OpenNode2

SDWIS 2.0 Data Exchange Implementation Guide (Java)

Revision Date: 10/9/2013

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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
11/11/2011	Windsor	Including Plugin Architecture	1.2
10/24/2012	Windsor	Clarify use of targetEndpointUrl	1.3
10/9/2013	Windsor	Revised cover page	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.
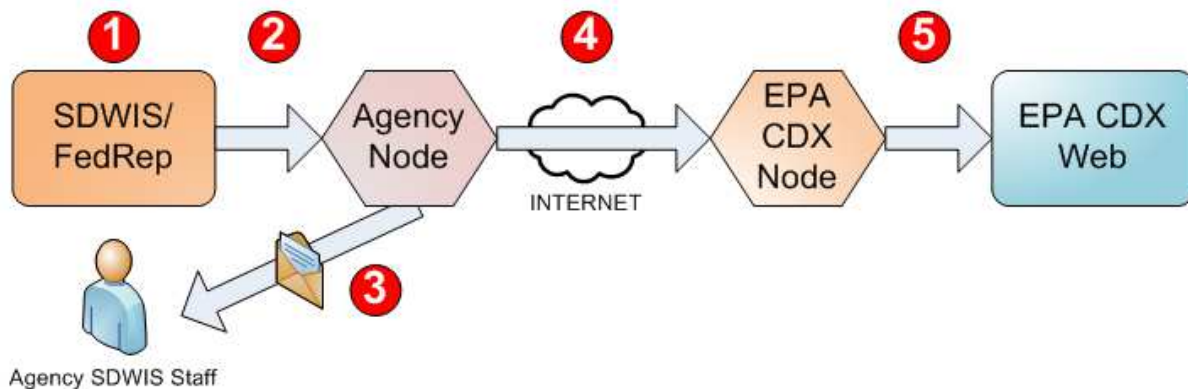

1. User initiates the SDWIS data submission to the OpenNode2 by setting several SDWIS/FedRep application configuration parameters or system properties.

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.

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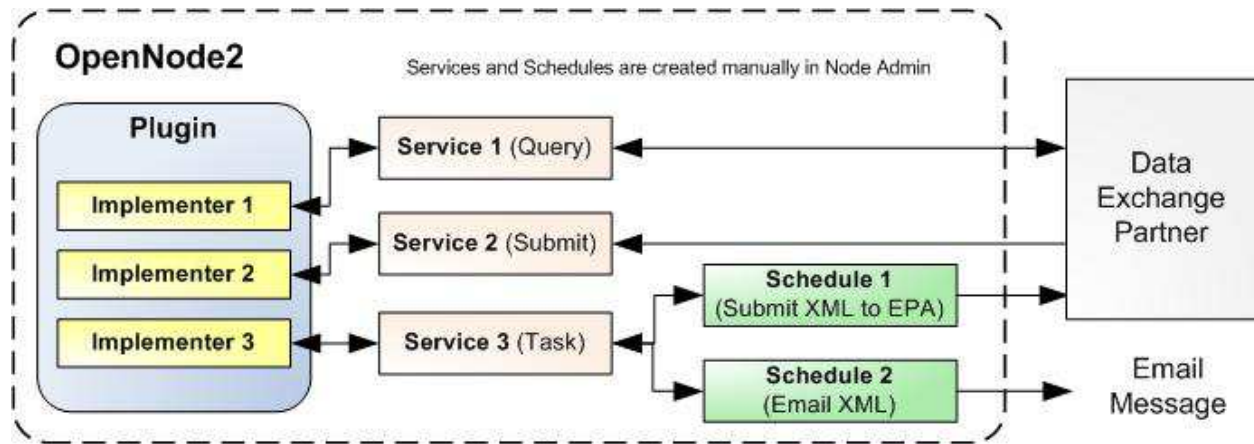
A plugin contains one or more **implementers**. Implementers are canned functionality that are specific to the data exchange. An implementer performs some task, such as composing XML from a series of staging tables.

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.

SDWIS Plugin Implementers

This section describes the different implementers available in the SDWIS plugin, the arguments they require, and how they operate.

SDWISSubmissionRelayProcessor Implementer

Implementer Name:	SDWISSubmissionRelayProcessor
Description/Usage:	In addition to relaying a SDWIS submission, this implementer also contains additional functionality to route the submission file for use by the HERE data exchange. See the HERE Flow Configuration Document for more information.
Service Parameters:	**HereEndpointUri**
	HereFileNameFilter
	HereIsFacilitySource
	HereSourceSystemName
	SubmitEndpointUri

                                   SubmitPassword

                                   SubmitUsername

                                   HereDataSource

                                   Please reference the HERE Plugin Installation and Configuration Guide[1] for more information on configuring the SDWISSubmissionRelayProcessor Service.

Schedule Parameters: **None**.

SimpleSDWISRequestProcessor Implementer

Implementer Name:	SimpleSDWISRequestProcessor
Description/Usage:	A simple service designed to relay a SDWIS submission received from FedRep to CDX.
Service Parameters:	**targetEndpointUrl**
	Please reference the HERE Plugin Installation and Configuration Guide for more information on configuring the SimpleSDWISRequestProcessor Service.
Schedule Parameters:	**None**.

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).
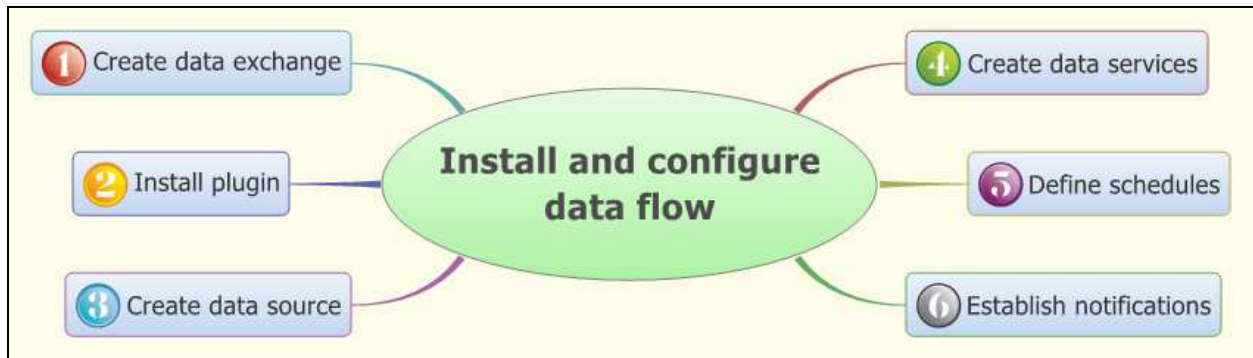

Figure 1: Install and Configure SDWIS Data Flow

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.

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[1] http://opennode2.googlecode.com/files/Implementation%20Guide%20-%20HERE%2020.pdf

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.

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

2. Click the **Browse** button located to the right of the **Plugin** field.

3. Locate and select the compressed (zipped) file containing the code component for the SDWIS plugin you obtained with the OpenNode2 or developed separately.

4. Select *SDWIS* from the **Exchange** drop-down menu. If *SDWIS* is not available, ensure that the previous step was completed (*Create SDWIS Data Exchange*).

5. 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. From the **Implementer** drop-down menu, select either the SDWISSubmissionRelayProcessor or SimpleSDWISRequestProcessor implementer for the data service provided by the 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. 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.

8. For the **targetEndpointUrl**, enter the URL of a valid node v1.1 endpoint. At the time of this writing, the EPA CDX endpoints are as follows:

   Test: https://testngn.epacdxnode.net/cdx-enws10/services/NetworkNodePortType_V10

   Production: https://cdxnodengn.epa.gov/cdx-enws10/services/NetworkNodePortType_V10

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

The **Manage Exchanges** page for the SDWIS flow should appear as follows:
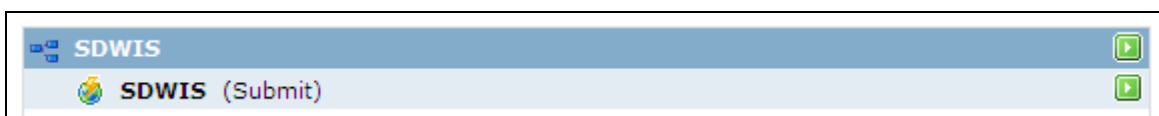
Define Data Exchange Schedules

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.