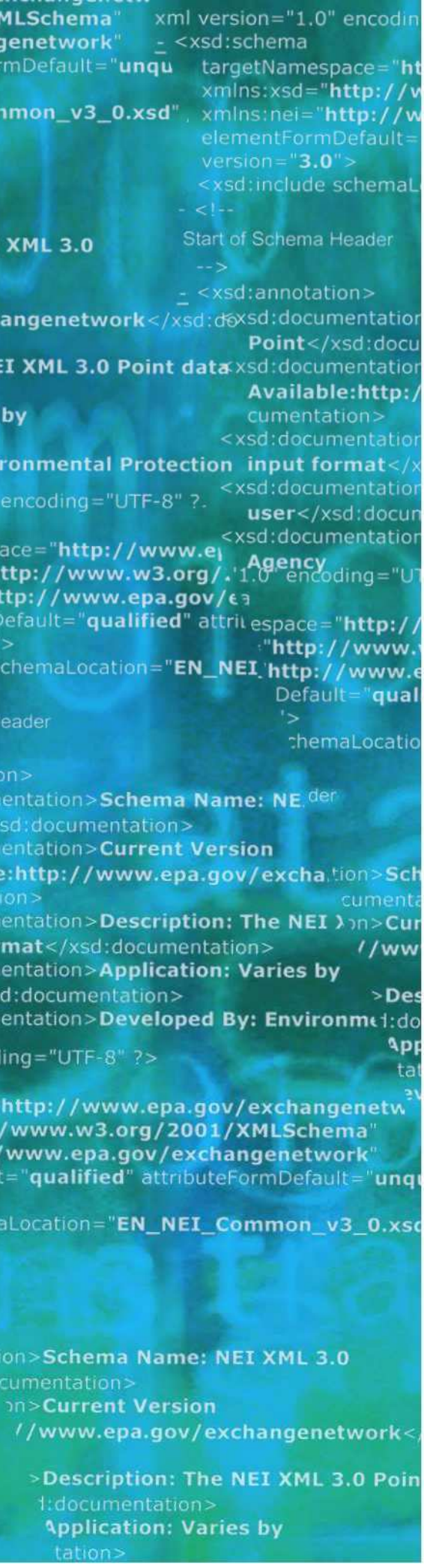

OpenNode2

OWIR-ATT

Data Exchange Implementation Guide

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Applies to .NET OpenNode2 v1.2

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Environmental Information eXchange Network

Revision History

Date	Author	Changes	Version
04/13/2012	Windsor	Initial version	1.0
4/16/2012	Windsor	Corrected data flow name from OWIR-ATT_V2.0 to OWIR-ATT_v2	1.1

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Data Exchange Overview

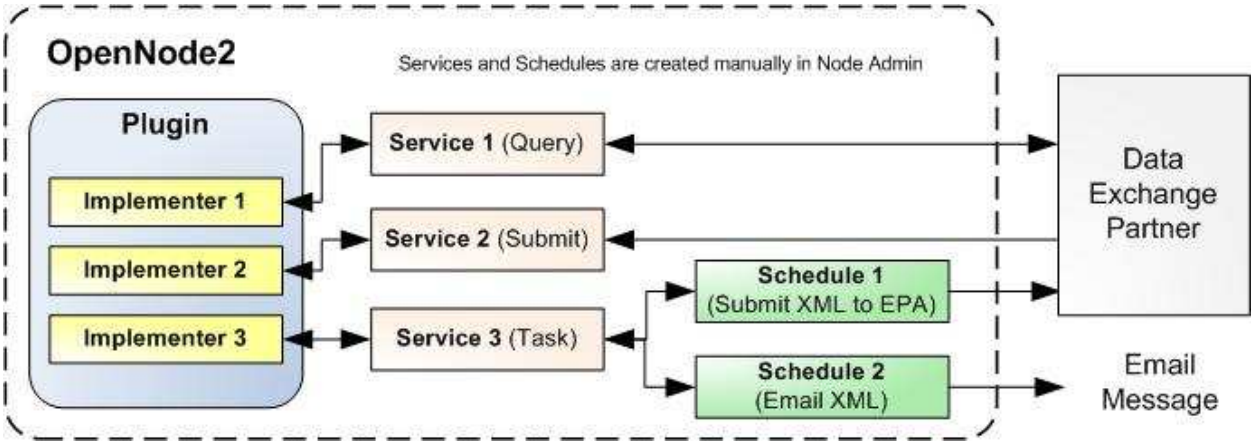
The purpose of this document is to provide detailed instructions for the installation and configuration of the Exchange Network OWIR-ATT data exchange on the .NET implementation of the Exchange Network OpenNode2 (OpenNode2).

The OWIR-ATT Exchange is a biennial submission to EPA for the purposes of exchanging information related to the Clean Water Act Section 303(d) /305(b), hydrographic-related geospatial data and shares the integrated data, Integrated Report (IR) through the Exchange Network.

The OWIR-ATT Exchange plugin includes DDL scripts to create staging tables for both SQL Server and Oracle conforming to the design of the OWIR-ATT v2.0 XML schema.

Plugin Architecture

The diagram below shows the architecture of a typical OpenNode2 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.

OWIR-ATT Plugin Implementers

This section describes the implementer available in the OWIR-ATT plugin, the arguments required, and how it operates.

GenerateSubmissionFile Implementer

Implementer Name:	**GenerateSubmissionFile**
Description/Usage:	Reads ATTAINS data from the OWIR-ATT staging tables and prepares data in XML format for delivery.
Service Parameters:	**Author Name:** Originator of the document. This should be the name of a person or a network node ID if the document is automatically generated
	Data Service Name: Name of a data service that generated the document. This is the name of the procedure that was used to initiate the creation of the payload.
	Document Title: Title of the document.
	Keywords: Words that best describe the payload. Multiple keywords

should be separated by commas. This is for transaction categorization and searching.

Organization Name: The organization to which the author belongs. It may be a state name, an organization name or a company name. For submissions to the CDX node, this should be the name of the organization.

Sender Address: A well-formed URI where result/report can be sent. Currently the Network will make use of the Notification mechanism at the Document Level as described in the Protocol and Specification. Note that this could contain multiple addresses, including that of the submitter and/or other technical people related to contents of the payload.

Data Source: Select the data source for the connection to the staging database where the ATTAINS staging tables reside. Data sources are configured on the Configuration tab of Node Admin.

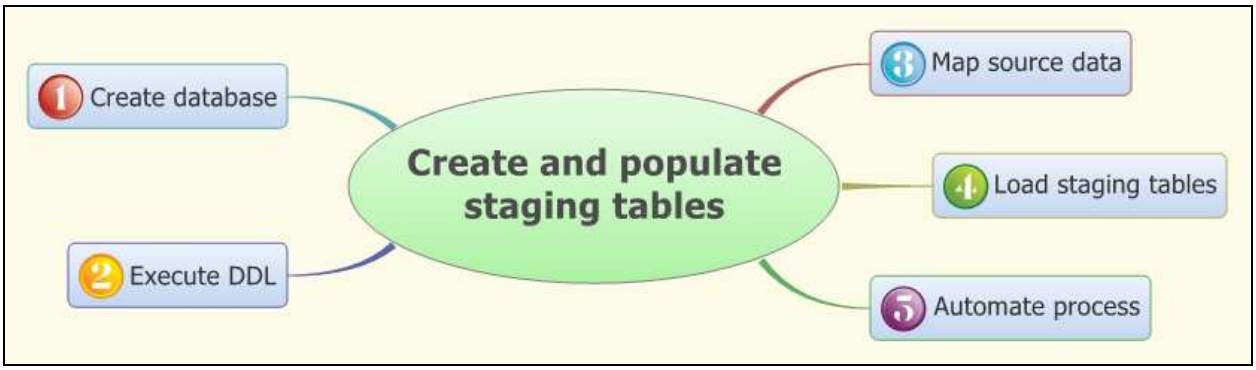
Schedule Parameters: None.

Implementing the OWIR-ATT Exchange

Step 1: Create and Populate the OWIR-ATT 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 OWIR-ATT data exchange. This section outlines the steps required to set up the OWIR-ATT data exchange database staging tables.

The following figure illustrates these steps:



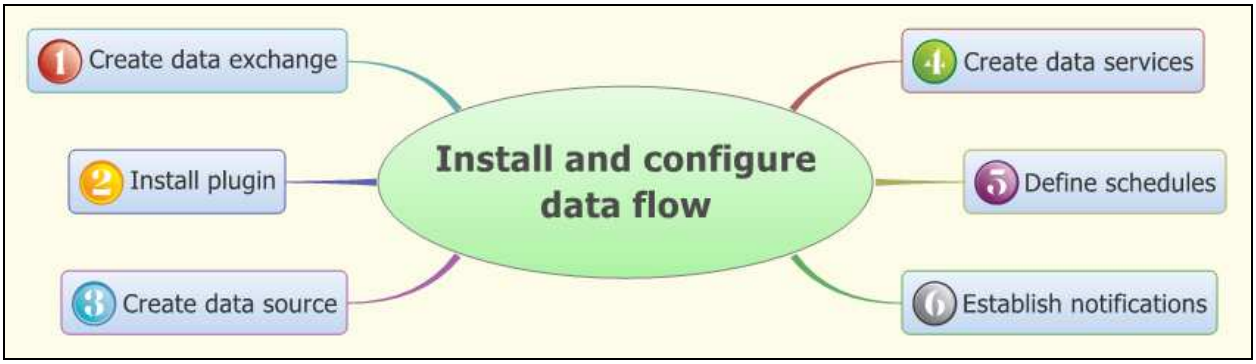
1. The first step is to create the staging database by running the script provided to download itself if one has not already been established to support another data exchange (typically named NODE_FLOW).
2. Once the staging database is created, a Database Definition Language (DDL) script included in the OWIR-ATT plugin package can be executed to create the staging tables themselves that will be used to store the data being made available through the OWIR-ATT data exchange. Scripts are available for Oracle only.
3. With the staging environment established, data must now be mapped from the source database to the equivalent fields in the OWIR-ATT staging tables. The OWIR-ATT is bundled with an ETL to download from the Oracle version of the EPA Assessment Database (ADB) software[1].
4. 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. If the extract process is encapsulated by a stored procedure residing within the staging database, the extraction can be executed by the plugin. See the following section for details.

[1] See http://www.epa.gov/waters/adb/tools.htm for more information about ADB.

Step 2: Install and Configure the OWIR-ATT Data Exchange

This section describes the steps required to install and configure the OWIR-ATT data exchange on the Microsoft .NET implementation of the OpenNode2 using the Node Administration Web application (Node Admin).

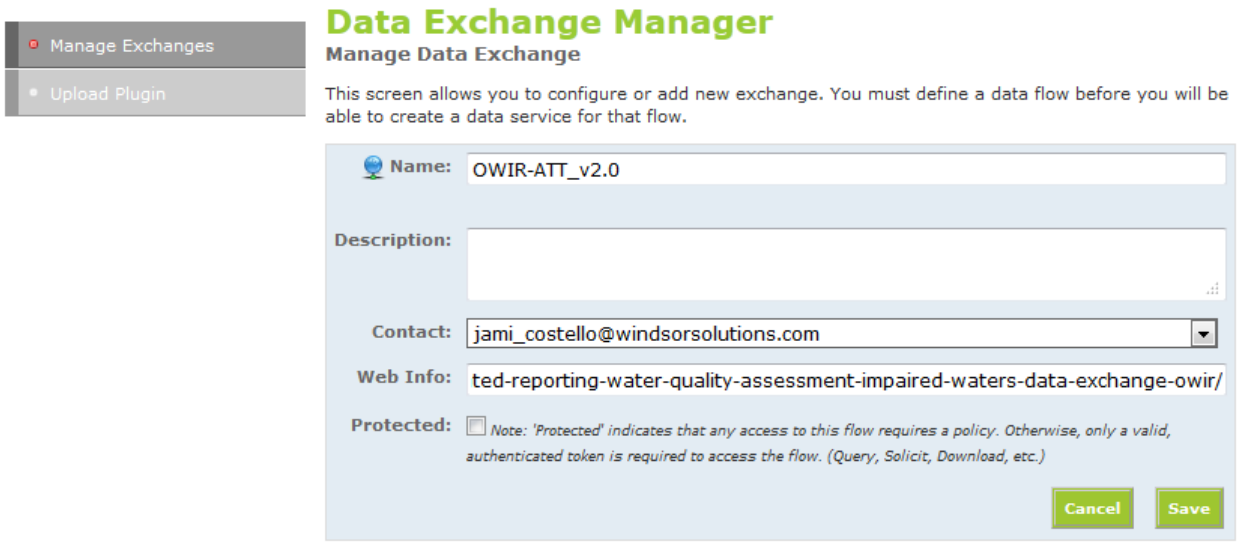
The following figure illustrates these steps:



Create the OWIR-ATT Data Exchange

The first step is to create the OWIR-ATT 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:



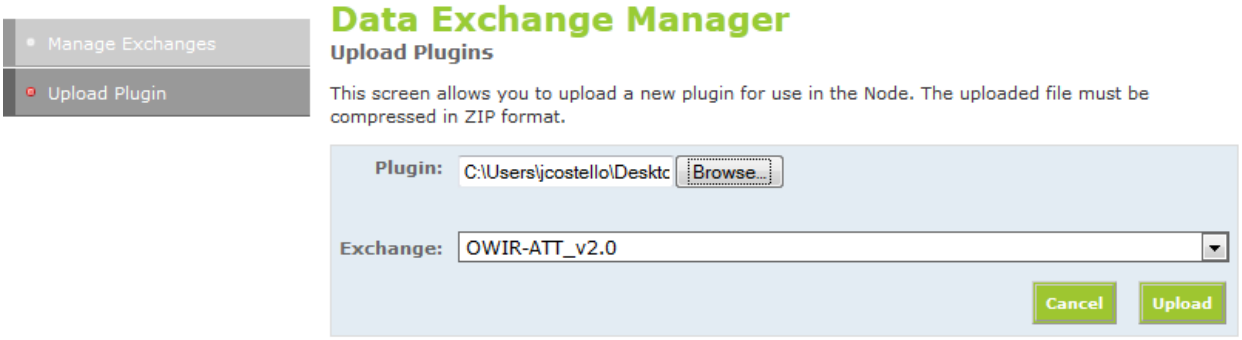
3. Type “OWIR-ATT_v2” in the **Name** field.
4. Type a short description in the **Description** field.
5. Select a user account name from the **Contact** drop down box. Contacts are populated with all accounts that have been set up on the OpenNode2. See the **Security** tab for a list of available accounts.

6. In the **Web Info** field, enter a URL where more information can be found about the OWIR-ATT exchange. It is recommended that the following URL be used for this purpose http://www.exchangenetwork.net/data-exchange/clean-water-act-integrated-reporting-water-quality-assessment-impaired-waters-data-exchange-owir/.
7. It is recommended that the **Protected** box be checked. This will limit external access to the OWIR-ATT data services. If the node needs to receive OWIR-ATT submissions from external partners, uncheck this box.
8. Click the **Save** button to save the data exchange to OpenNode2.

Install the OWIR-ATT Plugin

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

1. Click the **Exchange** tab on the top navigation bar.
2. Click the **Upload Plugin** section on the left navigation bar. The Upload Plugin screen will be displayed as follows:



3. Click the **Browse** button which is located to the right of the **Plugin** field.
4. Locate and select the compressed (zipped) file containing the code component for the OWIR-ATT plugin.
5. Select the data exchange name "OWIR-ATT" created during the previous step from the **Exchange** dropdown box.
6. Click the **Upload Plugin** 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.

Step 3: Create the OWIR-ATT Data Services

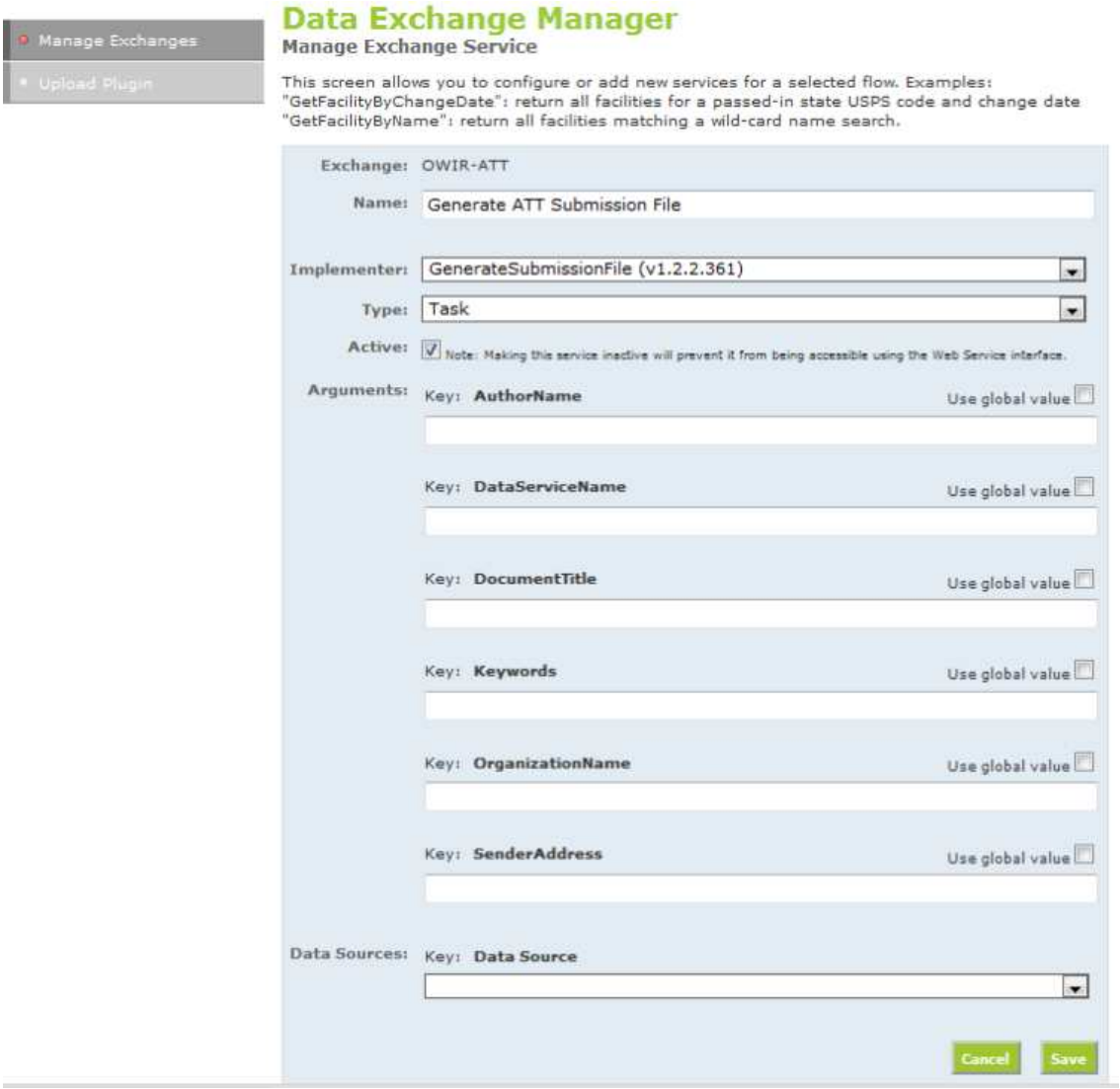
The configuration of data services for the OWIR-ATT exchange.

Create the GenerateSubmissionFile Data Service

1. From the **Exchange** tab, scroll down the list of installed data exchanges until the OWIR-ATT exchange is located.

2. Click the **Add Service** button located just beneath the OWIR-ATT data exchange record.
3. In the **Service Name** field, type "Generate ATT Submission File".
4. From the **Implementer** drop down box, select the value "GenerateSubmissionFile"

   Note: When the implementer is selected, several arguments and data sources will appear. The OpenNode2 application will obtain these properties directly from the OWIR-ATT plugin.
5. From the **Type** drop down box, select how you wish to make the services available. The options available will be obtained from the plugin. Select "Task".
6. Enable the service by clicking the **Active** checkbox.
7. Based on the selection made from the implementer dropdown box, OpenNode2 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:



8. Arguments: See 'Plugin Architecture' section for service parameters descriptions.
   a. Author Name

b. Data Service Name
c. Document Title
d. Keywords
e. Organization Name
f. Sender Address

9. Data Sources:
    a. Data Source
10. Click the **Save** button to save the service.

Step 4: Create 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.

Create the GenerateSubmissionFile Schedule

1. From the **Schedules** tab, click the **Add Schedule** button.
2. Type "Submit ATTAINS data" in the **Name** field.
3. Select "OWIR-ATT" from the **Exchange** dropdown list.
4. Set the start date to the first date when you wish the schedule to run. Set the end date to some point after the start date.

Note: If the intention is to manually execute the schedule, the start and end date will not matter.

5. Set the frequency to the data submission to "Once".
6. In the **Data Source** area, check the radio button labeled **Results of local service execution**.
7. In the **Service** dropdown box, select the value "**OWIR-ATT_v2 - GenerateSubmissionFile**". This informs the schedule to use the selected OWIR-ATT service as the data source for the submission.
8. Skip the **Additional Parameters** section.
9. In the **Result Process** area, check the radio button for **Submit result to an Exchange Network Partner.** Choose the CDX endpoint for ATTAINS from the **To** drop down list. A Set the **Exchange** to "OWIR-ATT_v2". Set the Operation to **ProccessOWIRATTDoc**.

    *Note: For testing purposes, you may set the Result Process to **Send compressed result as an Email Attachment** and specify your own email address as the recipient. This will enable you to manually check the file before submitting.*
10. Click the **Save** button to save the schedule.

Step 5: 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 OWIR-ATT data exchange on the EPA systems.
2. Map the OpenNode2 runtime NAAS account to the CDX Web user account that currently administers EPA OWIR-ATT data for the organization. This is required to ensure that the EPA-generated emails are sent to the appropriate person in your organization.

Step 6: 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 OWIR-ATT data exchange. Please see the OpenNode2 Administration User Guide for more information on setting up notifications.

Staging Table ER Diagram

OWIR Attains Staging Schema
Version 2.0
Windsor Solutions, Inc.
January 04, 2012