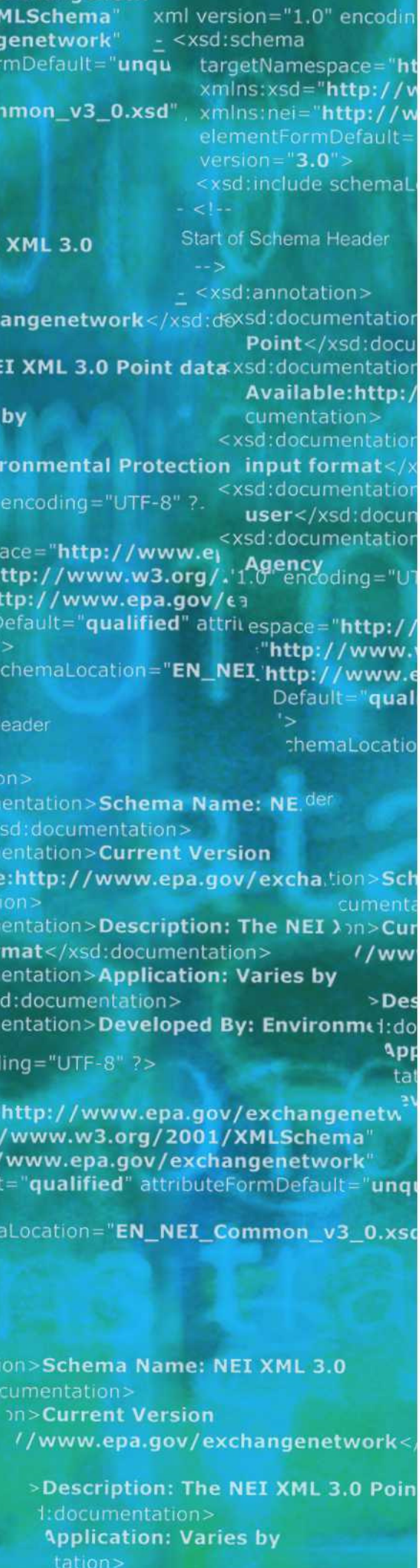

OpenNode2

HERE 2.0 Data Exchange Implementation Guide (Java)

Version: 1.3

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Revision History

Date	Author	Changes	Version
9/30/2009	Windsor	Initial version.	1.0
10/12/2009	Windsor	Minor revision to section on creating the HERE data exchanges.	1.1
10/26/2009	Windsor	Removed references to HERE-SDWIS service.	1.2
4/15/2013	Windsor	Revised to update for Java only.	1.3

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 Exchange Network Homeland Emergency Response Exchange (HERE) data exchange on the Java implementation of the Exchange Network OpenNode2 (OpenNode2).

The HERE data exchange offers eight different "sub-flows" with related data services used primarily to serve XML data to emergency responders utilizing the HERE Client. Of these exchanges, only the HERE exchange is required; all others are optional.

Exchange Name	Description
HERE	Contains services that manage the HERE flow and provide optional lookup code information.
HERE-CAFO	Contains a service for creating files containing Confined Animal Feeding Operation (CAFO) detail data.
HERE-FACID	Contains a service for creating files containing Facility and Environmental Interest data.
HERE-DELETE	Contains a service for creating files containing facilities that have been deleted.
HERE-TANKS	Contains a service for creating files containing Above-ground and Underground Storage Tanks detail data.
HERE-TIER2	Contains a service for creating files containing Tier 2 (chemical storage) detail data.
SDWIS	Contains a service for making the SDWIS Inventory XML file available to the HERE Exchange (.NET only) and forwarding the Inventory file to CDX.

Further detail about the HERE Project and Client is available at http://herenetwork.org/. Further information about the HERE data exchange is available in the Flow Configuration Document (FCD) published at exchangenetwork.net.

The HERE data exchange configuration process involves two main steps:

1. Create and populate the HERE staging tables.
2. Install and configure the HERE data flow.

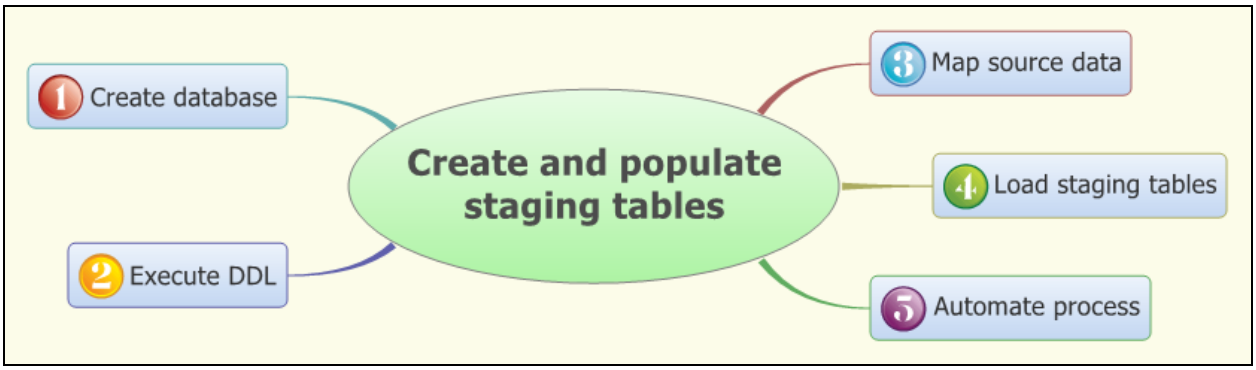
The rest of this document will describe these two processes in detail.

NOTE: The data services require that OpenNode2 version 1.1.9 or later is used.

Create and Populate the HERE Staging Database

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 HERE data exchange. This section outlines the steps required to set up the HERE 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 HERE_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 themselves that will be used to store the data being made available through the HERE data exchange.
3. With the staging environment established, data must now be mapped from the source database to the equivalent fields in the HERE staging tables. The staging tables closely reflect the structure and naming of the XML schemas used to support the HERE exchange (see below for details).
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. In addition to populating the staging tables for the various flows, the CHANGED_FACILITIES table must be loaded. This table contains 4 columns: ST_FAC_IND, FLOW_TYPE, IS_DELETED, and UPDATE_DATE. The ST_FAC_IND column must contain the facility identifier from the staging database table related to the flow:

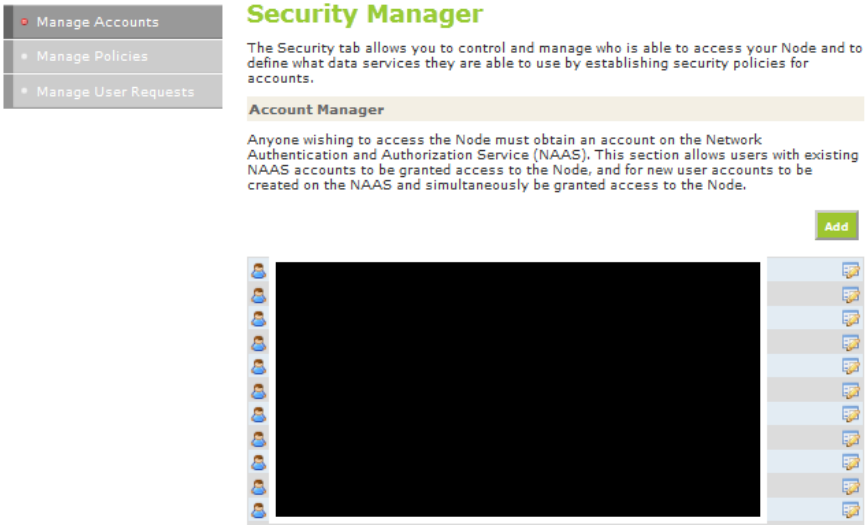
FLOW_TYPE[1]	ST_FAC_IND Source
HERE-CAFO	CAFO_FAC.FACILITYREGISTRYID
HERE-FACID	FACID_FAC.FAC_SITE_IDEN_VAL
HERE-TANKS	TANKS_FAC_SITE.FAC_SITE_IDEN
HERE-TIER2	T2_REPORT.ReportIdentifier

The UPDATE_DATE should be set to the current date. As facilities are modified in the source system, the UPDATE_DATE should be set to the date when that facility was updated for use in generating incremental change XML files (see "Setup Flow Security Permissions

The HERE data exchange allows for setting each of the data flows as "protected." This allows for tight control over who can access what data.

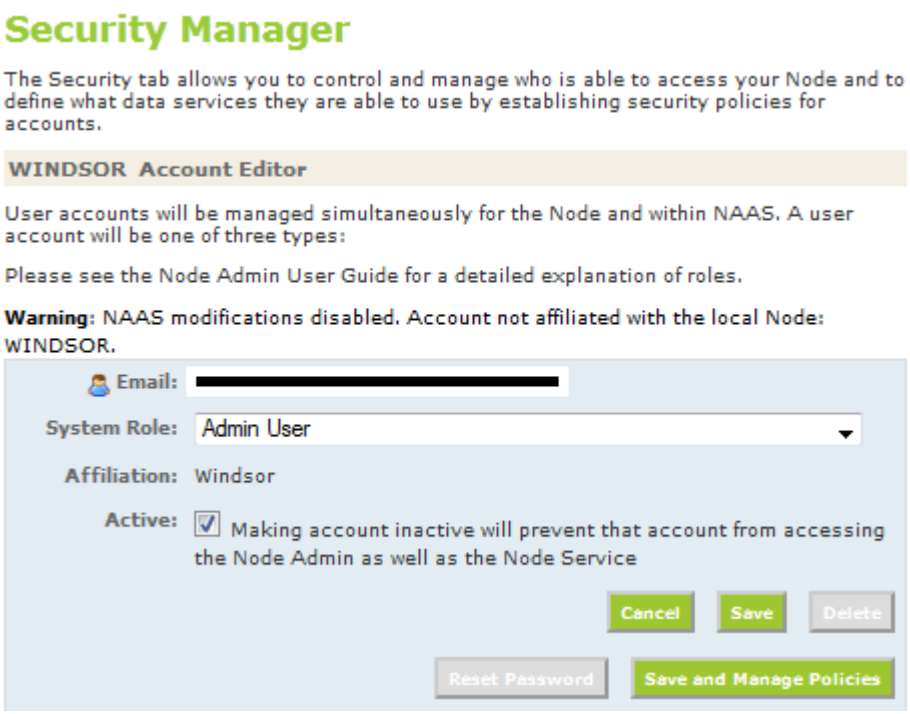
Add Flows to an Existing User

1. To define the security for a given user, click the **Security** tab (user email accounts blanked in the below example):

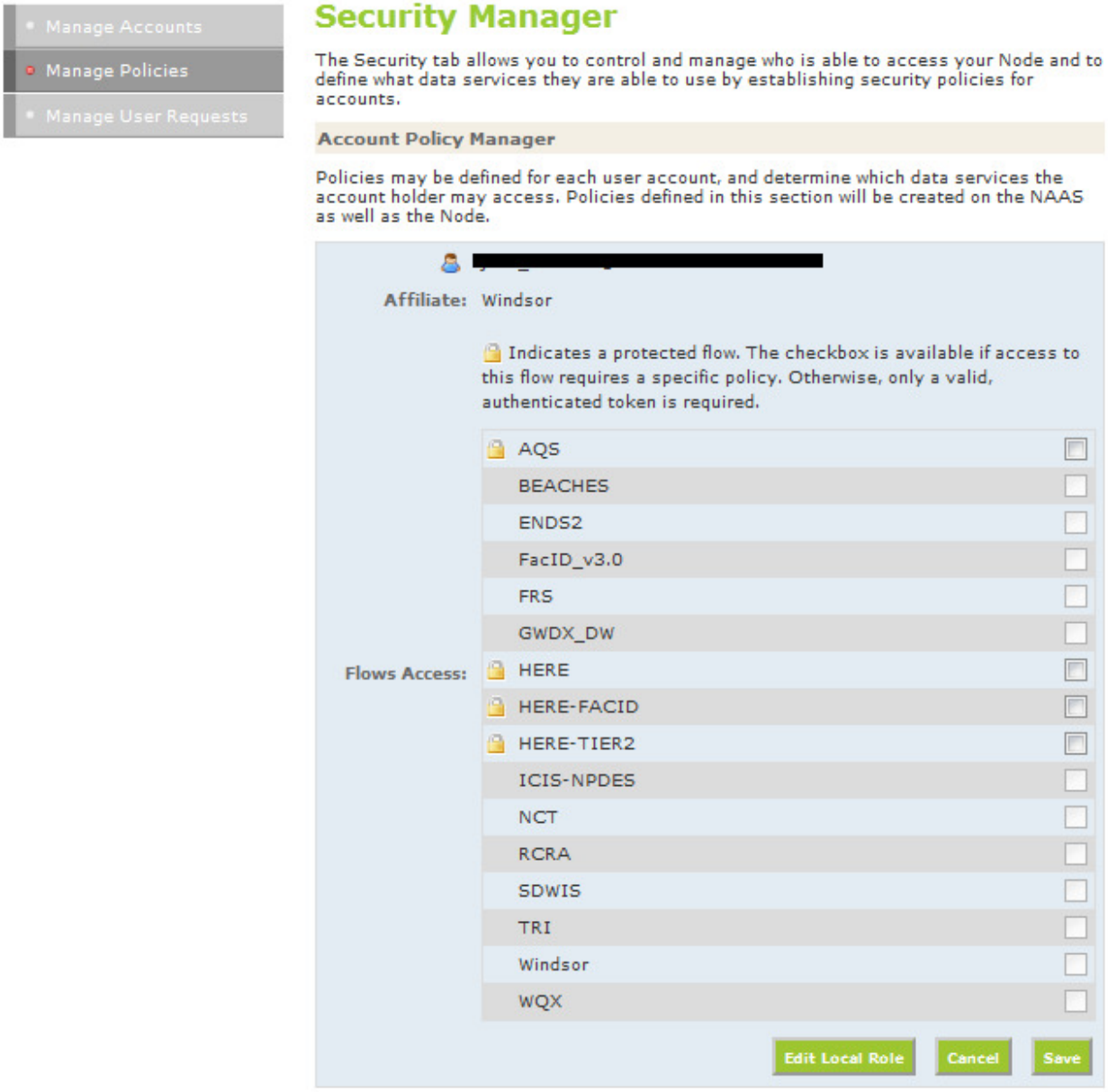


2. Select a user's account by clicking the icon next to their NAAS account.

[1] The HERE-DELETE and SDWIS flow types are not listed because they are not assembled in the HERE staging database.



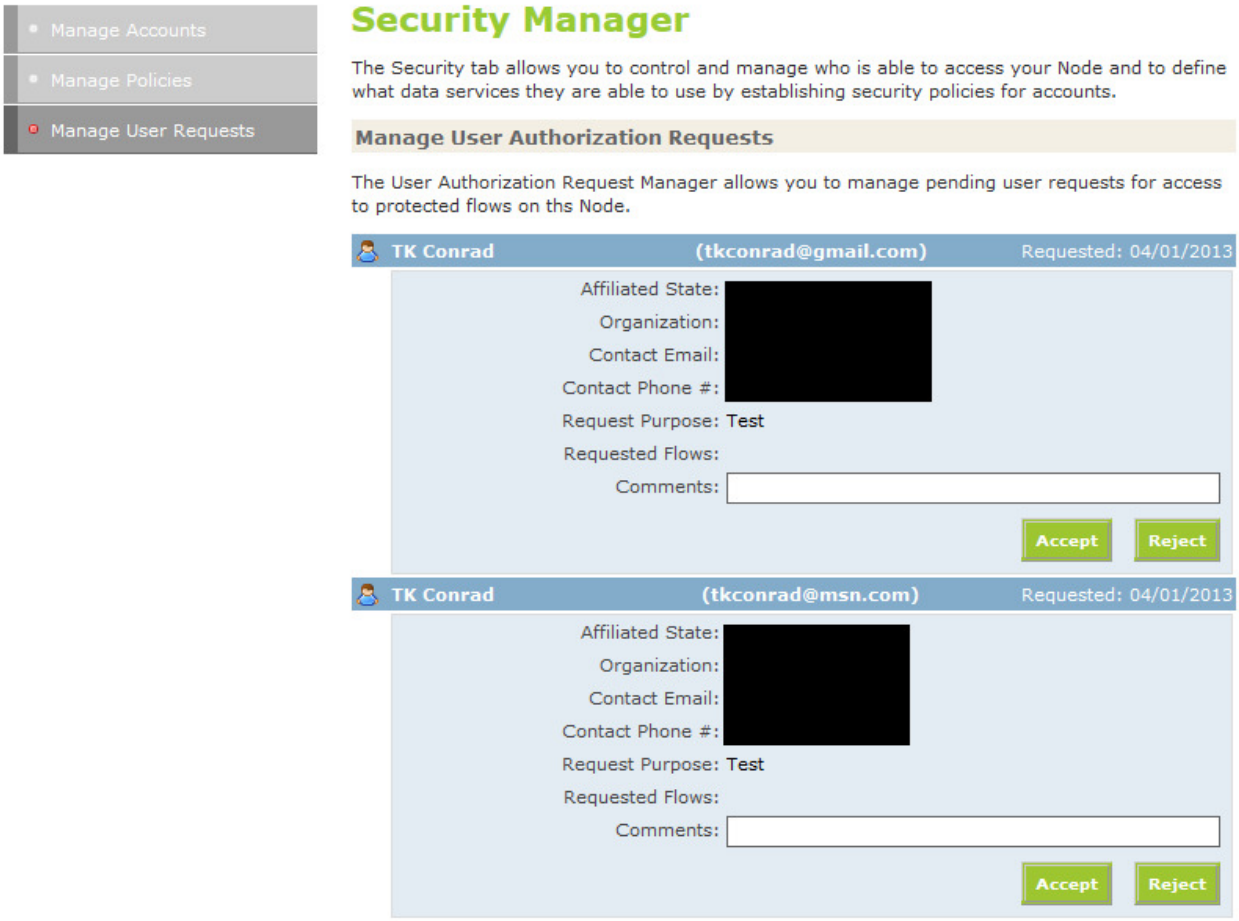
3. Click **Save and Manage Policies** to view the current policies for this account.



4. Check the box to assign permissions for each flow to that user.
5. When finished, click **Save**.

Manage User Requests

Users of the HERE Client can request access to the flows by submitting a request to your Node using the HERE Client itself. These requests are available by clicking the **Manage User Requests** button in the **Security** section. Each request includes the name of the requestor, their affiliated State and organization, their contact email address, phone number, and a stated purpose as to why they are requesting access to the available flows.



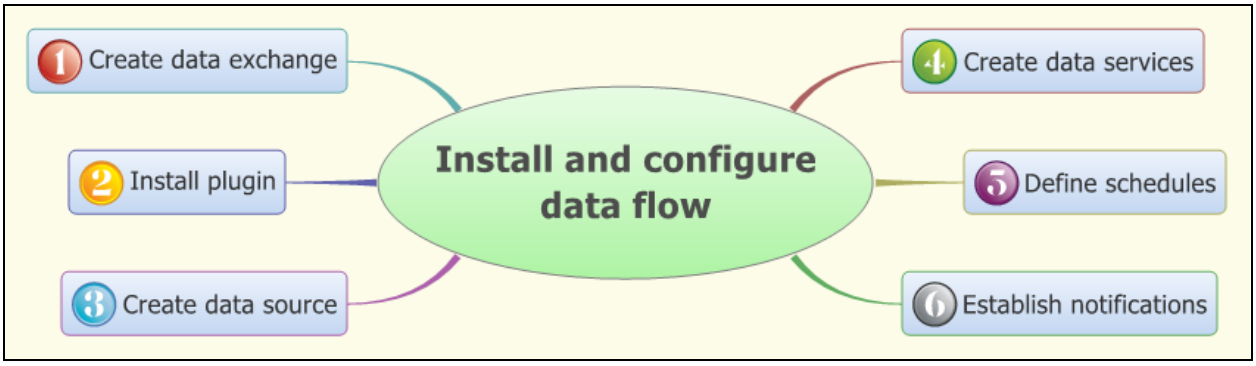
1. In the **Requested Flows** section, check the **Allow** checkbox next to each flow being granted to the user.
2. In the **Comments** section, enter an optional comment to be sent to the user making the request.
3. Depending upon whether you accept or reject this request, click the **Accept** or **Reject** button. A notification email will be sent to the user in question, and the user's permissions will be automatically updated to reflect your settings.

   Define Data Exchange Schedules"). Also, as facilities are deleted from the source system, the IS_DELETED flag should be set to True.

6. 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 generation of XML files.

Install and Configure the HERE Data Flow

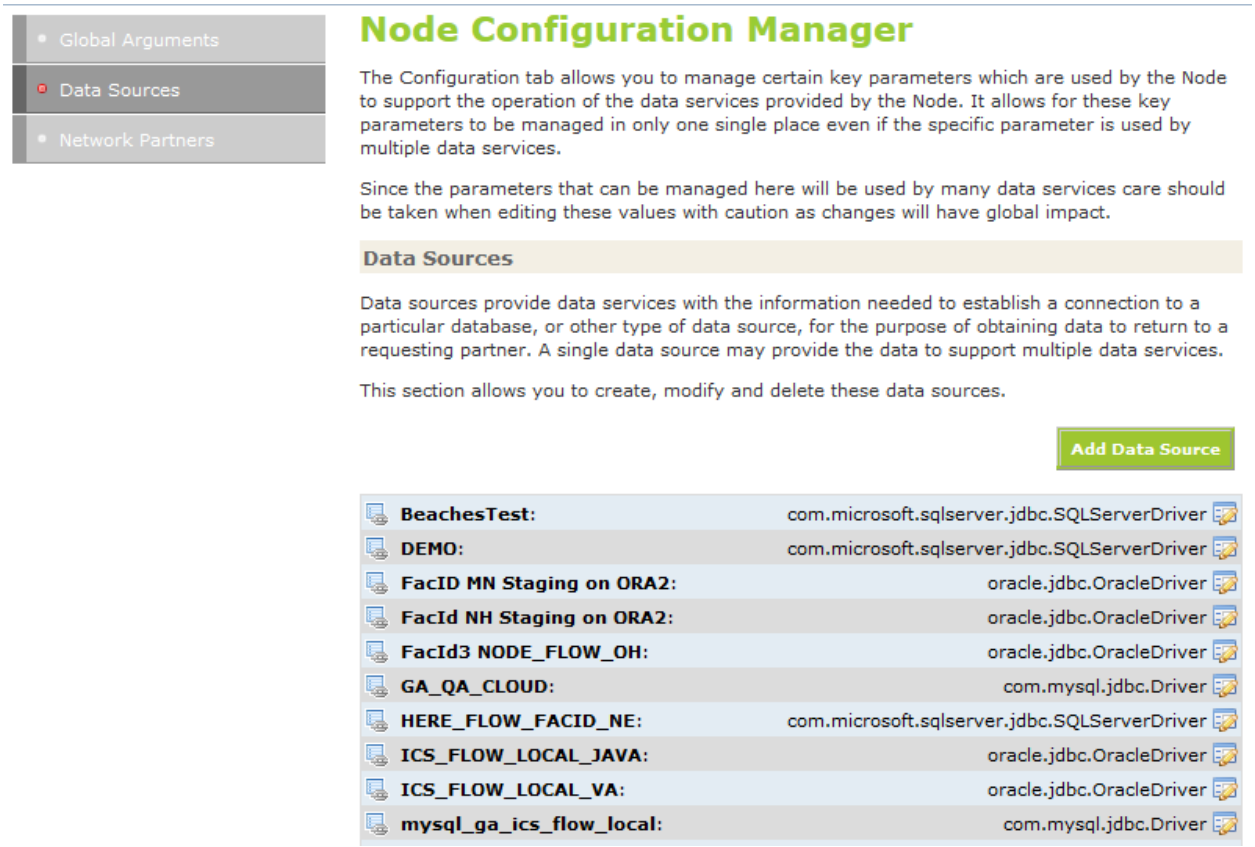
This section describes the steps required to install and configure the HERE data exchange on the Java implementation of the OpenNode2 using the Node Administration Web application (Node Admin).



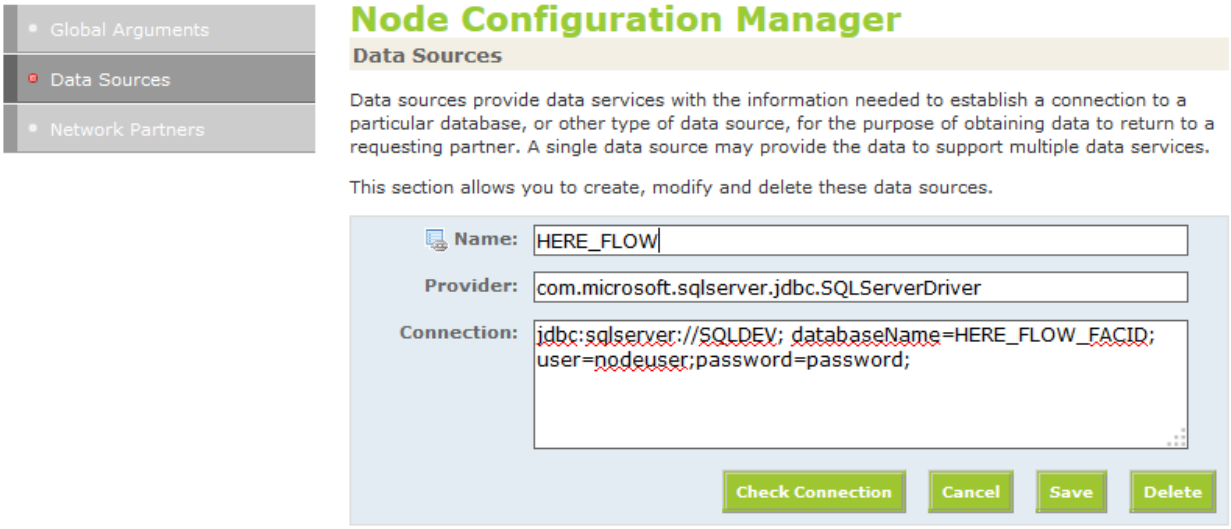
Create the HERE Data Source Definitions

The first step is to create the data source definitions used to define how the Node will connect to the staging database.

1. After logging into the Node Admin, click the **Configuration** tab on the top navigation bar.
2. Click the **Data Sources** tab along the left-hand side of the screen. The existing data sources will be displayed:



3. Click the **Add Data Source** button.



4. Type a descriptive name in the **Name** field (e.g., "HERE_FLOW").
5. Depending upon the database platform for the HERE staging database, select the appropriate provider in the **Provider** drop-down control.
6. Type a connection string in the **Connection** field.

Create the HERE Data Exchanges

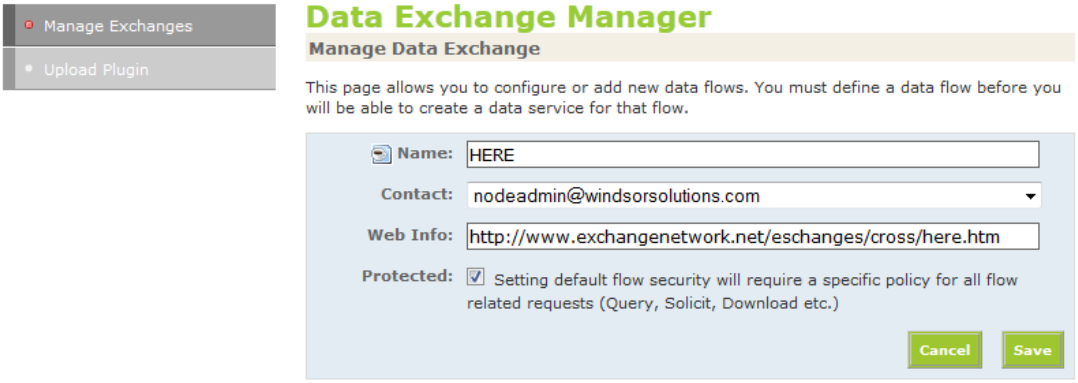
The next step is to create the exchanges using the OpenNode2 Node Admin Web application. The HERE Exchange consists of the following component exchanges:

- HERE
- HERE-CAFO
- HERE-FACID
- HERE-DELETE
- HERE-TANKS
- HERE-TIER2
- SDWIS

Of these, only the HERE exchange is required; all others are optional.

The following uses the setup of the HERE Exchange as an example.

1. 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:

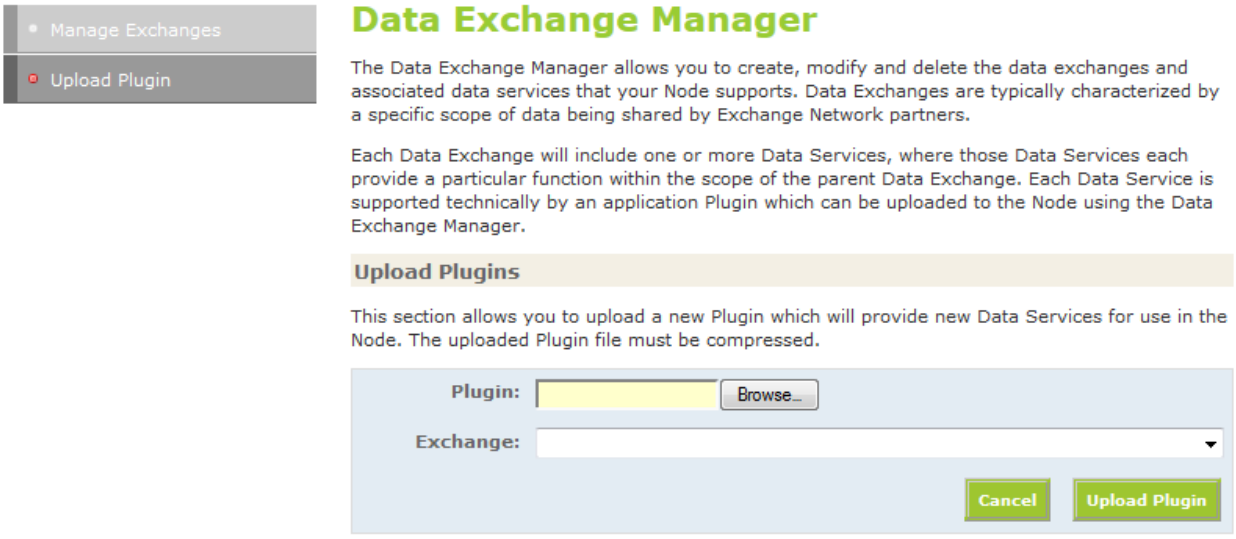


3. Type "HERE" in the **Name** field.
4. Select a user account name from the **Contact** drop down box. Contacts are populated with all accounts that have been set up on the Node 2008. See the **Security** tab for a list of available accounts.
5. In the **Web Info** field, enter a URL where more information can be found about the exchange. It is recommended that the following URL be used for this purpose: http://www.exchangenetwork.net/exchanges/cross/here.htm.
6. It is recommended that the **Protected** box be checked. This will require special flow specific security permissions for this data flow.
7. Click the **Save** button to save the data exchange to the OpenNode2 repository.
8. Repeat steps 2-8 for the following exchanges as needed:
    a. HERE-CAFO
    b. HERE-DELETE
    c. HERE-FACID
    d. HERE-TANKS
    e. HERE-TIER2
    f. SDWIS

Install the HERE Plugin

Once the data exchange has been created, the next step is to upload the HERE plugin provided by Windsor 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 HERE DLL or HERE.zip file provided by Windsor.
5. Select the data exchange name "HERE" that you created during the previous step from the **Exchange** dropdown box.
6. Click the **Upload** button to upload the plugin.
7. Repeat steps 2-6 for the following exchanges as needed:
    a. HERE-CAFO
    b. HERE-DELETE
    c. HERE-FACID
    d. HERE-TANKS
    e. HERE-TIER2
    f. SDWIS

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 HERE Data Services

Data services are distinct functions provided by a plugin to support a given data exchange. Each of the HERE data exchanges contains one or more services.

HERE Services

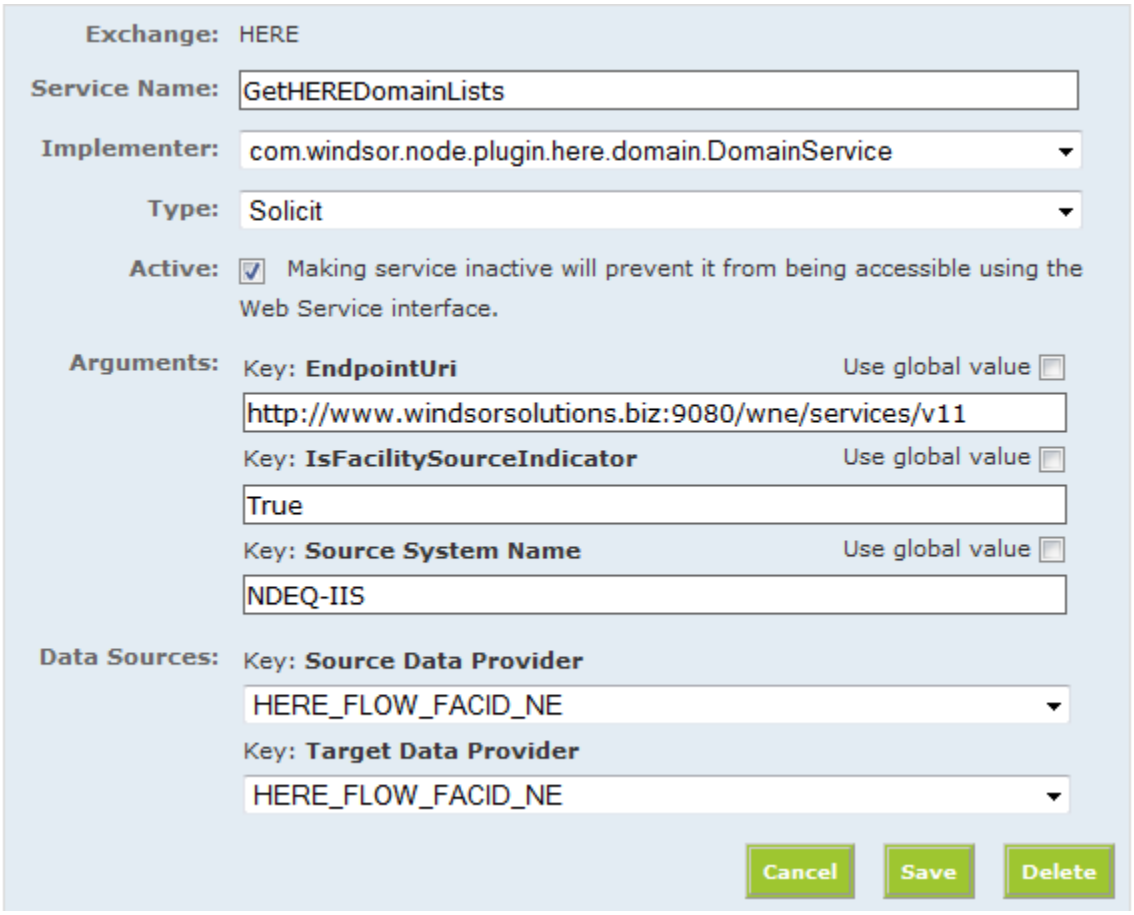
The HERE exchange contains two services:

- GetHEREDomainLists
- GetHEREManifest

The GetHEREManifest service is required in order for the HERE Client to retrieve data from the Node. The GetHEREDomainLists service is optional.

GetHEREDomainLists

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



3. In the **Name** field, type "GetHEREDomainLists."
4. From the **Implementer** drop down box, select the following value:

   Java: com.windsor.node.plugin.here.domain.DomainService

   Note: When the implementer is selected, several arguments and data sources will appear. The Node Admin application will obtain these properties directly from the HERE plugin.

5. From the **Type** drop down box, select the "Solicit" option.
6. Enable the service by checking the **Active** checkbox.
7. Set the following arguments:

   a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").

b. In the argument labeled **IsFacilitySourceIndicator**, enter "True."

c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").

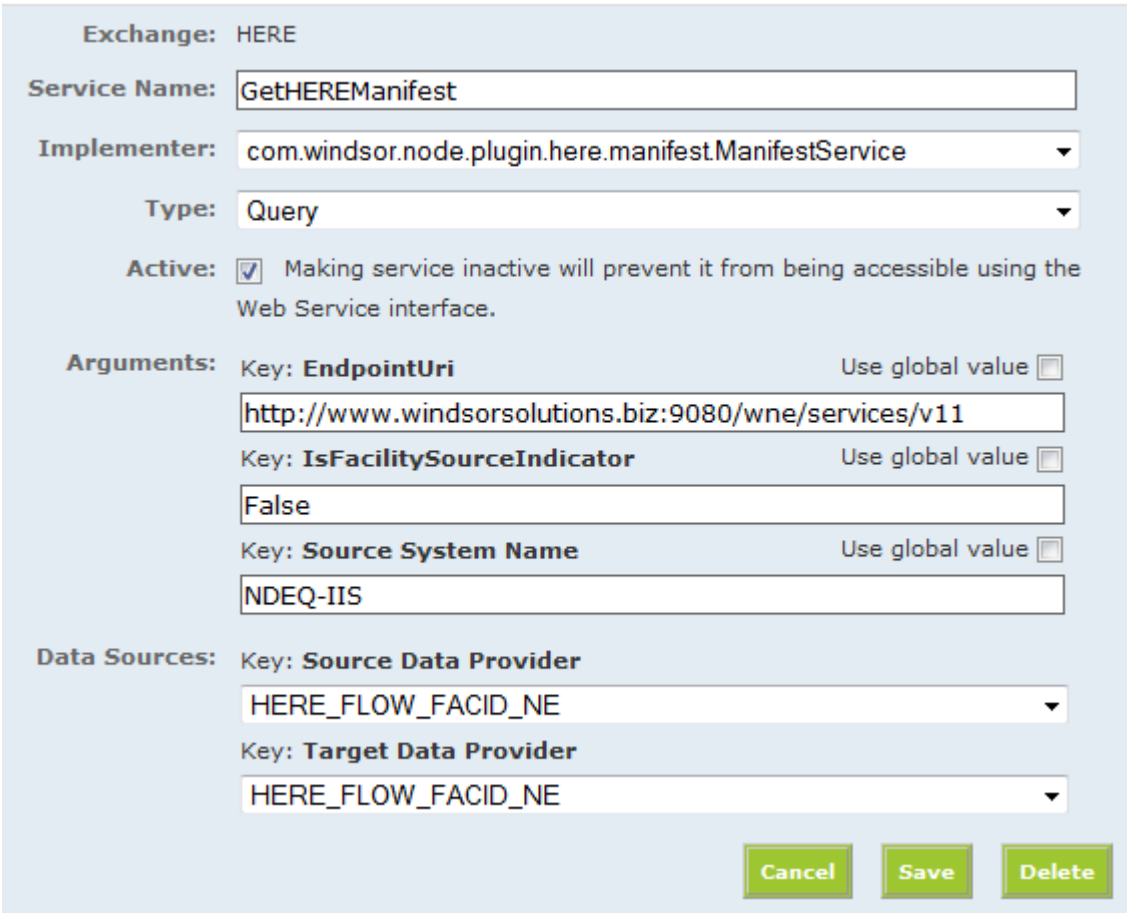
d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database (as defined under "Create the HERE Data Source Definitions").

e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.

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

GetHEREManifest

1. Click the **Add Service** button.

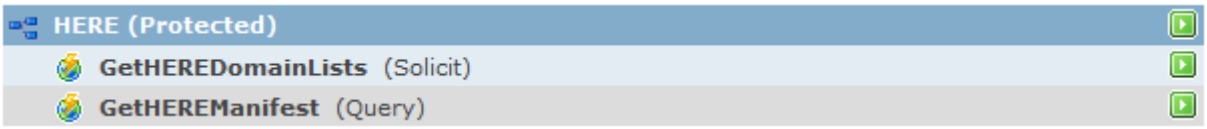


2. In the **Name** field, type "GetHEREManifest."
3. From the **Implementer** drop down box, select the following value:

   Java: com.windsor.node.plugin.here.manifest.ManifestService
4. From the **Type** drop down box, select the "Query" option.
5. Enable the service by checking the **Active** checkbox.

6. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database.
7. Set the following arguments:
    a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").
    b. In the argument labeled **IsFacilitySourceIndicator**, enter "True."
    c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").
    d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database (as defined under "Create the HERE Data Source Definitions").
    e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.
8. Click the **Save** button to save the service.

The **Manage Exchanges** page for the HERE flow should now appear as follows if both services are installed:



HERE-CAFO Services

The HERE-CAFO exchange contains only one service, GetHERECafo.

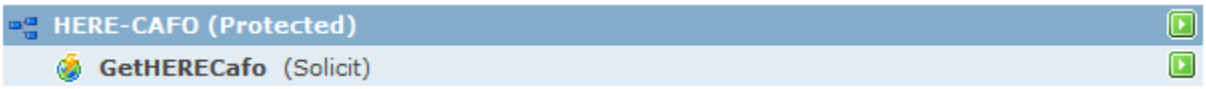
1. Click the **Add Service** button (see "GetHEREDomainLists" for an example screenshot.)
2. In the **Name** field, type "GetHERECafo."
3. From the **Implementer** drop down box, select the following value:

    Java: com.windsor.node.plugin.here.cafo.CAFOService
4. From the **Type** drop down box, select the "Solicit" option.
5. Enable the service by checking the **Active** checkbox.
6. Set the following arguments:
    a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").
    b. In the argument labeled **IsFacilitySourceIndicator**, if the data is intended to be imported as separate facilities, enter "True." Otherwise, if each record is intended to link to facilities flowed in the HERE-FACID flow, enter "False."
    c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").
    d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database.

e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.

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

The **Manage Exchanges** page for the HERE-CAFO flow should now appear as follows:



HERE-DELETE Services

The HERE- DELETE exchange contains only one service, GetHEREDeletes.

1. Click the **Add Service** button (see "GetHEREDomainLists" for an example screenshot.)
2. In the **Name** field, type "GetHEREDeletes."
3. From the **Implementer** drop down box, select the following value:

   Java: com.windsor.node.plugin.here.frs23.GetDeletedFacilitiesByChangeDate
4. From the **Type** drop down box, select the "Solicit" option.
5. Enable the service by checking the **Active** checkbox.
6. Set the following arguments:
   a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").
   b. In the argument labeled **IsFacilitySourceIndicator**, enter "True."
   c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").
   d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database.
   e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.
7. Click the **Save** button to save the service.

HERE-FACID Services

The HERE-FACID exchange contains only one service, GetHEREFacId.

1. Click the **Add Service** button (see "GetHEREDomainLists" for an example screenshot.)
2. In the **Name** field, type "GetHEREFacId."
3. From the **Implementer** drop down box, select the following value:

   Java: com.windsor.node.plugin.here.facid.FacIdService
4. From the **Type** drop down box, select the "Solicit" option.
5. Enable the service by checking the **Active** checkbox.
6. Set the following arguments:

a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").

b. In the argument labeled **IsFacilitySourceIndicator**, enter "True" (HERE-FACID is always a facility source by default).

c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").

d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database.

e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.

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

HERE-TANKS Services

The HERE- TANKS exchange contains only one service, GetHERETanks.

1. Click the **Add Service** button (see "GetHEREDomainLists" for an example screenshot.)
2. In the **Name** field, type "GetHERETanks."
3. From the **Implementer** drop down box, select the following value:

   Java: com.windsor.node.plugin.here.tanks.TanksService
4. From the **Type** drop down box, select the "Solicit" option.
5. Enable the service by checking the **Active** checkbox.
6. Set the following arguments:

   a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").

   b. In the argument labeled **IsFacilitySourceIndicator**, if the data is intended to be imported as separate facilities, enter "True." Otherwise, if each record is intended to link to facilities flowed in the HERE-FACID flow, enter "False."

   c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").

   d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database.

   e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.
7. Click the **Save** button to save the service.

HERE-TIER2 Services

The HERE- TIER2 exchange contains only one service, GetHERETier2.

1. Click the **Add Service** button (see "GetHEREDomainLists" for an example screenshot.)

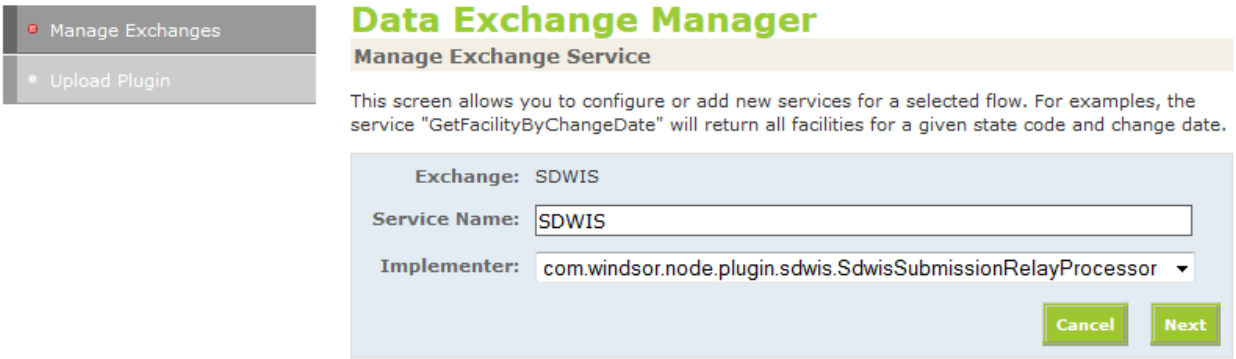
2. In the **Name** field, type "GetHERETier2."
3. From the **Implementer** drop down box, select the following value:

   Java: com.windsor.node.plugin.here.tier2.Tier2Service
4. From the **Type** drop down box, select the "Solicit" option.
5. Enable the service by checking the **Active** checkbox.
6. Set the following arguments:
   a. In the argument labeled **EndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").
   b. In the argument labeled **IsFacilitySourceIndicator**, if the data is intended to be imported as separate facilities, enter "True." Otherwise, if each record is intended to link to facilities flowed in the HERE-FACID flow, enter "False."
   c. In the argument labeled **SourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").
   d. In the argument labeled **SourceDatabaseDataSource**, choose the name of the data source for the HERE staging database.
   e. In the argument labeled **TargetDatabaseDataSource**, choose the name of the data source for the HERE staging database.
7. Click the **Save** button to save the service.

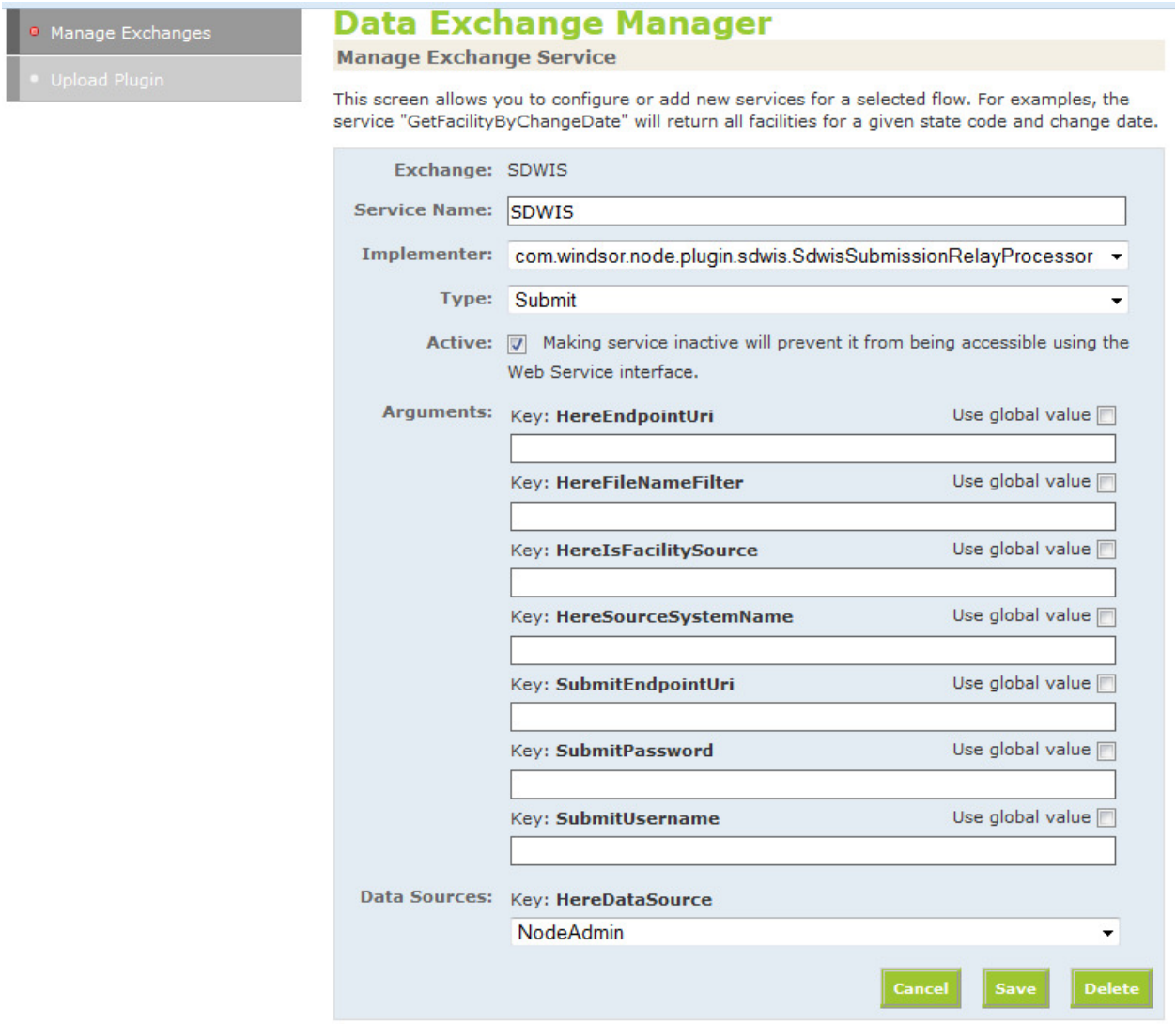
SDWIS Services

The SDWIS exchange handles both adding the SDWIS file to the HERE Exchange and submitting it to US EPA.

1. Click the **Add Service** button.



2. In the **Service Name** field, type "SDWIS".
3. From the **Implementer** drop down box, select "com.windsor.node.plugin.sdwis.Sdwis.SubmissionRelayProcessor."
4. Click the **Next** button.



5. From the **Type** drop down box, select the "Submit" option.
6. Enable the service by checking the **Active** checkbox.
7. Set the following arguments:
    a. In the argument labeled **HEREEndpointUri**, enter the name of the endpoint address to be used when retrieving files from this Node (e.g., "https://deqnode2.ne.gov/Endpoint2/ENService20.asmx").
    b. In the argument labeled **HEREFileNameFilter**, type "Inventory."
    c. In the argument labeled **HEREIsFacilitySource**, if the data is intended to be imported as separate facilities, enter "True." Otherwise, if each record is intended to link to facilities flowed in the HERE-FACID flow, enter "False."
    d. In the argument labeled **HERESourceSystemName**, enter the name to be used to refer to the source system (e.g., "NDEQ-IIS").
    e. In the argument labeled **SubmitEndpointUri**, enter the name of the endpoint address to be used when sending this file to EPA (e.g.,

"https://test.epacdxnode.net/cdx/services/NetworkNodePortType_V10"). *NOTE: This must be the v11 endpoint.*

f. In the argument labeled **SubmitPassword**, enter the password for the NAAS account used to submit this file to US EPA. If this is left blank, the file will be sent using the default admin credentials setup for the Node Admin itself.

g. In the argument labeled **SubmitUsername**, enter the username for the NAAS account used to submit this file to US EPA. If this is left blank, the file will be sent using the default admin credentials setup for the Node Admin itself.

h. In the argument labeled **HEREDataSource**, choose the name of the data source for the HERE staging database.

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

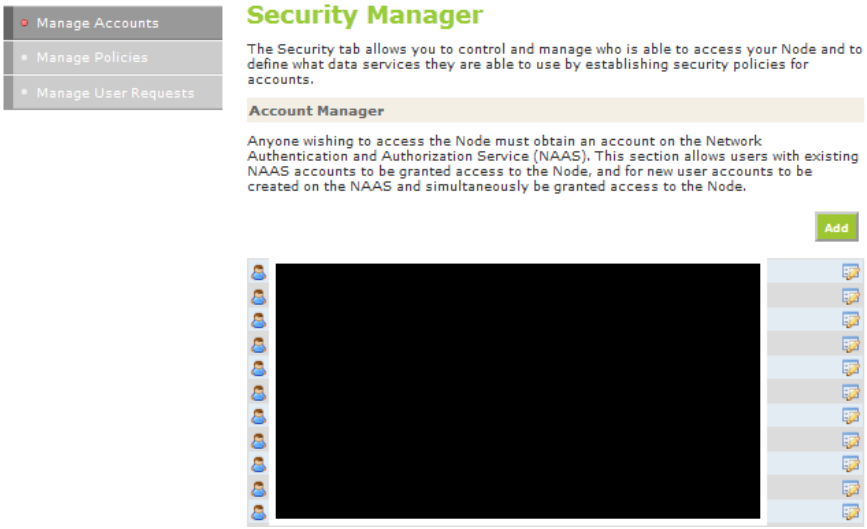
If **HEREEndpointUri** is left blank, the service will only submit the file to US EPA. If **SubmitEndpointUri** is left blank, the service will only save the SDWIS file to the HERE flow. If both are left blank, an error will be generated in the Node Admin.

Setup Flow Security Permissions

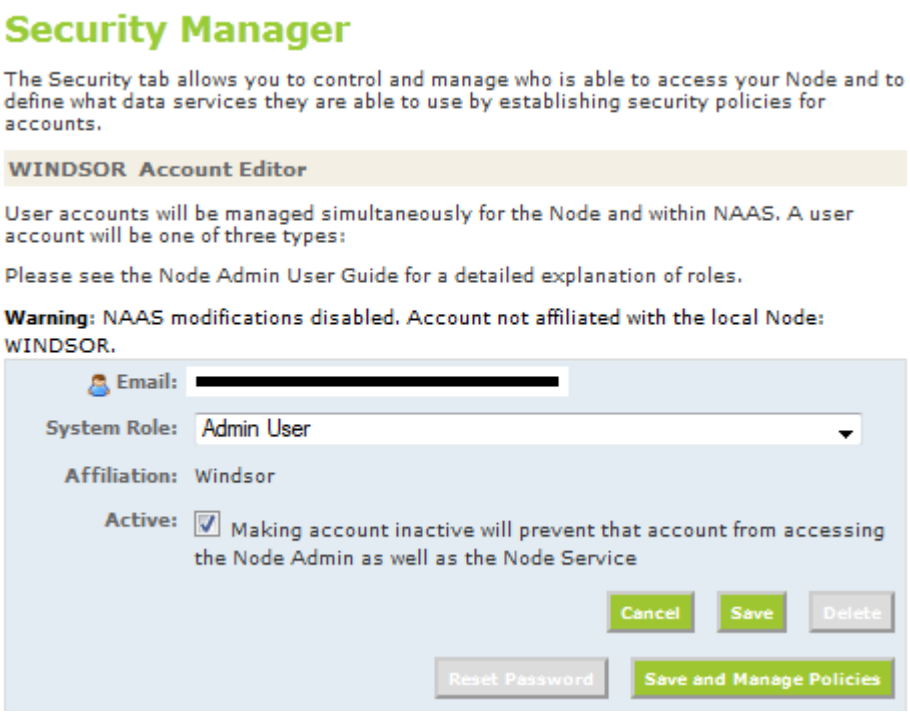
The HERE data exchange allows for setting each of the data flows as "protected." This allows for tight control over who can access what data.

Add Flows to an Existing User

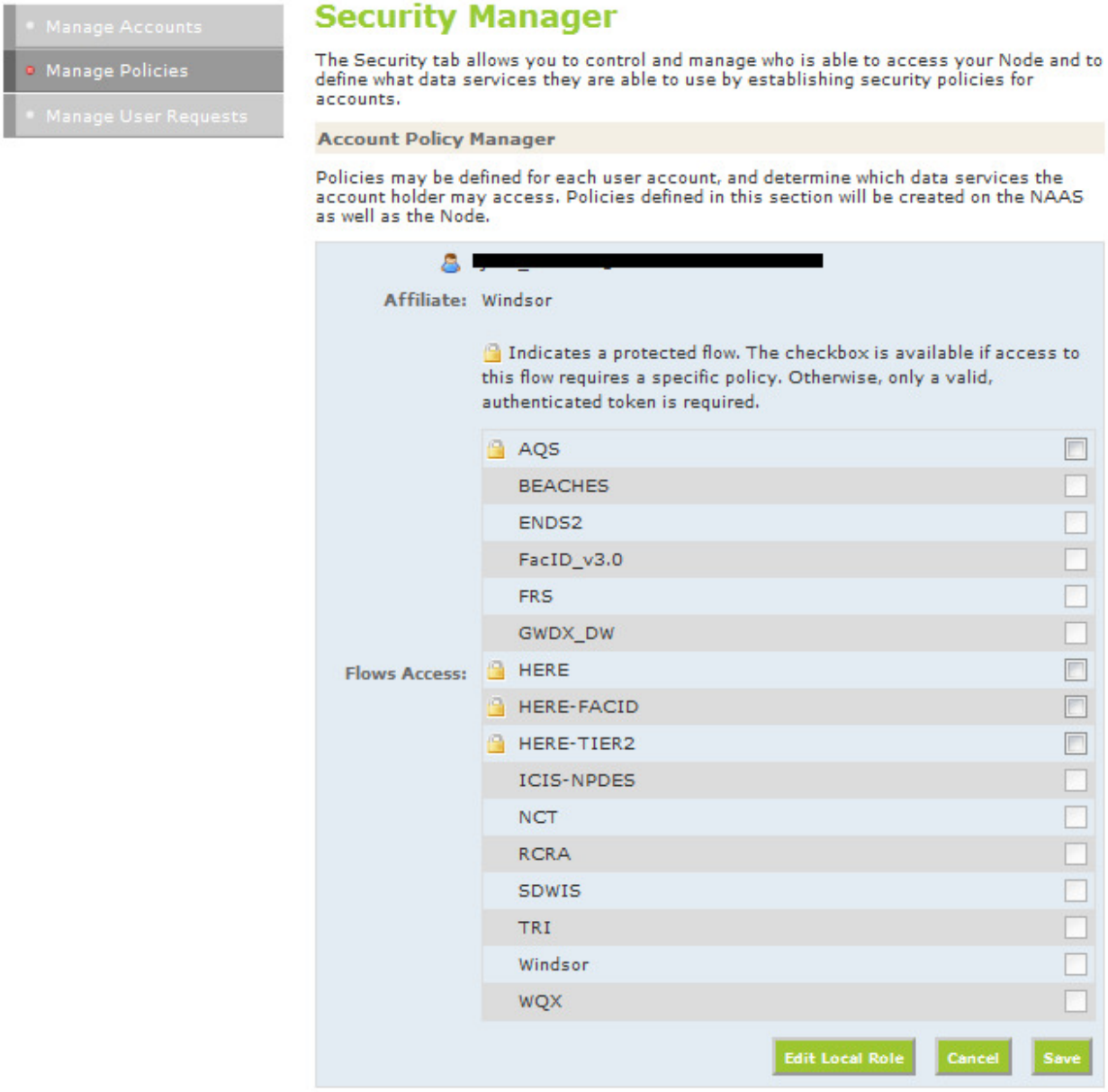
6. To define the security for a given user, click the **Security** tab (user email accounts blanked in the below example):



7. Select a user's account by clicking the icon next to their NAAS account.



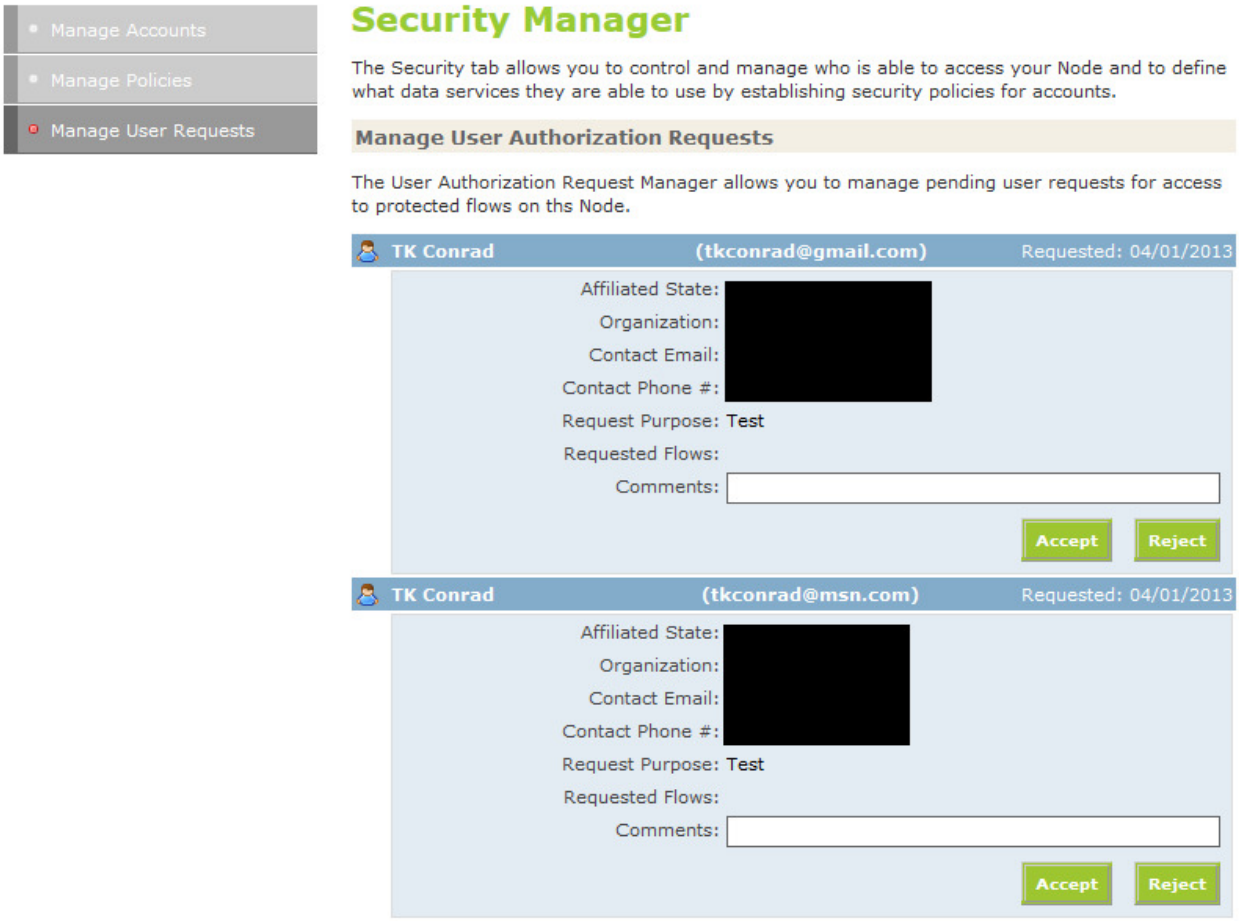
8. Click **Save and Manage Policies** to view the current policies for this account.



9. Check the box to assign permissions for each flow to that user.
10. When finished, click **Save**.

Manage User Requests

Users of the HERE Client can request access to the flows by submitting a request to your Node using the HERE Client itself. These requests are available by clicking the **Manage User Requests** button in the **Security** section. Each request includes the name of the requestor, their affiliated State and organization, their contact email address, phone number, and a stated purpose as to why they are requesting access to the available flows.



4. In the **Requested Flows** section, check the **Allow** checkbox next to each flow being granted to the user.
5. In the **Comments** section, enter an optional comment to be sent to the user making the request.
6. Depending upon whether you accept or reject this request, click the **Accept** or **Reject** button. A notification email will be sent to the user in question, and the user's permissions will be automatically updated to reflect your settings.

Define Data Exchange Schedules

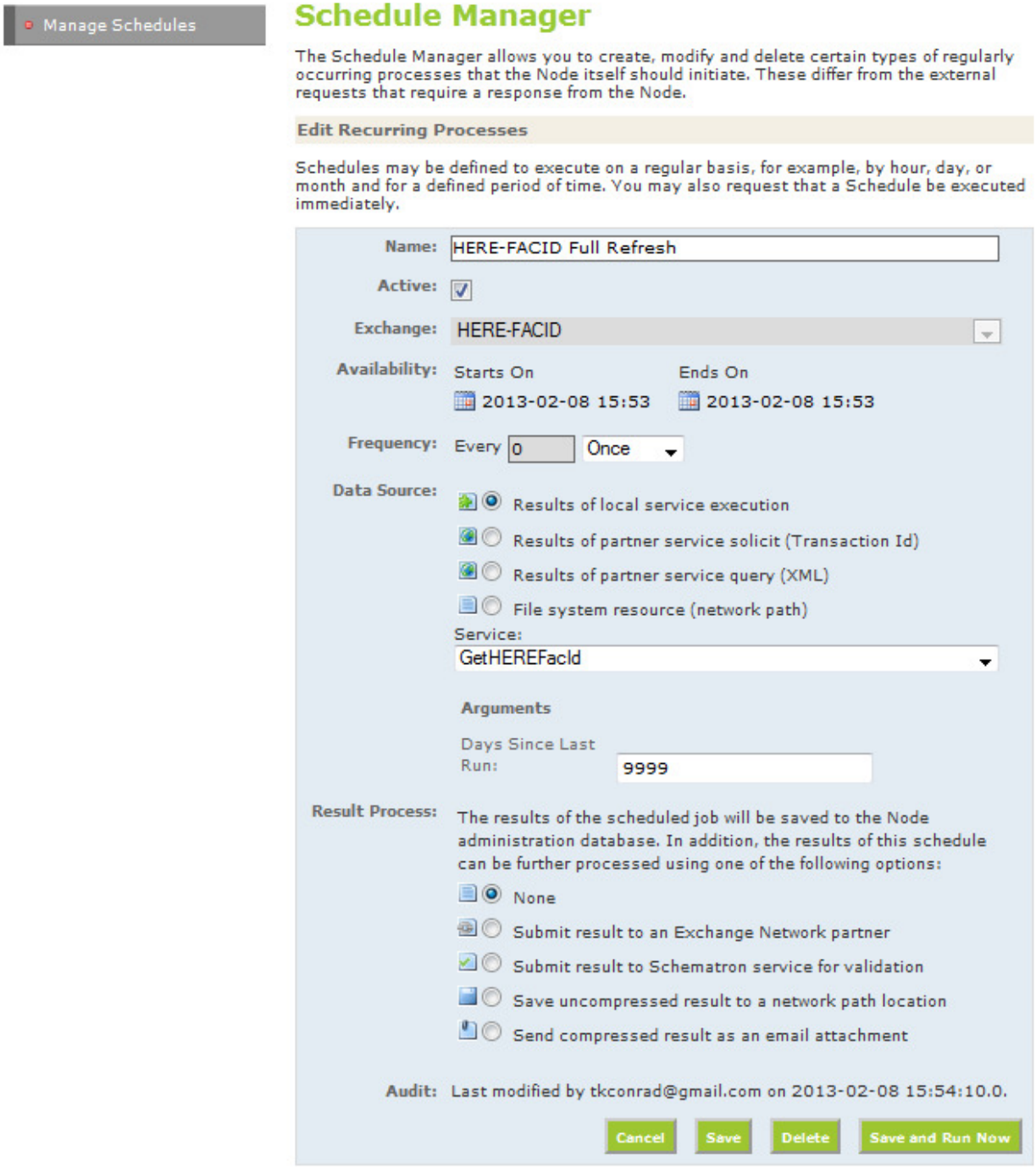
Scheduled jobs can be configured to perform automated tasks such as generating XML files to be staged for submitting to HERE Client subscribers, submitting data to external partners, or processing received files.

The HERE data exchange relies on there being pre-generated XML files ready to be downloaded at any time from the partner Node. For each data exchange, it is typical to setup a full-refresh schedule to run on a periodic basis, and an incremental schedule to run on a daily basis. There are two exceptions:

- **GetHEREManifest:** This is a query service, so is not scheduled to be pre-generated by the Node.
- **SDWIS:** Because the HERE data exchange receives a full-refresh SDWIS file generated from a separate application (e.g., SDWIS State), it does not need to be scheduled in the same way as the other HERE flows.

The following steps use the HERE-FACID schedule as an example for setting up the schedules for the HERE data exchange.

1. From the **Schedules** tab, click the **Add Schedule** button.



2. In the **Name** field, type the name of the schedule to be setup (e.g., "HERE-FACID Full Refresh File").
3. Enable the schedule by clicking the **Active** checkbox.
4. Select "HERE-FACID" from the **Exchange** dropdown list.

5. Set the start date to the first date when you wish the schedule to run. If the date is equal to the current or a past date, the schedule will execute immediately upon saving.
6. Set the end date to some point in the distant future.
7. Set the frequency to the data generation interval appropriate for the type of flow:
    a. **Full-Refresh schedules:** Monthly or Quarterly
    b. **Incremental schedules:** Daily or Weekly
8. In the **Data Source** area, check the radio button labeled **Results of local service execution**.
9. In the **From** dropdown box, select the appropriate value, which will be limited to one service depending upon the **Exchange** specified (e.g., "HERE-FACID – GetHEREFacId").
10. In the **Additional Parameters** area, select "By Index."
11. The **Value** textbox will specify the number of days since today's date to use when querying the UPDATE_DATE in the CHANGED_FACILITIES table.[2] Enter one of the following
    a. **Full-Refresh schedules:** Any number larger than 365.
    b. **Incremental schedules:** 1 or 7, depending upon whether the schedule is ran daily or weekly.
12. In the **Result Process** area, check the radio button labeled **None.**
13. Click the **Save** button to save the schedule, or **Save and Run Now** to start executing the schedule immediately. *NOTE: To manually run any schedule already setup, click the **Save and Run Now** button.*

Set Up 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 HERE data exchange. Please see the Node Administration Guide for more information on setting up notifications.

Monitor Flow Activity

The OpenNode2 will track all HERE 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.

[2] For example, if today is 9/30/2009 and there were two facilities in CHANGED_FACILITIES with an UPDATE_DATE of 9/29 and one facility with an UPDATE_DATE of 9/30, setting this value to 1 would return three facilities when running this schedule.