the Node Admin.

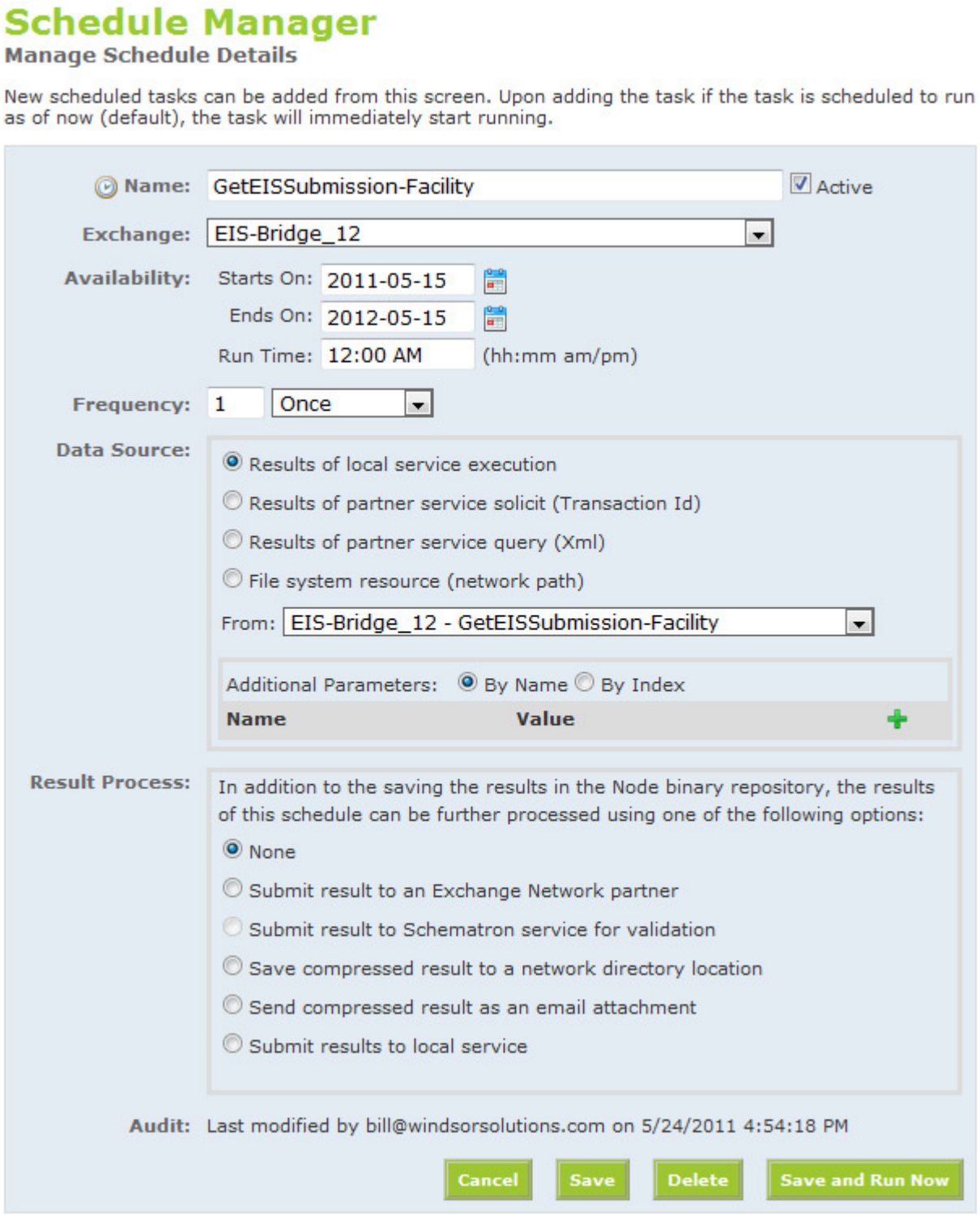
Create GetEISSubmission-FacilityInventory Schedule

1. From the **Schedules** tab, click the **Add Schedule** button.
2. Type "GetEISSubmission-FacilityInventory" in the **Name** field.
3. Enable the schedule by clicking the **Active** checkbox, if needed.
4. Select "EIS-Bridge" from the **Exchange** dropdown list.
5. Leave the start date, end date and frequency unchanged. These settings are not used because the schedule will only be executed manually.
6. In the **Data Source** area, check the radio button labeled **Results of local service execution**.
7. In the **From** dropdown box, select the value "EIS-Bridge-GetEISSubmission-FacilityInventory". This informs the schedule to use the selected EIS-Bridge service as the data source for the submission.
8. Skip the **Additional Parameters** area since the plugin does not use any special schedule parameters.
9. In the **Result Process** area, check the Submit to **Exchange Network Partner** radio button.

   Note: For testing, you may wish to choose the option to email the result to an agency staff person to review the contents of the submission before it is submitted to EPA.

10. In the **To**: drop down box, select the EPA CDX node endpoint that receives EIS submissions. This should be a partner on the node that points to **https://node2.epa.gov/Node2WS.svc**.
11. Type "EIS_V1_0" in the **Exchange** field. Note that this must be entered exactly as written or the CDX node will not recognize the target flow and therefore, return an error that the flow was not found.
12. Click the **Save** button to save the schedule.

The image below displays the schedule parameters upon completion:



Create GetEISSubmission-Point Schedule

1. Repeat these steps above to set up the equivalent schedule for sending Point data. Change the **Name** to "GetEISSubmission-Point" and select the "EIS-Bridge-GetEISSubmission-Point" service before saving. All other information should remain the same as above.

Create GetEISSubmission-NonPoint Schedule

1. Repeat these steps above to set up the equivalent schedule for sending Point data. Change the **Name** to "GetEISSubmission-NonPoint" and select the "EIS-Bridge-GetEISSubmission-NonPoint" service before saving. All other information should remain the same as above.

The three EIS-Bridge schedules are now set up correctly to manage the data flow. Please see the OpenNode2 Administration User Guide for more information on scheduling data exchanges.

Contact CDX to Establish Exchange Settings

Contact the EPA CDX Node helpdesk and ask them to perform the following tasks:

1. Authorize the OpenNode2 runtime (operator) NAAS account to submit to the EIS-Bridge data exchange on the EPA systems.
2. Map the OpenNode2 runtime NAAS account to the CDX Web user account that currently administers EPA EIS-Bridge data for the organization.

Establish Email Notifications

If desired, the Node administrator may create NAAS accounts for one or more staff members and create notifications for the any OpenNode2 events related to the EIS-Bridge data exchange. Please see the OpenNode2 Administration User Guide for more information on setting up notifications.