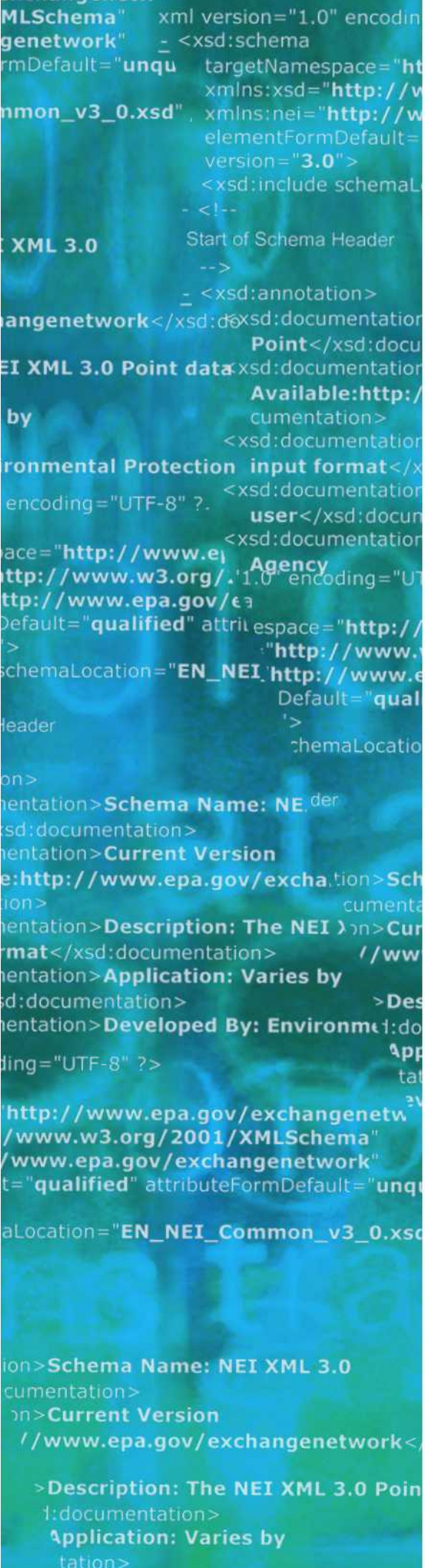

OpenNode2

SDWIS 2.0 Data Exchange Implementation Guide (.Net)

Revision Date: 7/9/2014

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Environmental Information exchange Network

Revision History

Date	Author	Changes	Version
5/29/2009	Windsor	Initial version	1.0
2/25/2010	Bill Rensmith	Removed step from “Contact CDX and Established Exchange Settings”. No mapping to a legacy CDX account is needed. Updated “Data Exchange Overview” steps to match.	1.1
5/26/3010	Bill Rensmith	Added note about FedRep incompatibility for files larger than 1 MB zipped	1.2
10/9/2013	Windsor	Revised cover page	1.3
7/9/2014	Windsor	Updated Install Plugin section to describe pre-bundled plugin process starting with OpenNode2 v2.6	1.4

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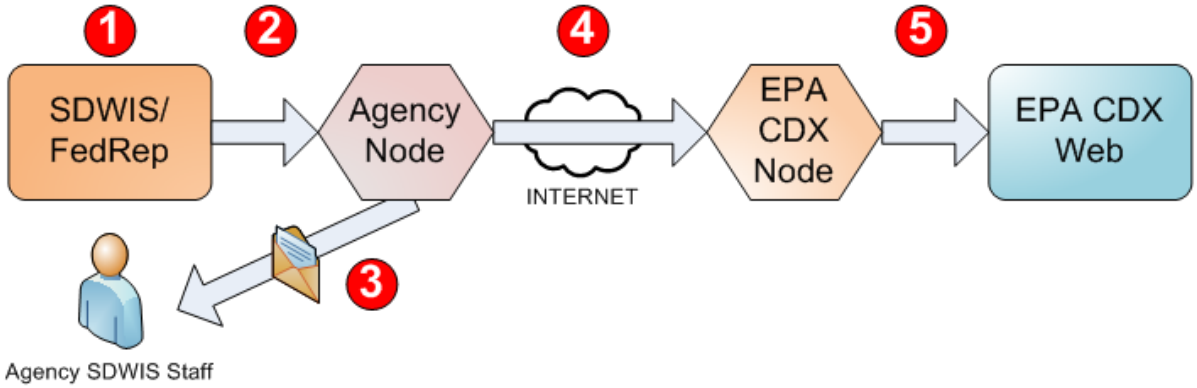
Data Exchange Overview

The purpose of this document is to provide detailed instructions for the installation and configuration of the Safe Drinking Water Information System (SDWIS) data exchange on the Microsoft .NET and Java implementations of the Exchange Network OpenNode2 (OpenNode2).

When the safe drinking water data is deemed ready for submission to the EPA, the SDWIS/FedRep application will be used to extract and validate inventory, actions and samples data. The following diagram illustrates the processing of the SDWIS information from the SDWIS/FedRep application to the OpenNode2 to the EPA CDX Node.



1. User initiates the SDWIS data submission to the OpenNode2 by setting several SDWIS/FedRep application configuration parameters or system properties.
2. SDWIS XML documents are submitted to the OpenNode2. Upon receipt of the SDWIS/FedRep sent XML document, the OpenNode2 will log an incoming submit transaction and save a copy of the XML document to the OpenNode2 database.
3. If configured to do so, the OpenNode2 will send one or more notifications to any user subscribed to "submit" notifications for the SDWIS data exchange. The email will contain a link to the Node Admin activity log, displaying details about the transaction including links to download the original file.
4. The SDWIS Plugin will send the XML documents to the Target URL (Submit Endpoint), specified in SDWIS Plugin service in the Node Admin. The submission will be made under the OpenNode2 NAAS runtime account.
5. EPA CDX Node relays the SDWIS data submission for processing by SDWIS. User approves submission for processing with Regional Coordinator. User logs into CDX Web and retrieves ODS processing report.

The SDWIS data exchange configuration process involves two main steps: 1) install and configure the SDWIS data flow and 2) configure SDWIS/FedRep. The rest of this document will describe these two processes and the above illustration in detail.

NOTE: There is a known interoperability issue with FedRep submitting files greater than 1 MB in size to the .NET OpenNode2. This has been tracked down to a bug in the Axis framework used in FedRep that only appears when interoperating with .NET applications. There is no known workaround. If this issue arises, either send smaller files more frequently or configure FedRep to submit directly to EPA CDX.

Install and Configure SDWIS Data Flow

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

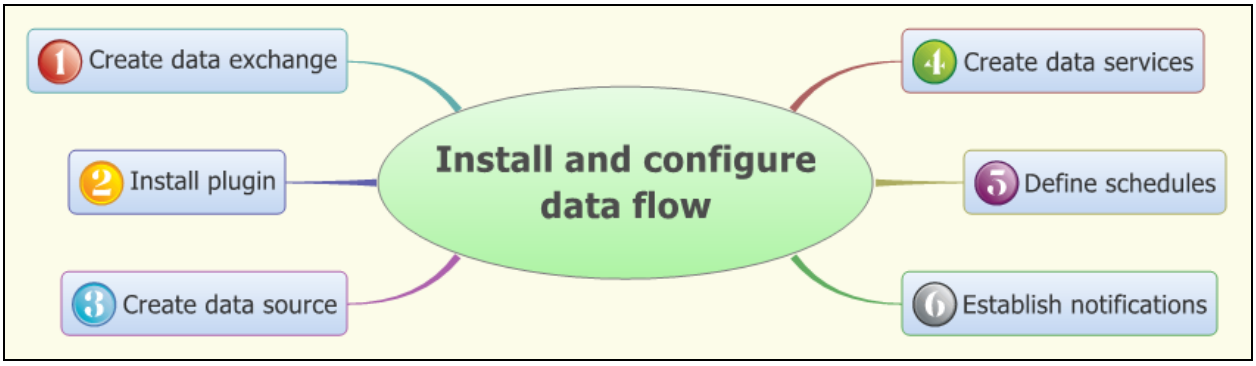
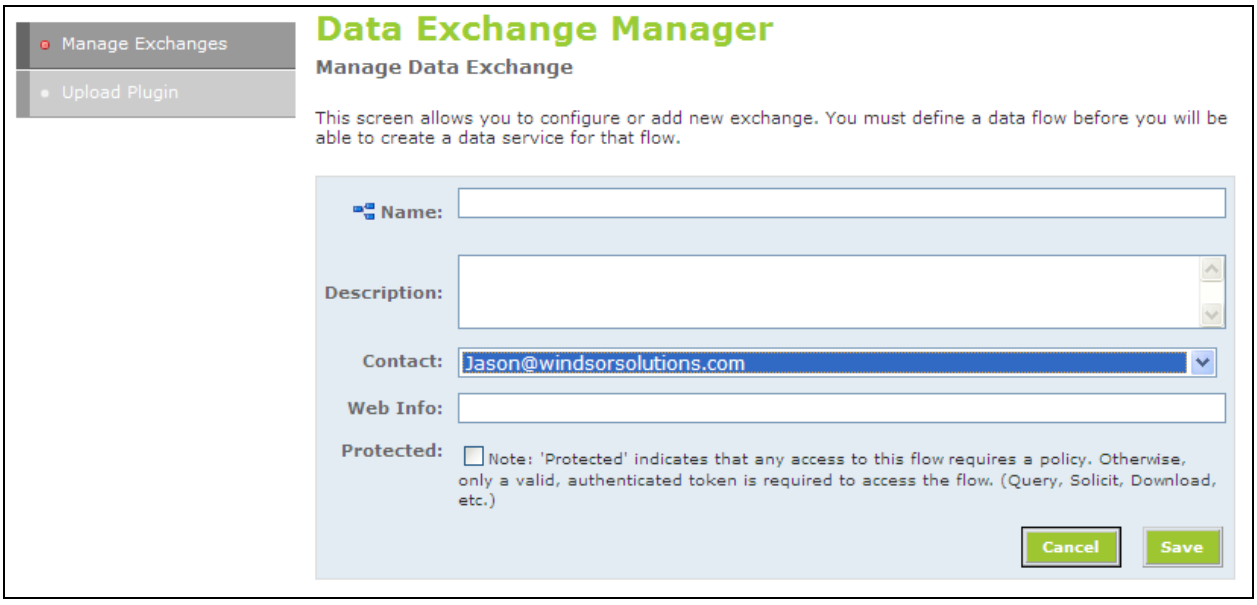


Figure 1: Install and Configure SDWIS Data Flow

Create SDWIS Data Exchange

The first step to implement the SDWIS 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.
2. Click the **Add Exchange** button. The Manage Data Exchange screen will be displayed:



3. Type *SDWIS* in the **Name** field.

4. Type a short description in the **Description** field, e.g., *Safe Drinking Water Information System data exchange*.
5. 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.
6. Type any valid URL in the **Web Info** field. Ideally, this will be the page on the Exchange Network Web site that describes the SDWIS data exchange:

   http://www.exchangenetwork.net/exchanges/water/sdwis.htm
7. Check the **Protected** checkbox, indicating that only privileged users may submit SDWIS data to the OpenNode2.
8. Click **Save** to save the exchange.

Install SDWIS Plugin

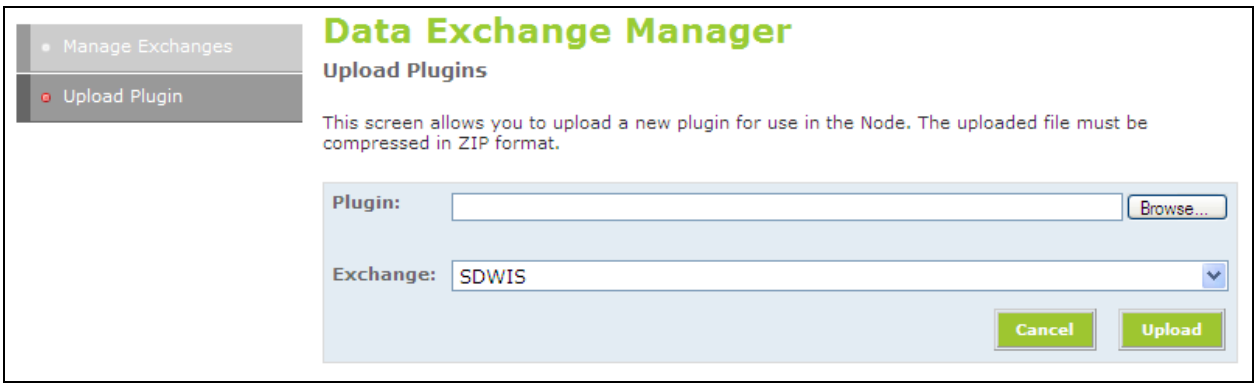
Once the SDWIS data exchange has been created, the next step is to upload the SDWIS plugin provided by Windsor into the OpenNode2 plugin repository.

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. From the **Exchange** tab, click the **Upload Plugin** button on the left side navigation block.



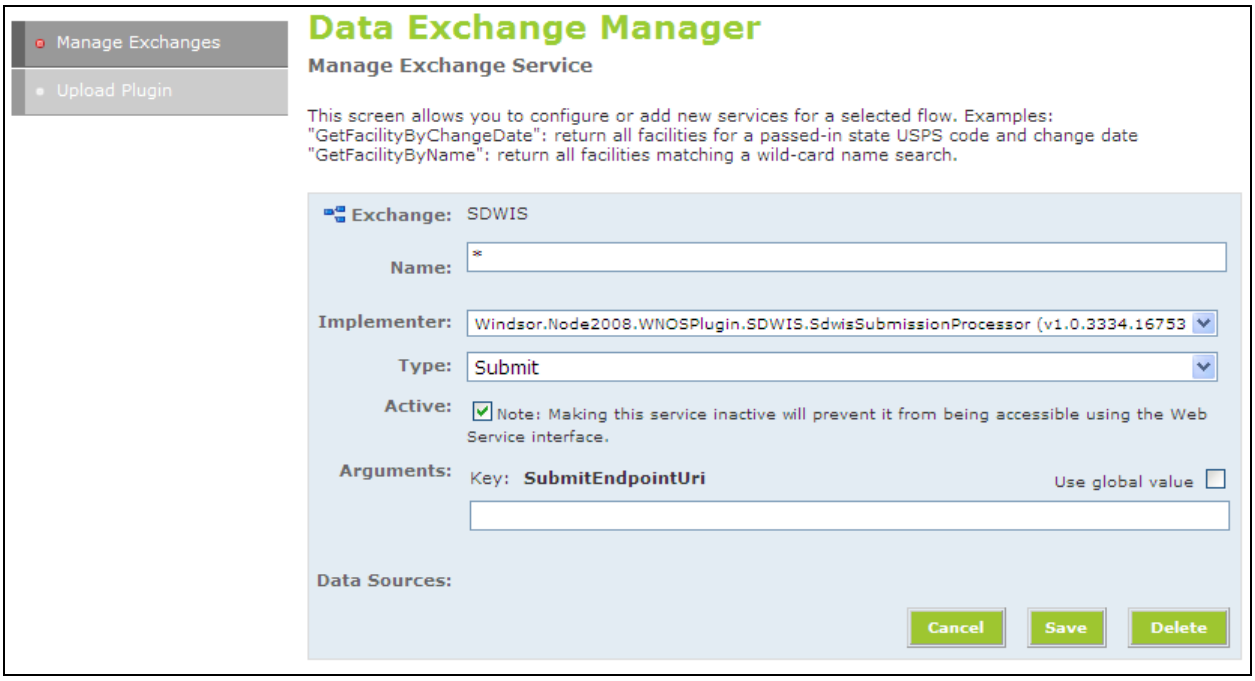
4. Click the **Browse** button located to the right of the **Plugin** field.
5. Locate and select the compressed (zipped) file containing the code component for the SDWIS plugin you created in step 2 above.
6. Select *SDWIS* from the **Exchange** drop-down menu. If *SDWIS* is not available, ensure that the previous step was completed (*Create SDWIS Data Exchange*).
7. Click the **Upload** button to install the SDWIS 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 SDWIS Data Services

The SDWIS plugin document processor service must be configured to relay received SDWIS files to EPA CDX endpoint. Once the submit processor service is installed, it will immediately be ready to act upon any received files, relaying the file to the EPA CDX endpoint.

1. From the **Exchange** tab, locate the SDWIS exchange in the list of available exchanges.
2. Click the **Add Service** button located just beneath the SDWIS exchange entry. The following page will be displayed to allow a new data service to be added.



3. Enter an asterisk (*) as the **Name** of the data service.
4. Select the implementer literal from the **Implementer** drop-down menu[1].

   Note: When the implementer is selected, a single argument will appear. The Node Admin will obtain this property directly from the loaded SDWIS plugin.
5. Select *Submit* from the **Type** drop-down menu. This will be the only available choice.
6. Enable the service by checking the **Active** checkbox.
7. A single argument will be available: *SubmitEndpointUri*. For the value field, enter either the CDX Node Test or Production Endpoint URL.

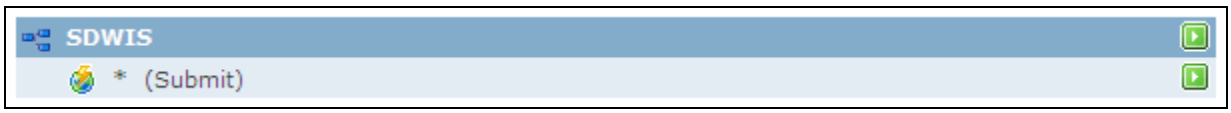
   CDX Test:

   https://test.epacdxnode.net/cdx/services/NetworkNodePortType_V10

   CDX Prod:

   https://cdxnode.epa.gov/cdx/services/NetworkNodePortType_V10
8. Click the **Save** button to save the data service.

The **Manage Exchanges** page for the SDWIS flow should appear as follows:



[1] The remainder of this discussion assumes that the user is deploying the SDWIS data flow plugin provided freely with OpenNode2 by Windsor. If a different plugin is being deployed, then these configuration instructions will need to be modified as appropriate.

Define Data Exchange Schedules

Scheduled jobs can be configured to perform automated tasks such as submitting data to external partners or processing received files. Since State users will submit their SDWIS data to the EPA CDX Node via the SDWIS/FedRep application, there are currently no schedules required to support the SDWIS exchange.

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

Contact CDX to Establish Data Exchange Settings

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

Note: This step is only required for CDX Production node. The CDX Test node does not require a submit policy.

Create 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 SDWIS 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 SDWIS 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.

Configure SDWIS/FedRep

This section describes the necessary steps to configure SDWIS/FedRep to interface with the OpenNode2 implementation. These settings determine where SDWIS/FedRep will send the generated XML documents when the **Send File to State Node** feature is used on the **Prepare File for Submission** screen.

A SDWIS/FedRep Administrator can setup the following system properties:

- StateNodeURL: <*OpenNode2 URL*>
- StateNodeUserId: <*OpenNode2 NAAS runtime account user name*>
- StateNodePassword: <*OpenNode2 NAAS runtime account password*>
- OperationalMode: Ready
- SendTransactionIDForWebService: No
- DataFlowNameForWebService: SDWIS

These system properties are located and can be set in the SDWIS/FedRep application configuration directory.

Once an XML document has been created, then users will use the submission preparation component of SDWIS/FedRep application to prepare each file for submission to the EPA. SDWIS/FedRep will prepare the XML document formatted according to one of the following Exchange Network schemas:

Actions: *SDWA_DataFlowActions_v2*

Inventory: *SDWA_DataFlowInventory_v2*

Samples: *SDWA_DataFlowSamples_v2*

The generated XML documents will then be submitted to the OpenNode2 based on the **StateNodeURL** specified in the SDWIS/FedRep configuration.