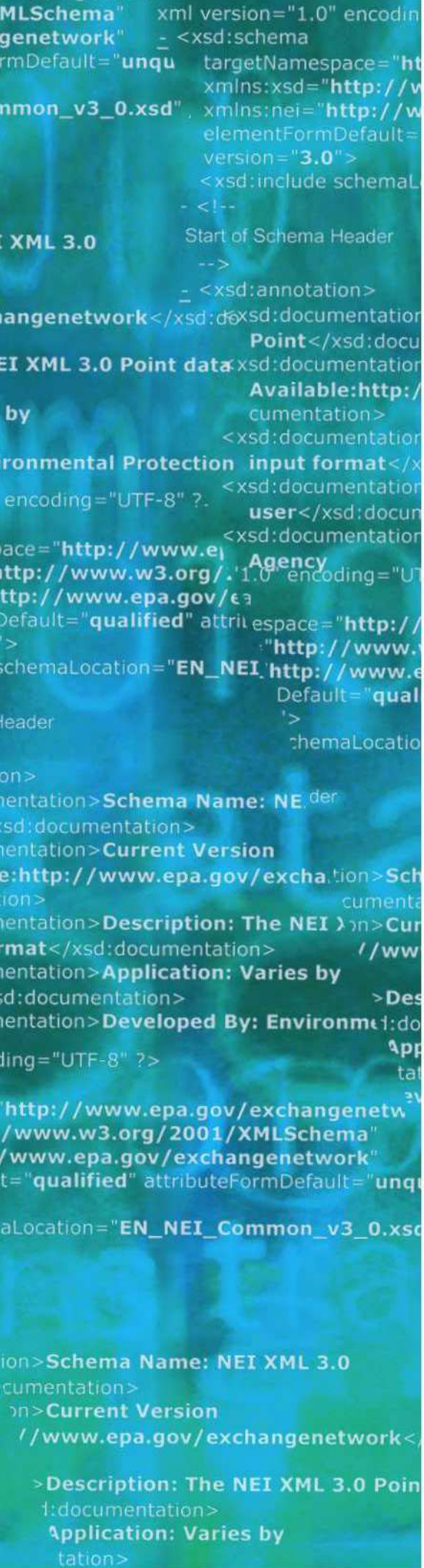

OpenNode2

Administration User Guide For Node Administrators (.NET)

Revision Date: 6/7/2013

Applies to .NET OpenNode2 v2.6

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Revision History

Date	Author	Changes	Version
4/20/2009	Windsor	Initial version	1.0
9/31/2010	Windsor	Clarified Add User behavior	1.1
3/10/2011	Windsor	Updated for OpenNode2 v1.2	1.2
9/10/2012	Windsor	Updated for OpenNode2 v2.5	1.4
6/7/2013	Windsor	Updated for OpenNode2 v2.6	1.5
8/13/2013	Windsor	Added Appendix B	1.6

Table of Contents

Introduction

The OpenNode2 is an open-source National Environmental Information Exchange Network (Exchange Network) Node that can be freely downloaded and deployed by any Exchange Network partner. The OpenNode2 was developed by Windsor Solutions, Inc. (Windsor).

OpenNode2 fully supports both the *Exchange Network Node Specifications version 1.1* and the latest *Exchange Network Node Specifications version 2.0*, published in May of 2008. Version 2.1 compatibility enhancements are also supported.

Characteristics

Some of the key characteristics of OpenNode2 are:

Simultaneous Support for Node Specifications v1.1 and v2.0

OpenNode2 natively supports both versions 1.1 and 2.0 of the Exchange Network Node Specifications. This is implemented using dual endpoints; one for each version of the specifications. Behind the endpoints, the data exchange functionality is not specific to a given endpoint or specification, enabling maximum flexibility during the implementation of data exchanges.

Distributed Architecture

OpenNode2 includes four primary application components:

1. Node Orchestration Service (WNOS), which provides the core processing functionality and coordinates all activities against the Node.
2. Node Admin application (WNA), which is a Web application that enables configuration and administration of the Node.
3. Node 1.1 Endpoint (WNE1.1), a Web service that is compliant with the *Exchange Network Node Specifications v1.1* and supports all access to the services provided by the Node using this interface specification.
4. Node 2.0 Endpoint (WNE2.0), a Web service that is compliant with the *Exchange Network Node Specifications v2.0* and supports all access to the services provided by the Node using this interface specification[1].

Each of these components may be installed on the same or separate physical machines and each of these elements supports a "clustered" deployment – multiple instances of each subsystem.

Plugin Based Configuration

Data Exchanges are based on a plugin architecture allowing for modification of existing Exchanges and/or publishing of new Exchanges without suspending the OpenNode2 activity. Each Exchange is managed and configured independently and can be configured during run time using Node Admin.

[1] OpenNode2 includes both 1.1 and 2.0 Web service endpoints in order to allow the Network partner to continue to support data exchanges developed and running on the legacy specification until such time as those data exchanges can be migrated to the newer specification.

Logging, Reporting, and Notification

All activity against the OpenNode2 is logged in a persistent state, allowing for ad-hoc queries using the WNA as well as more in-depth analysis using any standard database inquiry utility.

All activities against the OpenNode2 (inbound submit, query, solicit, notify, etc.) can be configured to provide a notification in the form of an email, as required, and this configuration is by Exchange.

Integrated NAAS Account Management

OpenNode2 includes an interface for creating and managing National Authentication and Authorization (NAAS) user accounts. Accounts are automatically synchronized with a local account store. Each account may be granted or denied access to specific exchanges.

Technical Components

The OpenNode2 solution includes the following key individual architectural elements:

	**Node Web Service (v1.1)** Responsible for exposing Exchange Network 1.1-specific services. This interface intercepts external requests conveyed over SOAP 1.1 protocol, transforms the requests into a Common Message Format (CMF) and relays these messages to the Node Orchestration Service (NOS) for further processing. Similarly, this interface is also responsible for transforming any results of previous NOS invocation into Exchange Network 1.1-specific message format. This bidirectional transformation occurs regardless of whether the orchestration service returns a successful response or CMF-specific invocation exception.
	**Node Web Service (v2.1)** Responsible for exposing Exchange Network 2.0-specific services. This interface intercepts external requests conveyed over SOAP 1.2 protocol, transforms these requests into the same CMF and relays these messages to the NOS for further processing. Similarly, this interface is also responsible for transforming any results of previous NOS invocation into Exchange Network 2.0-specific message format. This bidirectional transformation occurs regardless whether the orchestration service returns a successful response or CMF-specific invocation exception.
	**REST Service Endpoint** The OpenNode2 REST endpoint provides REST-like functionality to the node web services in a manner compliant with Exchange Network REST Guidelines. Using only a URL, a person or software client can retrieve data from any OpenNode2 Query service. This provides a simpler means of interacting with OpenNode2 than traditional SOAP services.
	**Node Administrative Application (OpenNode2 Admin)** Allows for management of the NOS. This Web-based application provides a user interface to the otherwise transparent Exchange Network operations. Its sole purpose is to manage the Node configuration, activity and security as well as to provide an easy interface to monitoring the Node solution's overall health.
	**Node Orchestration Service** The NOS is a GUI-less application responsible for processing all of the CMF requests from the Node Web Service interfaces (regardless of their versions) as well as supporting all Node Admin functionality. NOS is the engine of OpenNode2, brokering all communication between OpenNode2 Admin, the service endpoints, and the OpenNode2 database.

	The NOS itself consists of many smaller logical components: – Metadata manager – Schedule manager – Document manager – Request processor – Exchange Network client – Security manager – Plugin manager The NOS also consists of a variety of providers. These are NOS extensions responsible for providing specific types of functionality. These extensions can be easily replaced and further customized to satisfy the specific requirements of a particular deployment.
	**Node Metadata Repository** All aspects of the NOS run-time configuration as well as its activity and, depending on the deployment, binary content is stored in a relational database. This metadata repository is accessed only by the NOS.

The purpose of this document is to provide a detailed introduction to the functionality provided by the OpenNode2 Administration Web application (Node Admin). Node Admin allows an administrator to manage all of the functionality of OpenNode2, including configuration, security management, data exchange and data service management, and scheduling of common activities.

System Requirements and Troubleshooting

Required Software

To access Node Admin, a modern web browser is required.

Required Hardware

The computer must be connected to the Local Area Network (LAN) and the Internet in order to access Node Admin.

Obtaining a User Account

Node Admin requires a username and password before enabling access to the system. User accounts are created and managed by a Node Administrator. Once the Node Administrator creates an account and password, an automated email is sent with the authentication information. These credentials can then be used to gain access to the system.

User accounts in Node Admin are fully integrated with the NAAS. As a consequence, any user account established to provide access to Node Admin will also be established as a valid NAAS account owned by the Administrator's NAAS account.

Getting Started

This section discusses how a user can log into and out of Node Admin. In addition, the section describes the navigation options available to the user.

Login Page

The login page is displayed upon navigating to the URL for Node Admin. This URL can be obtained from the Node Administrator.

The login page ensures that only authenticated users are able to access Node Admin. To log into Node Admin, the user must enter a valid NAAS user account and password. Upon successful login, Node Admin recognizes the user's system roles and customizes the application functionality to the specific role for that user.

Each application session is valid until one of the following happens:

- User logs out of Node Admin
- The browser becomes idle past a designated period (configurable during OpenNode2 deployment)
- The user terminates the browser session

If any of the above occurs, the user must log in again.

Navigation Bar

Once authenticated, the following options are available on a tabbed navigation toolbar displayed throughout Node Admin.

Dashboard	Provides metrics describing the usage of the OpenNode2 as well as an RSS-based news feed enabling the user to see the latest information concerning new releases of the software and other relevant information.
Configuration	Allows management of system-wide parameters, including data sources and Exchange Network partner definitions.
Security	Enables management of user accounts and authorization of those accounts for access to specific data exchanges and data services.
Exchanges	Supports the configuration of new and existing data exchanges and associated data services made available by OpenNode2, including uploading of plugins that support the data services.
Schedules	Provides for the establishment of automated processes to perform common Exchange Network data exchange activities and tasks.
Activity	Displays a searchable log of all OpenNode2 activities.
Profile	Allows setup of personal account options, including password reset and notification requirements.

Additional detail on each of these functions is provided later in this document.

Page Footer

The following footer is displayed throughout Node Admin.

If problems are encountered while using Node Admin, please contact the Node Administrator by clicking the *support* link at the bottom of each page.

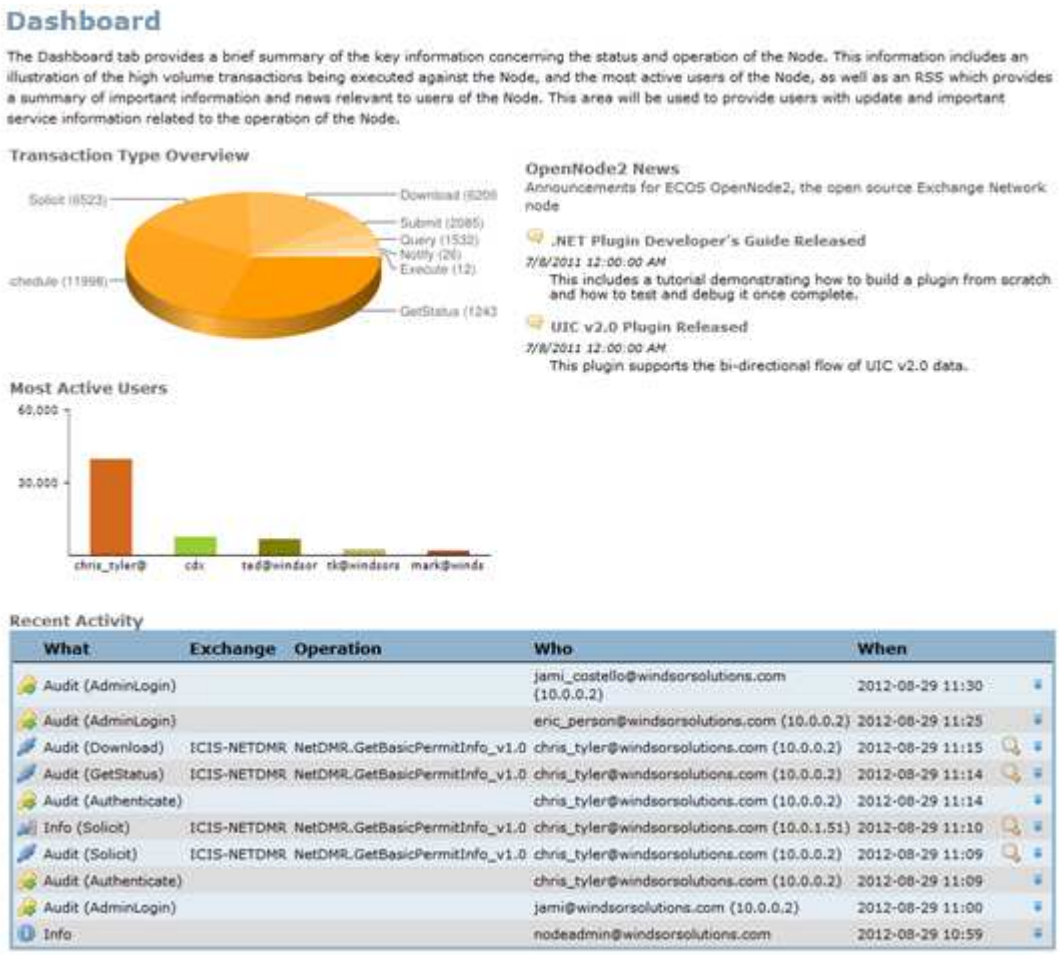
Logout

To exit Node Admin, select the *Log Out* link in the upper right-hand corner of the page. Node Admin will terminate the session and return to the Login page.

Dashboard

The Dashboard tab provides a brief summary of the key information concerning the status and operation of OpenNode2. This information includes an illustration of the high-volume transactions being executed against the Node, and the most active users of the Node, as well as an RSS news feed which provides a summary of important information and news relevant to users of the Node. This area will be used to provide users with updates and important service information related to the operation of the Node.

A typical display on the Dashboard will be as illustrated below:



The operational statistics displayed on the Dashboard include three elements:

- A pie chart showing the percentage of transactions by transaction type (e.g., Query, Solicit). The chart displays all history and is not filtered for any time period.
- A bar chart showing the most active NAAS accounts that have performed operations against the Node.
- A table showing the 10 most recently logged activities against the Node. Activities include items such as Node Admin audit records (such as login attempts), as well as external query requests and scheduled task executions.

Configuration

About Configuration

The Configuration tab allows for managing parameters that are used by OpenNode2 to support the operation of OpenNode2 data services. These parameters are managed only once but can be used by multiple data exchanges and data services.

Since the parameters that can be managed here will be used by many data services, care should be taken when editing these values as changes will have global impact.

There are three sections within the Configuration tab that may be accessed using the toolbar on the left side of the page.

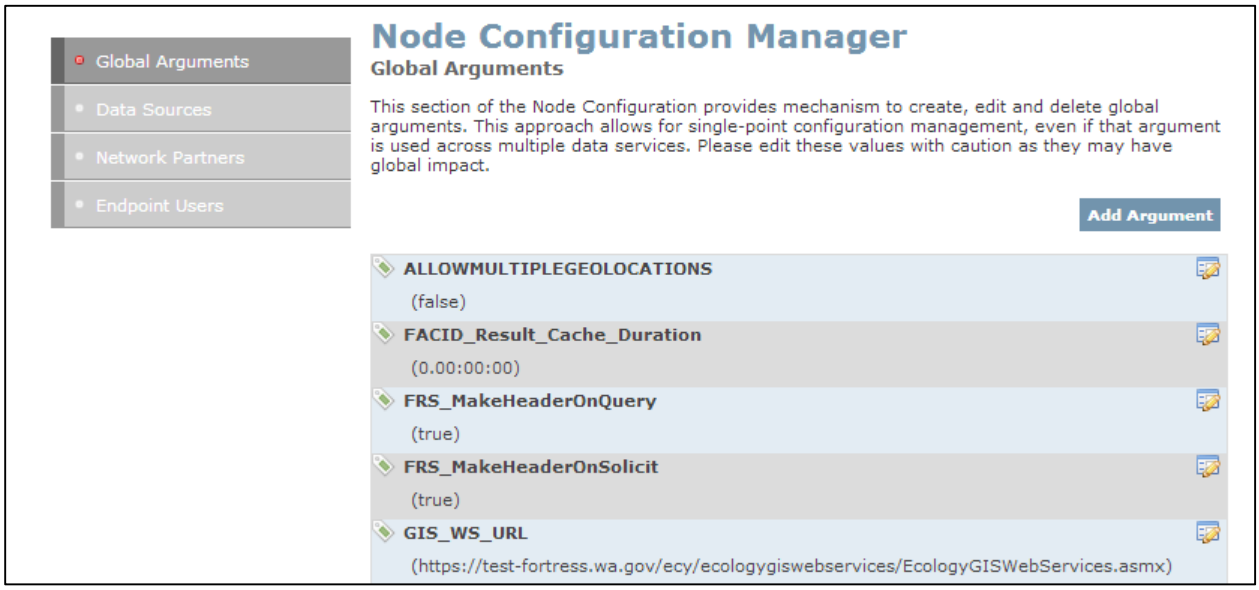
Global Arguments	Provides a mechanism to create, edit, and delete global arguments that can be used during data exchange and data service configuration.
Data Sources	Provides a mechanism to create, edit, and delete connections to various data sources that can be used by data services during execution.
Network Partners	Provides a mechanism to create, edit, and delete Exchange Network Partners that can be used as the source or target for data exchange processes.
Endpoint Users	NAAS account usernames/passwords used to perform node operations. These accounts can be used in addition to the main Node Runtime NAAS account that is used by default to perform scheduled operations.

When the Configuration tab is selected the application will initially display the Global Arguments section.

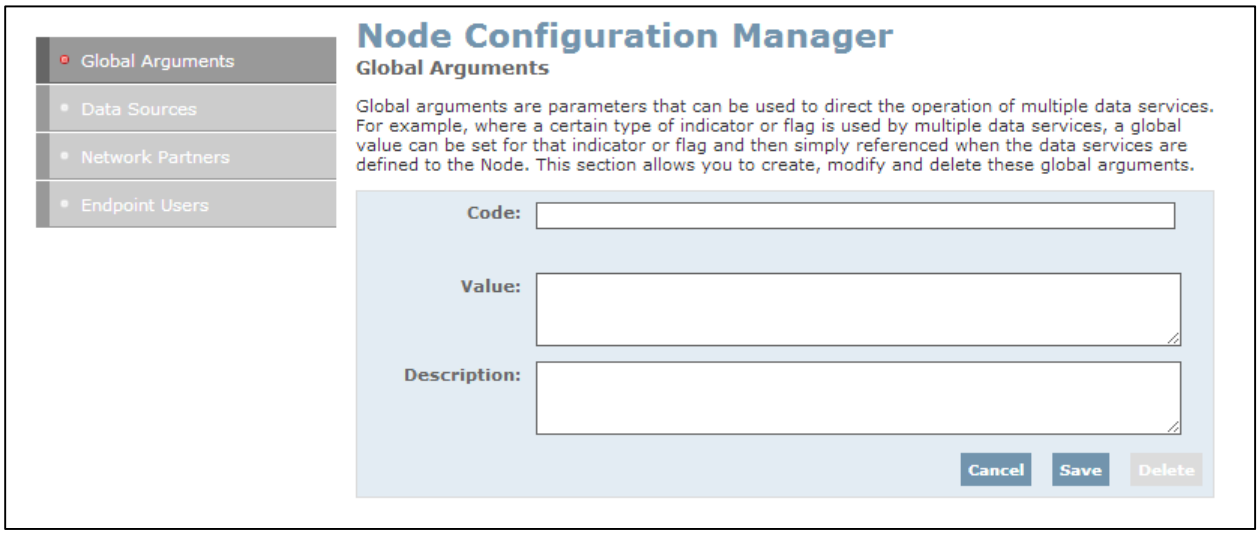
Global Arguments

Global arguments are parameters that can be used to direct the operation of multiple data services. For example, where a certain type of indicator or flag is used by multiple data services, a global value can be set for that indicator or flag and then simply referenced when the data services are defined to OpenNode2.

When selected, the Global Arguments section will initially display a list of existing arguments already stored in the OpenNode2 database as illustrated below.



When adding, modifying, or deleting global arguments, the following page is displayed.



Adding a Global Argument

To add a new global argument, perform the following steps:

1. Click the **Add Argument** button on the right-hand side of the page to display the global argument entry page.

2. Enter a name for the argument in the **Code** field. This name will be displayed as an available value in dropdown menus throughout the system.
3. Enter a value for the argument in the **Value** field. This is the actual value that will be utilized when this argument is selected.
4. Enter a description for the argument in the **Description** field.
5. Click the **Save** button to add the argument to the database and return to the list of existing global arguments.
6. Click the **Cancel** button to discard any work and return to the list of existing global arguments.

Modifying a Global Argument

To modify a global argument, perform the following steps:

1. Click the  button next to the global argument to modify.
2. Modify the **Code**, **Value,** and **Description** fields as required.
3. Click the **Save** button to save any modifications to the database and return to the list of existing global arguments.
4. Click the **Cancel** button to discard any work and return to the list of existing global arguments.

Deleting a Global Argument

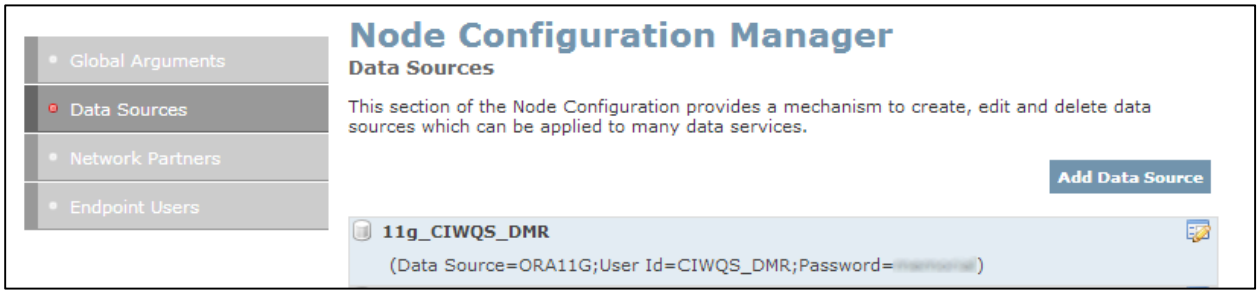
To delete a global argument, perform the following steps:

1. Click the  button next to the global argument to delete.
2. Click the **Delete** button to delete the argument.
3. Confirm the deletion process when prompted. Node Admin then returns to the list of existing global arguments.
4. Click the **Cancel** button to discard any work and return to the list of existing global arguments.

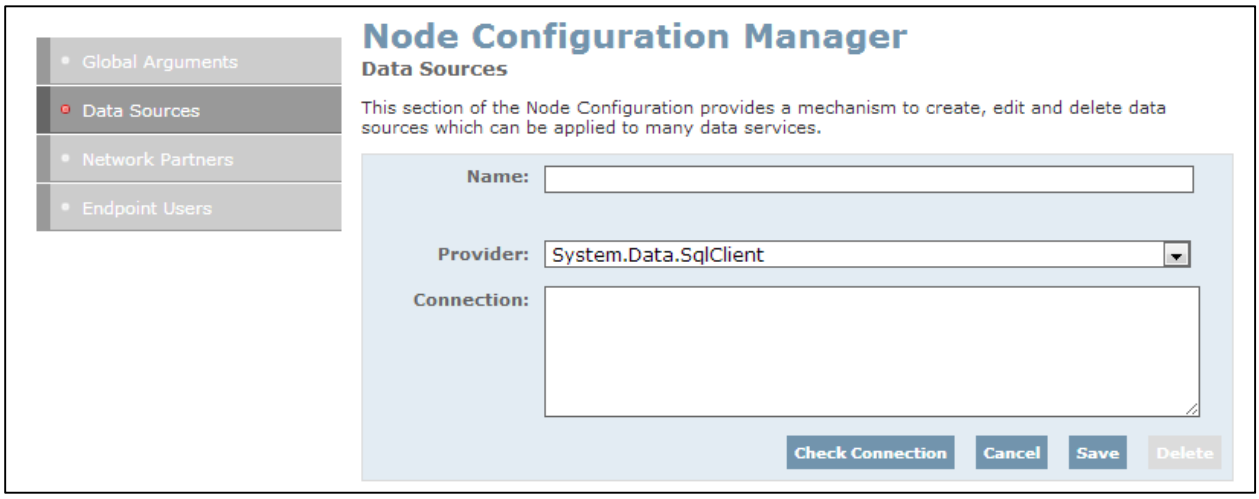
Data Sources

Data sources can be defined to provide exchanges and data services with the information needed to establish a connection to a particular database, or other type of data source, for the purpose of obtaining data to return to a requesting partner. A single data source may provide the information to support multiple data services.

When selected, the **Data Sources** section will initially display a list of existing data sources already stored in the OpenNode2 database as illustrated below.



When adding, modifying, or deleting data sources, the following page is displayed.



Adding a Data Source

To add a new data source, perform the following steps:

1. Click the **Add Data Source** button on the right-hand side of the page.
2. Enter a name for the data source in the **Name** field. This name will be displayed as an available data source in dropdown menus throughout the system.
3. Select a database provider from the dropdown list for the data source in the **Provider** field. Additional providers may be added using Node Admin installation configuration file if needed. This is beyond the scope of this document.
4. Enter the connection string for the data source in the **Connection** field. This is the actual connection string value that will be utilized when this data source is selected.
5. Click the **Save** button to add the data source to the database and return to the list of available data sources.

6. Click the **Cancel** button to discard any work and return to the list of existing data sources.

Modifying a Data Source

To modify a data source, perform the following steps:

1. Click the  button next to the data source in question.
2. Adjust the **Name**, **Connection String,** and **Provider** fields as desired.
3. Click the **Save** button to save any modifications and return to the list of existing data sources.
4. Click the **Cancel** button to discard any work and return to the list of existing data sources.

Deleting a Data Source

To delete a data source, perform the following steps:

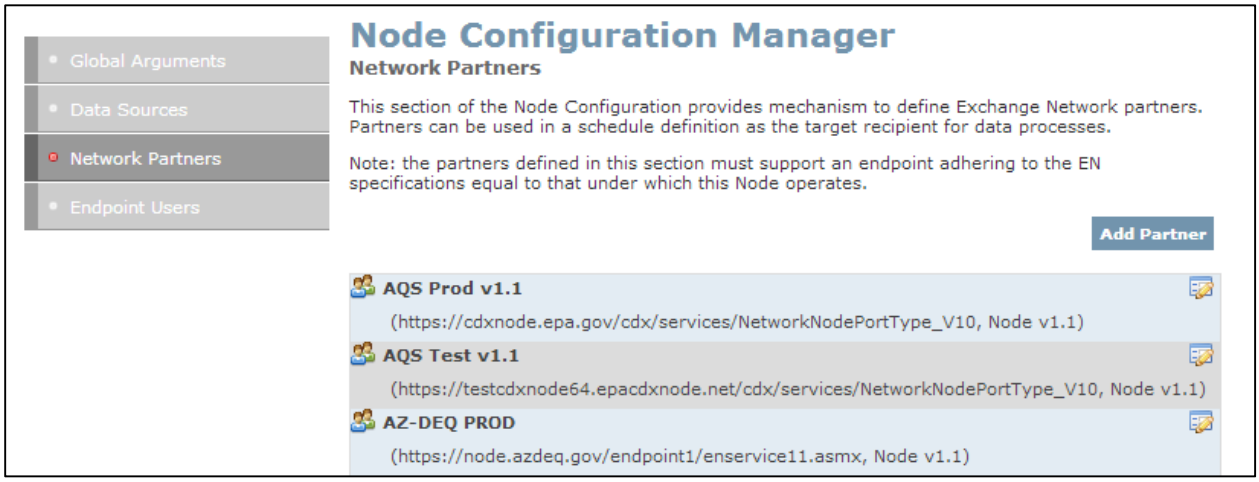
1. Click the  button next to the data source in question.
2. Click the **Delete** button to delete the data source.
3. Confirm the deletion process when prompted. Node Admin then redirects to the list of existing data sources.
4. Click the **Cancel** button to discard any work and return to the list of existing data sources.

Network Partners

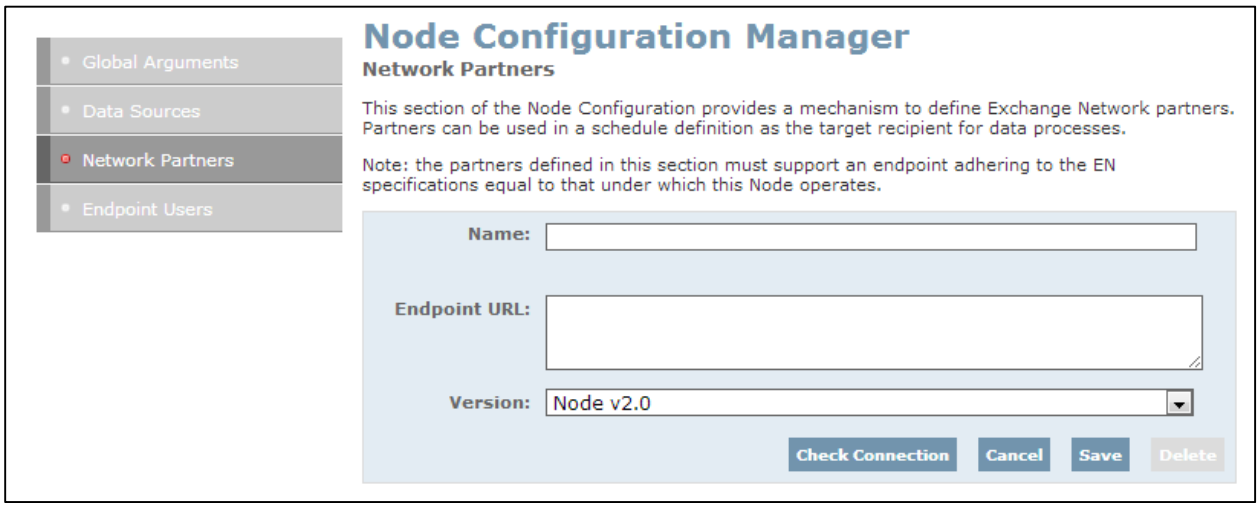
Network partner endpoint definitions can provide data services with a target recipient for the results of XML document generation and other operations. A single network partner definition (for example, the US EPA CDX Node) can be employed by many data services.

Each partner can be defined as using either version 1.1 or version 2.0 of the Exchange Network Node Specifications. This will drive the resulting message structure.

When selected, the **Network Partners** section will initially display a list of existing partners already stored in the OpenNode2 database as illustrated below.



When adding, modifying, or deleting network partners, the following page is displayed.



Adding a Network Partner

To add a new Network Partner, perform the following steps:

1. Click the **Add Partner** button on the right-hand side of the page.

2. Enter a name for the Network Partner in the **Name** field. This name will be displayed as an available Network Partner in dropdown menus throughout the system.
3. Enter the URL string for the Network Partner's Exchange Network Node in the **Endpoint URL** field. This is the URL string value that will be utilized when this Network Partner is selected.
4. Select the version of the node specification supported by the partner. This can be either v1.1 or v2.0.
5. Click the **Check Connection** button to execute a Ping or NodePing against the target node. The screen will refresh to indicate success or failure.
6. Click the **Save** button to add the network partner to the database and return to the list of available partners.
7. Click the **Cancel** button to discard any work and return to the list of existing partners.

Modifying a Network Partner

To modify a Network Partner, perform the following steps:

1. Click the  button next to the Network Partner in question.
2. Adjust the **Name**, **Endpoint URL,** and **Version** fields as required.
3. Click the **Save** button to save any modifications and return to the list of existing partners. Alternatively, click **Add Partner** to save the current partner and add another.
4. Click the **Cancel** button to discard any work and return to the list of existing partners.

Deleting a Network Partner

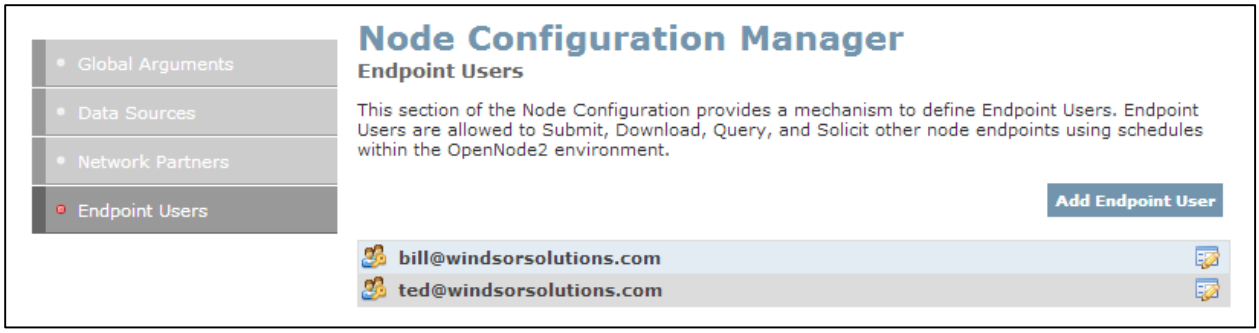
To delete a Network Partner, perform the following steps:

1. Click the  button next to the Network Partner in question.
2. Click the **Delete** button to delete the Network Partner.
3. Confirm the deletion process when prompted. Node Admin then returns to the list of existing partners.
4. Click the **Cancel** button to discard any work and return to the list of existing partners.

Endpoint Users

Endpoint Users are allowed to Submit, Download, Query, and Solicit other node endpoints using schedules within the OpenNode2 environment. When creating or editing a schedule, an endpoint user can be selected to use as the account for the schedule operation.

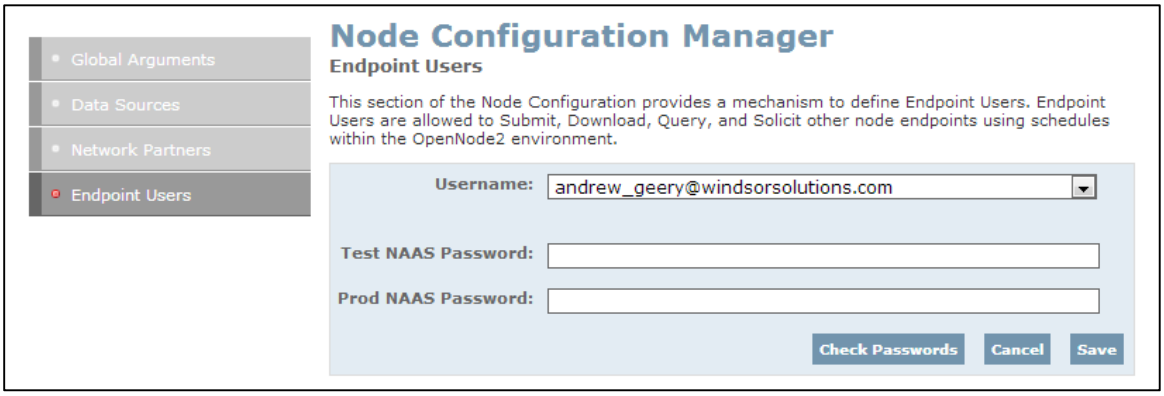
When selected, the **Endpoint Users** section will initially display a list of existing NAAS accounts already stored in the OpenNode2 database as illustrated below.



Adding an Endpoint User

To add a new endpoint user, perform the following steps:

1. Click the **Add Endpoint User** button on the right-hand side of the page.

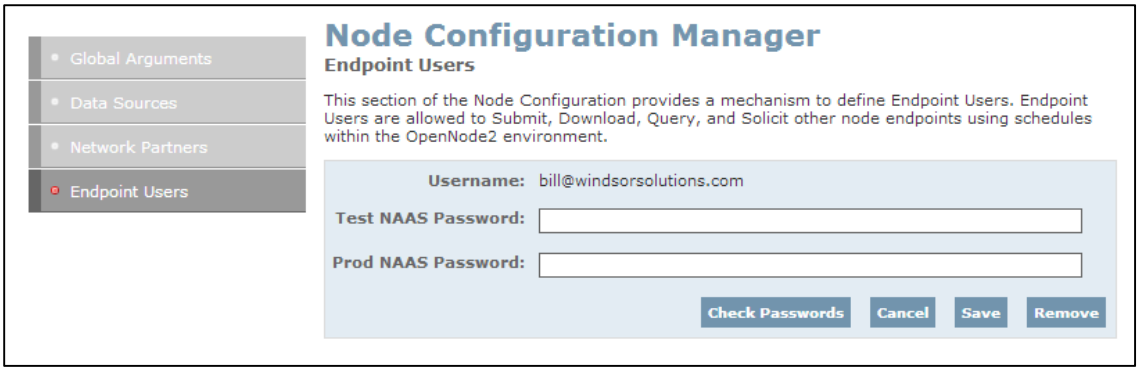


2. Select the user from the drop down list. If the desired user is not listed, add the user to OpenNode2 using the Security tab as described in the following section.
3. Enter the Test and Production NAAS passwords for the user. Passwords are required, but they can be saved even if they are incorrect. This allows an endpoint user to be used for only a Test or Production environment, if needed
4. Click the **Test Passwords** button to check if the passwords are correct in the EPA NAAS system.
5. Click the **Save** button to save the endpoint user account.

Modifying an Endpoint User

To modify an Endpoint User, perform the following steps:

1. Click the  button next to the Endpoint User in question.



2. Adjust the **Test NAAS Password** and **Prod NAAS Password** fields as required.
3. Click the **Save** button to save any modifications and return to the list of existing endpoint users.
4. Click the **Cancel** button to discard any work and return to the list of existing endpoint users.

Deleting an Endpoint User

To delete an Endpoint User, perform the following steps:

1. Click the  button next to the Endpoint User in question.
2. Click the **Delete** button to delete the Endpoint User.
3. Confirm the deletion process when prompted. Node Admin then returns to the list of endpoint users.
4. Click the **Cancel** button to discard any work and return to the list of existing endpoint users.

Security

About Security

The **Security** tab allows an administrator to control and manage those able to access OpenNode2 and to define the data services they are able to use by establishing security policies for accounts.

Anyone wishing to access OpenNode2 must obtain a NAAS account. It is extremely important to note that Node Admin automatically synchronizes user accounts and policies with the NAAS. When an account that does not already exist in NAAS is added to Node Admin, it will be created in NAAS. If the account does already exist in NAAS, then no change is made at NAAS (the password is ignored). In either case, the account will be created in the OpenNode2 database upon saving.

Account policies made in Node Admin are only stored in the OpenNode2 database. NAAS policies are not modified when a policy is updated in Node Admin.

There are two sections within the **Security** tab that may be accessed using the toolbar on the left side of the page:

Account Manager	This section allows user accounts to be added, modified, or deleted.
Manage User Requests	This section allows an administrator to authorize requests to node services.

When the **Security** tab is selected, the application will initially display the **Account Manager** section.

Account Manager

This section allows users with existing NAAS accounts to be granted access to the Node, and for new user accounts to be created on the NAAS and simultaneously be granted access to the Node.

A user account will be one of three types:

Administrator This role will provide the account with the permissions to exchange data with the Node and to log in to Node Admin. Within Node Admin, the user will have permissions to perform all application functions.

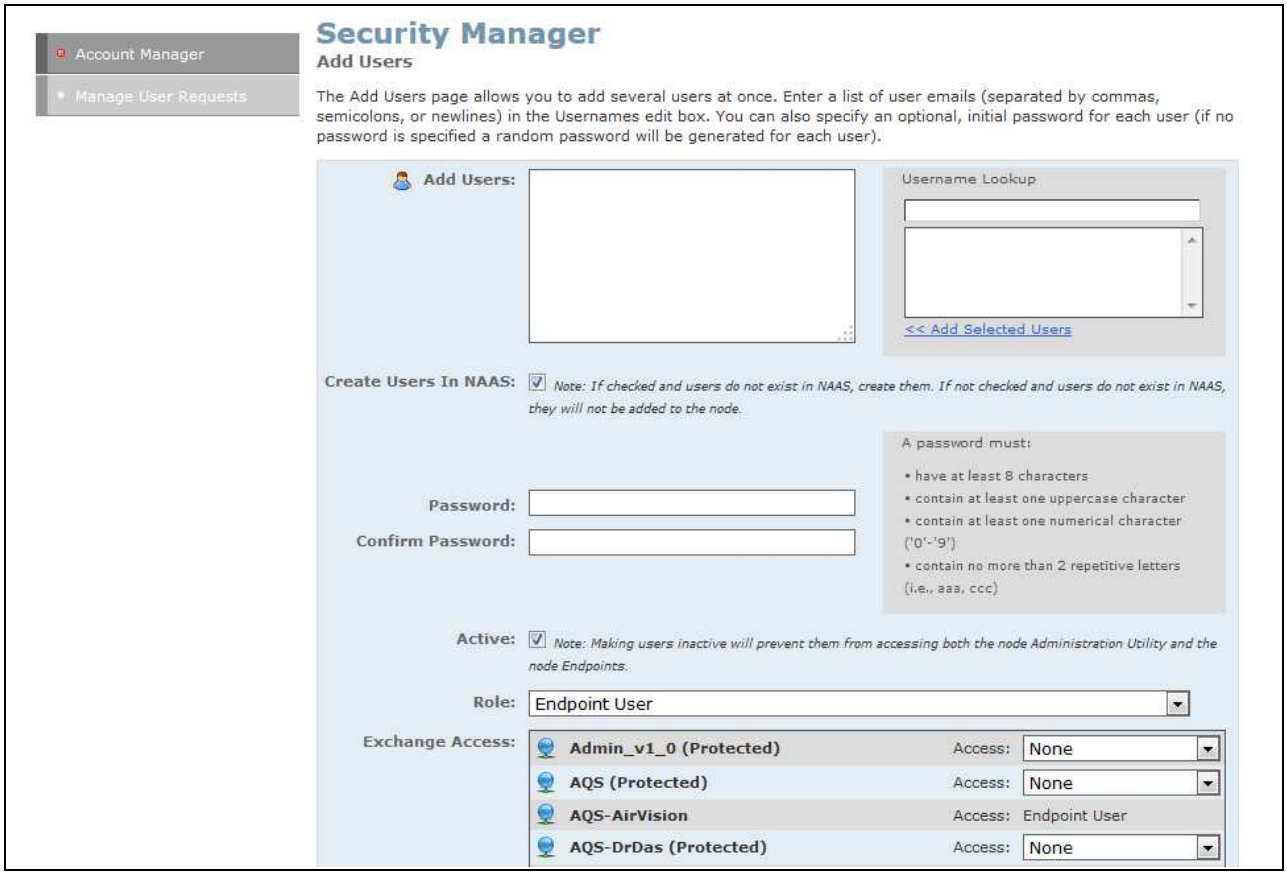
Program This role will provide the account with permissions to exchange data with the Node and to log in to Node Admin. Within Node Admin, the user will only be able to use the Dashboard, Schedules, Activity, and Profile tabs

Endpoint User This role will provide the account with the permissions to exchange data with the Node, but the user will not have permissions to log in to Node Admin. This is the lowest-privilege account. It is the default role for new accounts when added automatically to the Node upon first connection by the user.

NAAS user accounts are automatically added to the OpenNode2 database when the account first connects to OpenNode2 via the node's web services endpoint. For this reason, new accounts will simply appear in the Account Manager. These accounts are automatically assigned to the "*Endpoint User*" role.

When selected, the Account Manager section will initially display a list of existing user accounts already stored in the OpenNode2 database as illustrated below.

When adding, modifying, or deleting accounts, the following page is displayed.



Adding an Account

OpenNode2 uses NAAS as the primary user management apparatus. Thus, all users of OpenNode2 must have a NAAS account. When adding one or more users, first OpenNode2 checks to see if the user exists in NAAS already. If it does not, OpenNode2 will create the NAAS account using the password provided. Otherwise, no changes are made to NAAS. Next, the user is added to the OpenNode2 user list (stored in the OpenNode2 database) if it does not exist already.

Administrators can add a single user or multiple users at once from the Account Manager tab. Adding multiple users at once set identical passwords, roles and exchange access settings for all users added.

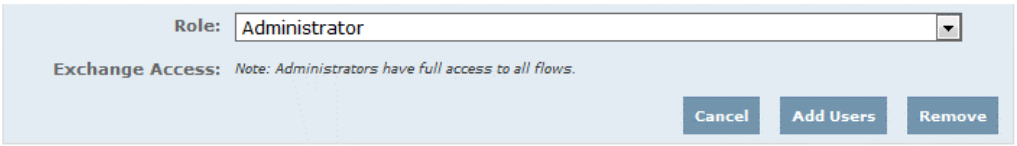
To create new user account(s), perform the following steps:

1. Click the **Add Users** link on the right side of the screen.
2. In the **Add Users** field enter one or more email addresses for the accounts to be added. Alternatively, select one or more existing NAAS accounts from the Username Lookup box. The username value must be a valid email address for the user. This will allow email notifications to be sent to the user for activities such as password change and Node event notifications. Multiple email addresses can be added at one time. Passwords, roles and access settings will be identical for all users.
3. Enter a password for the user in the **Password** field. Confirm the password again in the **Confirm Password** field.

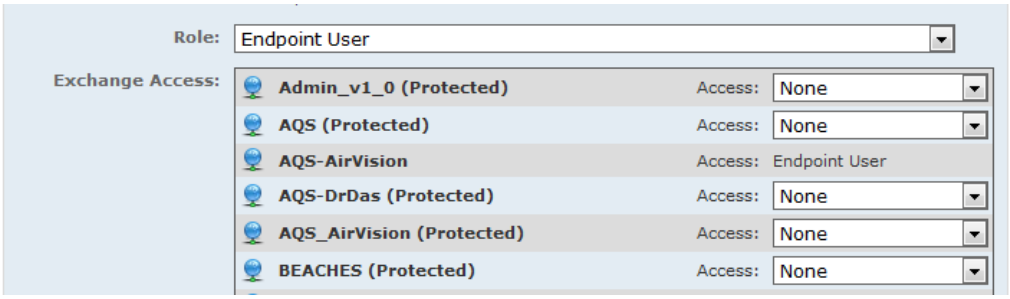
Note: *If the user already exists in NAAS, the account will only be added to OpenNode2 and the password will be ignored, since passwords are only stored in NAAS.*

4. Select the role for the account in the **Role** dropdown list.

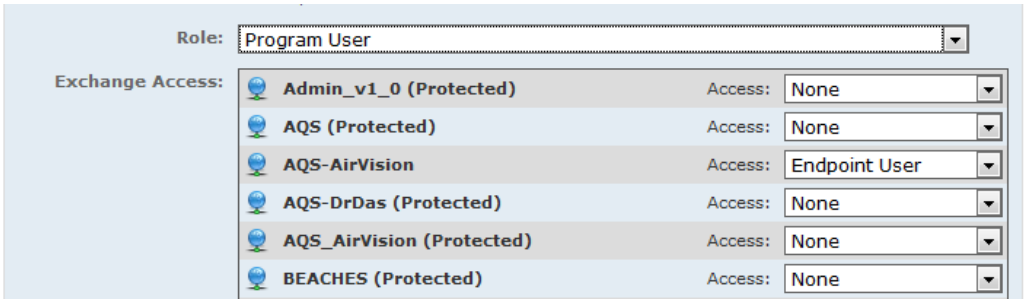
   - If the **Administrator** role is selected the user will have full access to all Exchanges.



   - An **Endpoint User** role allows for access to the node's web service endpoints. Endpoint Users cannot log into Node Admin. Endpoint Users are allowed access to all unprotected exchanges. The Administrator must indicate level of access for protected exchanges. The dropdown box has two options, None or Endpoint User.



   - The **Program User** role allows the Adminstrator to specify different access levels for each Exchange. Options in the dropdown box for protected exchanges include None, Endpoint User (querying access), View (query access and ability to examine activity logs and run schedules) and Modify (query and view access, and ability to modify and run schedules). Access to unprotected exchanges can be set at Endpoint User, View or Modify.



5. Click the **Add Users** button to add the account to the database and return to the list of user accounts.

6. Click the **Cancel** button to discard any work and return to the list of existing user accounts.

Modifying an Account

To modify an account, perform the following steps:

1. From the Account Manager screen, click the  button next to the account to be edited.
2. Adjust the **Role** and **Exchange Access** fields as required.

3. Click the **Save** button to save any modifications and return to the list of existing user accounts.
4. Click the **Cancel** button to discard any work and return to the list of existing user accounts.

Deleting an Account

An understanding of how accounts are created and managed in NAAS is required to understand the process of deleting accounts. Each Node has a Node Identifier that is specified in the Node configuration settings. This Node Identifier is used by NAAS to associate each NAAS account with a given node.

The **Delete** button will only be active if the account was created by the same Node Identifier as the Node that is trying to delete the account. Note that deleting a NAAS account will also remove any policies (authorizations) associated with the account.

If the account was created by any other Node Identifier, it cannot be deleted.

To delete an account, perform the following steps:

1. Click the  button next to the account in question.
2. Click the **Delete** button to delete the account.
3. Confirm the deletion process when prompted. Node Admin then returns to the list of existing user accounts.
4. Click the **Cancel** button to discard any work and return to the list of existing user accounts.

Manage User Requests

Users of the Exchange Network Homeland Emergency Response Exchange (HERE) Client (available from http://herenetwork.org), or other future flows can request access to the flows by submitting a request to OpenNode2 using the HERE Client software. The ability of the node to receive account access requests is provided by the Flow-Security plugin that comes pre-configured with OpenNode2. Implementation of client services to submit requests is beyond the scope of this document.

Account requests can be reviewed 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.

To review and approve or reject requests, perform the following steps:

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. Click the **Accept** or **Reject** button to accept or reject the request. A notification email will be sent to the user in question, and the user's permissions will be automatically updated to reflect the chosen settings.

Exchanges

About Exchanges and Data Services

The **Exchange** tab allows for creating, modifying, and deleting data exchanges and associated data services supported by OpenNode2.

Data exchanges are characterized by a specific scope of data being shared by Exchange Network partners, and provides a set of related functions for a given subject area that typically relates to a specific environmental program area or EPA data system. Each data exchange provides various functions to process inbound or outbound data relating to the specific scope of data. These functions are called data services and these are the actual workers of the data exchange, performing automated operations to process data. Data services typically fall into three categories:

On Request Data Providers	Services that expose data to the outside world. These services are intended to be implemented as Exchange Network primitive Query or Solicit actions and can be invoked at any time by external, authorized users.
Scheduled Data Providers	Services that are intended to provide a set of data to another Exchange Network partner at regular intervals. While implemented identically to the On Request Data Providers described above, they are crafted with the intent to be tied to a scheduled task within the Node. See the *Schedules* section of this document for more information.
Submission Processors	Services that act upon data that has been submitted to OpenNode2. A submission processor can do any number of things, including parsing data to a database or file system or relaying the submission to other processes.

About Plugins

Data services are provided to OpenNode2 as "plugins." A plugin is a compiled code component which must adhere to a specific interface or set of capabilities expected by OpenNode2. A plugin may implement one or many of the data services for a given data exchange.

Exchanges with a Plugin

Each plugin contains one or more services. Using Node Admin, a Node administrator can expose a service as a Query or Solicit, or a service may be designed to act upon a submitted file, such as parsing the submission content to a database.

Plugin services lie dormant until they are explicitly added and configured using Node Admin. When configuring a service, the service's configurable parameters will display on the Node Admin interface, allowing an administrator to customize the variables (such as database connection strings) used by the service when it is executed.

Exchanges without a Plugin

Data exchanges may utilize the functionality provided by a plugin, but it is not required. If a Node administrator simply wishes to enable the Node to receive submissions for a new exchange, no plugin is required. Upon adding the exchange using the Node Admin interface, the Node will immediately be capable of receiving and storing submissions made to that exchange. Using the

notifications feature, it is also possible to send an email alert to one or more people whenever a file is received.

The Node will receive and store files submitted to the exchange, but they will never undergo any automated processing by the Node, such as parsing to a database or saving the file to a network directory. For that, a plugin must be developed and installed to perform the desired processing.

There are two sections within the **Exchange** tab which may be accessed using the toolbar on the left side of the page.

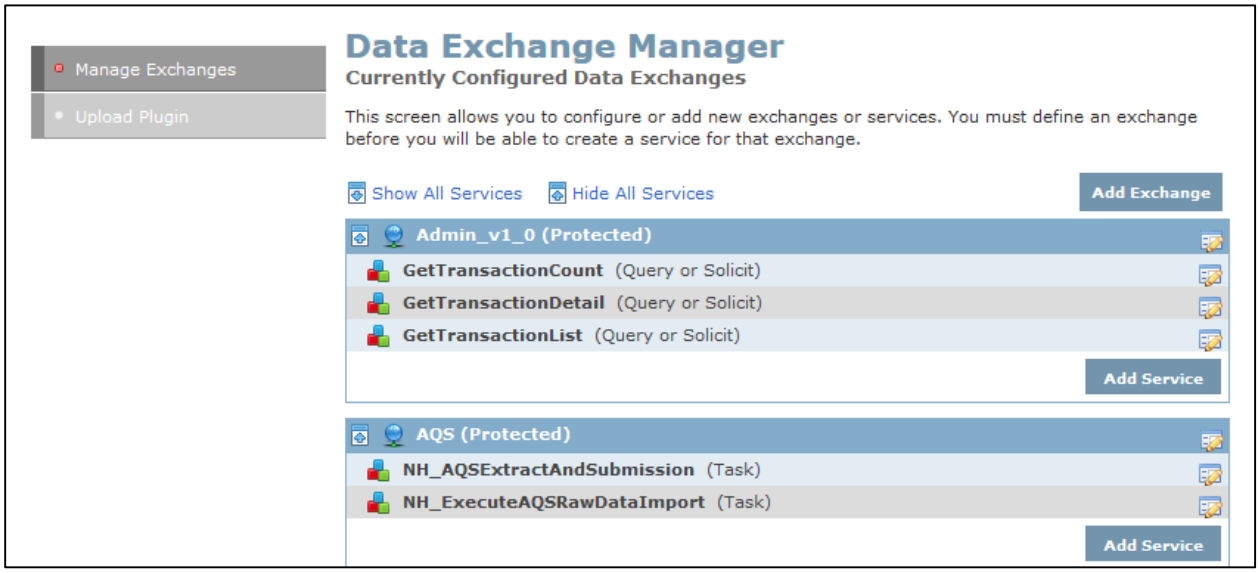
Manage Exchanges	This section provides the ability to configure or add new data exchanges. A data exchange must be added before services can be added to the exchange. It is also possible to add, edit, and delete services for each exchange using this section.
Upload Plugin	This section provides the ability to upload new plugins for use by the data exchanges.

When the **Exchange** tab is selected the application will initially display the **Manage Exchanges** section.

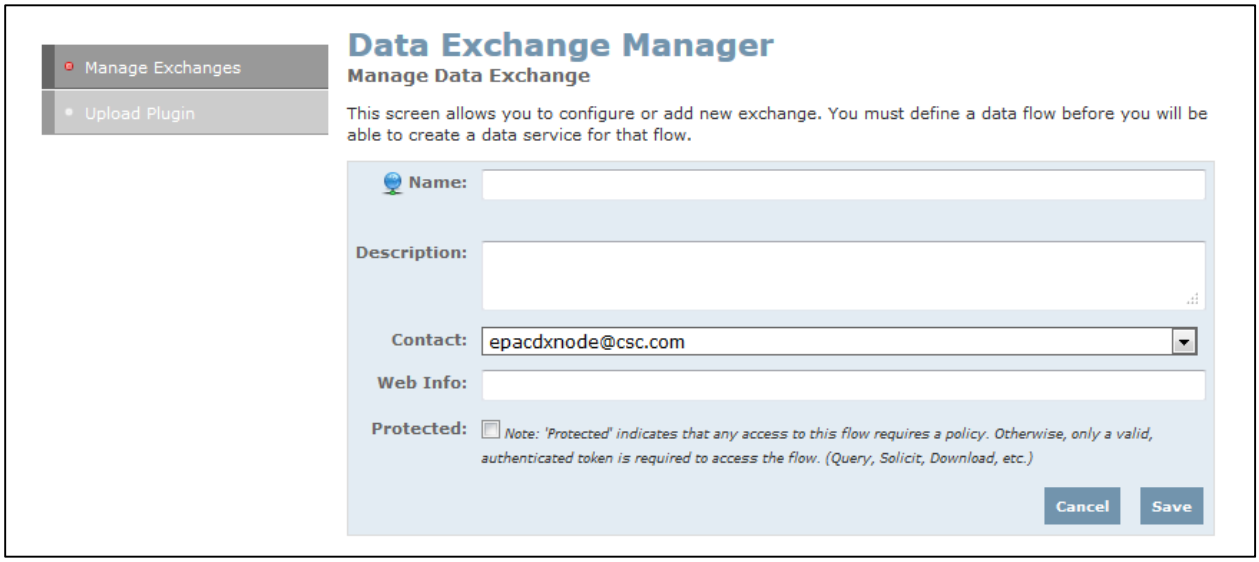
Data Exchange Manager

This section provides the ability to add, modify, and delete exchanges and data services. An Exchange must first be added to OpenNode2 before data services can be added or plugins can be uploaded to the data exchange.

When selected, the **Manage Exchanges** section will initially display a list of the existing data exchanges already defined to OpenNode2. The data services that have been configured for each data exchange appear indented beneath each data exchange, as illustrated below.



When adding, modifying, or deleting data exchanges, the following page is displayed.



Adding an Exchange

To add a data exchange to OpenNode2, perform the following steps:

1. Click the **Add Exchange** button on the right hand side of the window.

2. Enter the **Name** representing the name of the exchange. This is typically the acronym that corresponds to the flow. All Submit operations to this exchange received from partners must use the name specified in this box if the submission is to be accepted by OpenNode2.
3. In the **Contact** field, enter the email address for the main contact person for the exchange.
4. In the **Web Info** field, enter the URL where additional information on the exchange can be found. For example, http://www.exchangenetwork.net/exchanges/.
5. Check the **Protected** checkbox if this exchange will require specific user account access policies to be established to enable the data services to be invoked for this exchange.
6. Click the **Save** button to save the exchange to the database and return to the list of data exchanges.
7. Click the **Cancel** button to discard any work and return to the list of existing exchanges and data services.

Modifying an Exchange

To view or modify an exchange, perform the following steps:

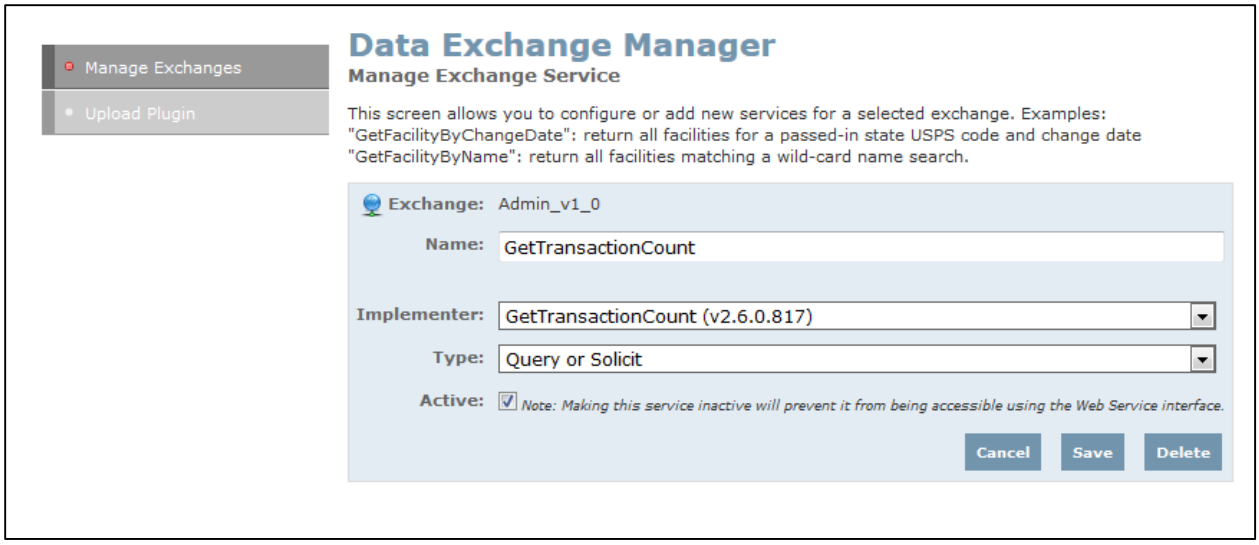
1. Click the  button next to the exchange in question.
2. Modify the **Description**, **Contact**, **Web Info**, or **Protected** checkbox as required.
3. Click the **Save** button to save any modifications and return to the list of exchanges.
4. Click the **Cancel** button to discard any work and return to the list of exchanges.

Deleting an Exchange

To delete an exchange, perform the following steps:

1. Click the  button next to the exchange in question.
2. Click the **Delete** button.
3. Confirm the deletion when prompted. Node Admin will return to the list of existing exchanges. Note that any schedules associated with the exchange will also be deleted.
4. Click the **Cancel** button to discard any work and return to the list of existing user accounts.

When adding, modifying, or deleting data services, the following page is displayed.



NOTE

The process of configuring data services for a given exchange will be very specific to the properties of the plugin that implements those services. The configuration information that is specified for a specific data service must correspond precisely to that expected by the plugin. The configuration information will vary from plugin to plugin and be driven by the specific processing requirements for that code component.

As a consequence, it is important to note that the guidance provided in this document should be used in conjunction with separate configuration documentation provided by the developer of the plugin.

Adding a Data Service

To add a data service to OpenNode2, perform the following steps:

1. Click the **Add Service** button located beneath an existing exchange.
2. Type a name for the data service in the **Name** field.

   Note: Depending upon the plugin that implements the data service, this name may need to correspond to one of the service names exposed by the relevant plugin for the exchange.

3. Select the desired **Implementer** from the dropdown box.

   Note: The list of available implementers for the exchange will be determined by OpenNode2 based on the plugins that have been uploaded for that exchange.

4. Select the type of service being configured from the **Type** dropdown. This determines how the data service may be invoked using the Exchange Network primitive commands.

   Note: The list of available types for the data service will be determined by OpenNode2 based on information in the plugin, once the Implementer has been selected. The list will only display the types of action supported by the plugin.

5. Check the **Active** checkbox if the data service is to be made available to schedules established using Node Admin or to external partners through the OpenNode2 endpoints.
6. If the data service requires one or more A**rguments**, each will be listed once the **Implementer** has been selected. Enter the value to be used for each argument. Check the **Use Global Value** checkbox if you wish to use a value established in the Global Arguments section of the Node Admin interface.

   Note: The list of required arguments for the data service will be determined by OpenNode2 based on information in the plugin, once the Implementer has been selected.

7. If the data service requires one or more **Data Sources**, each will be listed, once the **Implementer** has been selected. Choose a data source from the dropdown list of available data sources populated from the list of Data Sources defined on the **Configuration** tab.
8. Click the **Save** button to save the data service to the database and return to the list of exchanges and data services.
9. Click the **Cancel** button to discard any work and return to the list of existing exchanges and data services.

Modifying a Data Service

To modify a data service, perform the following steps:

1. Click the  button next to the data service in question.
2. Modify the **Name**, **Implementer**, **Type**, **Active** checkbox, A**rguments**, and **Data Sources** values as required.
3. Click the **Save** button to save any modifications and return to the list of exchanges.
4. Click the **Cancel** button to discard any work and return to the list of exchanges

Deleting a Data Service

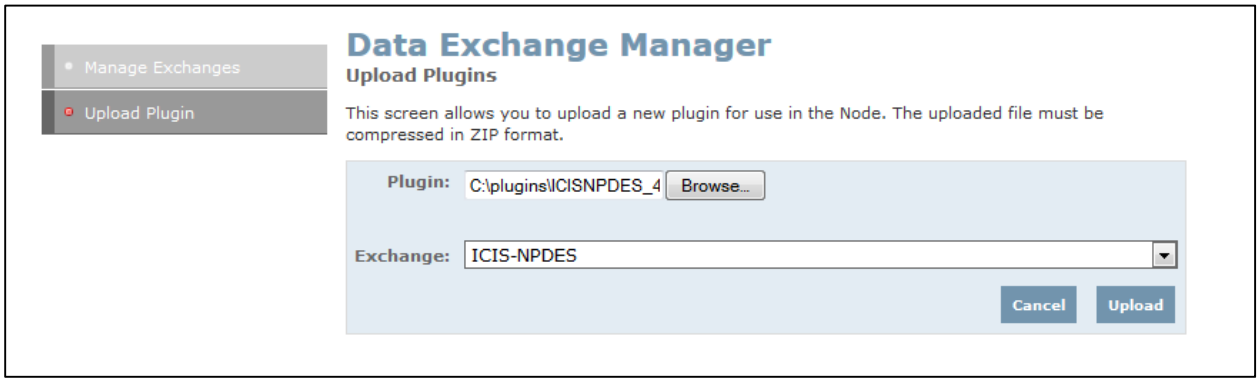
To delete a data service, perform the following steps:

1. Click the  button next to the data service in question.
2. Click the **Delete** button.
3. Confirm the deletion when prompted. Node Admin returns to the list of existing exchanges. Note that any schedules associated with the data service will also be deleted.
4. Click the **Cancel** button to discard any work and return to the list of existing user accounts.

Upload Plugin

This section allows you to upload a new plugin, which will provide new data services for use in OpenNode2. The uploaded plugin file must be compressed (zipped).

When selected, the **Upload Plugin** section will display the following page, which enables the selection and upload of a plugin code component to OpenNode2.



To upload a plugin, perform the following steps:

1. Click the **Browse** button, which is located to the right of the **Plugin** field.
2. Locate and select the compressed (zipped) file containing the code component for the plugin.
3. Select the exchange for which the plugin provides services from the **Exchange** dropdown box.
4. Click the **Upload** button to upload the plugin.

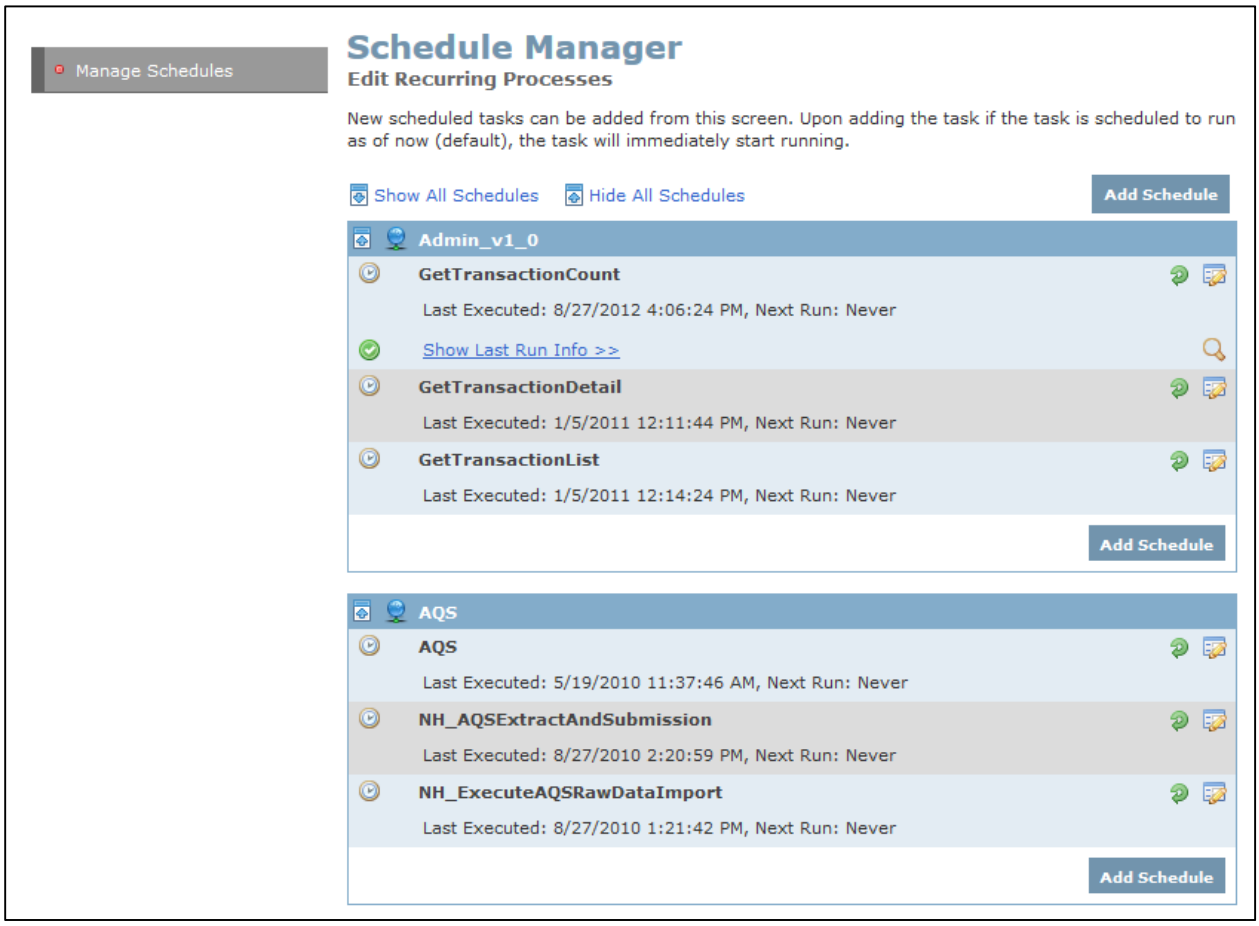
Note: OpenNode2 will store multiple versions of a specific plugin on the file system of the server on which OpenNode2 is deployed. Each plugin is stored in a file path corresponding to the supported exchange, in a subfolder matching the version of the uploaded plugin code component. Only the latest version of the plugin will be used by OpenNode2. If the need arises to rollback to a previous version of an installed plugin, the Node Administrator must delete the latest plugin version from the file system.

Schedules

About Schedules

The **Schedules** tab allows you to create, modify, and delete certain types of regularly occurring processes that the Node itself should initiate. These differ from the external requests that require a response from the Node, and provide the core functionality supported by the Node.

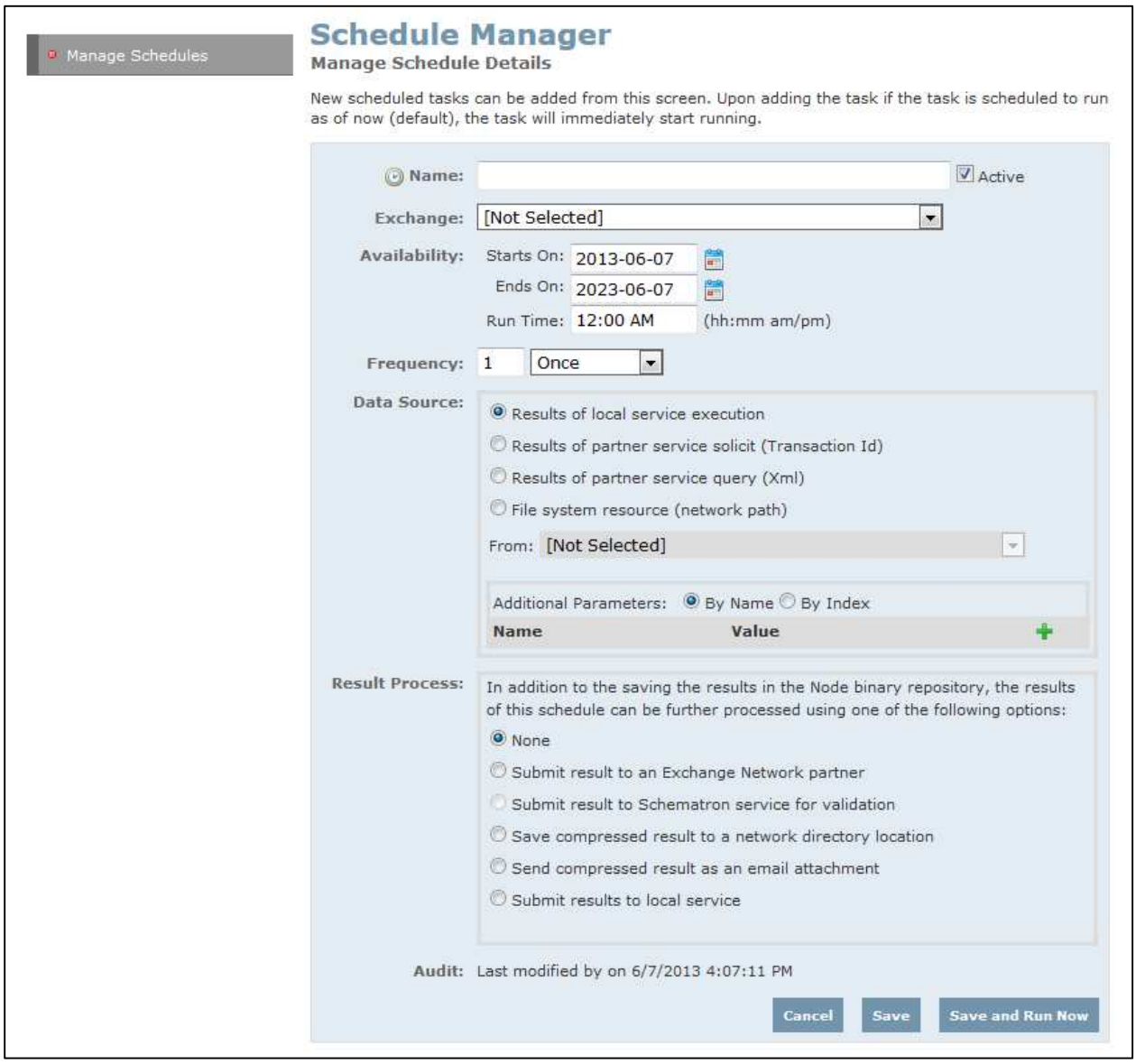
When the **Schedules** tab is initially selected, the application will display the **Manage Schedules** section. The **Manage Schedules** section will display a list of existing schedules already configured and stored in the OpenNode2 database, grouped by data exchange, as illustrated below.



A specific Schedule may be defined to conduct various types of activity, including executing data services on your own Node or other partner Nodes, as well as sending data in various ways to some partner Node or other required destination. Schedules may be defined to execute on a regular basis, for example, by hour, day, or month and for a defined period of time. You may also request that a Schedule be executed immediately. The schedule job execution history can be reviewed and jobs can be manually started, as well as scheduled.

Each Schedule is designed to perform some specific operation on a set of data and, as such, each will have a specific data source from which to obtain the desired data and a process to execute against the resulting data set.

When adding, modifying, or deleting schedules, the following page is displayed.



Manage Schedules

Adding a Schedule

To add a schedule to OpenNode2, perform the following steps:

1. Click the **Add Schedule** button in the top right corner of the Manage Schedules page.
2. Enter a name for the schedule in the **Name** field.
3. The **Active** checkbox will be checked by default for a new schedule.
4. Select the data exchange for which the schedule is being established from the **Exchange** dropdown list.
5. Enter the date and time to activate the schedule in the **Starts On** field.
6. Enter the date and time to deactivate the schedule in the **Ends On** field.
7. Enter the time of day the schedule is to execute in the **Run Time** field.
8. Select the frequency at which the schedule will be activated from the **Frequency** dropdown list. Available options include:

   Once One time activation based on the start date and run time.

   Minute Activation every minute based on the run time.

   Hour Activation every hour based on the run time.

   Day Activation every day based on the run time.

   Week Activation every week based on the run time.

   Month Activation every month based on the run time.

9. Select desired the **Data Source** radio button.

   The **Data Source** enables you to specify an operation that, when completed, will make available a set of data for the schedule to act upon in some manner. Four data source types are available, each with a set of custom settings that will change dynamically based on the radio button selected. Please see below for details on configuring the Data Source for the Schedule.

10. Set values for **Additional Parameters**, if required.

    If the Data Source is set to a local service execution, partner service *Solicit* or partner service *Query*, parameters can be provided. The parameters are provided to the relevant service request. Please see below for details on configuring the Data Source for the Schedule.

11. Select the desired **Result Process** radio button.

    The **Result Process** enables you to specify the operation that should be taken once the required data set has been obtained. Five result processing types are available, each with a set of custom settings that will change dynamically based on the radio button selected. Please see below for details on configuring the Result Process for the Schedule.

10. Click the **Save** button to save the schedule to the database and return to the list of existing Schedules.

11. Click the **Save and Run Now** button to save the schedule to the database and return to the list of Schedules, and additionally to force OpenNode2 to immediately execute the defined Schedule.
12. Click the **Cancel** button to discard any work and return to the list of existing Schedules.

Modifying a Schedule

To modify an existing schedule, perform the following steps:

1. Click the  button next to the schedule in question.
2. Modify the Schedule configuration values as required.
3. Click the **Save** button to save any modifications and return to the list of Schedules.
4. Click the **Save and Run Now** button to save any modifications and return to the list of Schedules, and additionally to force OpenNode2 to immediately execute the defined Schedule.
5. Click the **Cancel** button to discard any work and return to the list of Schedules.

Deleting a Schedule

To delete a schedule, perform the following steps:

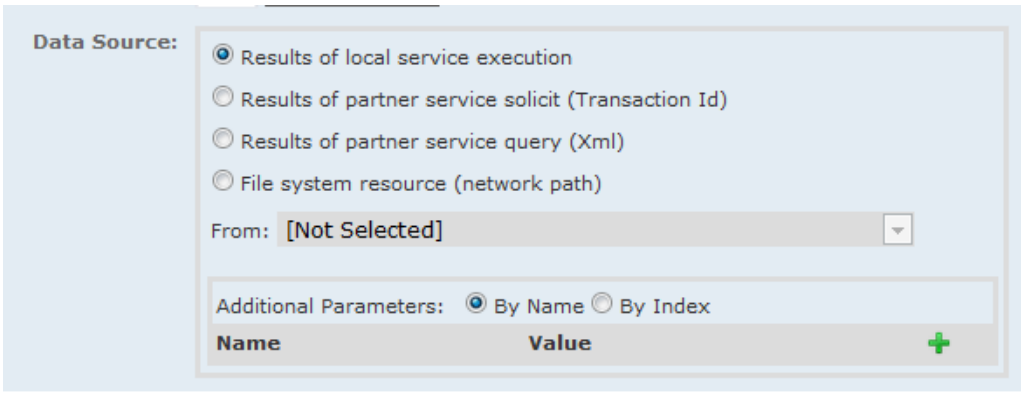
1. Click the  button next to the schedule in question.
2. Click the **Delete** button.
3. Confirm the deletion when prompted. You will be returned to the list of existing Schedules.
4. Click the **Cancel** button to discard any work and return to the list of existing Schedules.

Data Source Configuration

The following Data Source options will be available for a Schedule.

Results of Local Service Execution

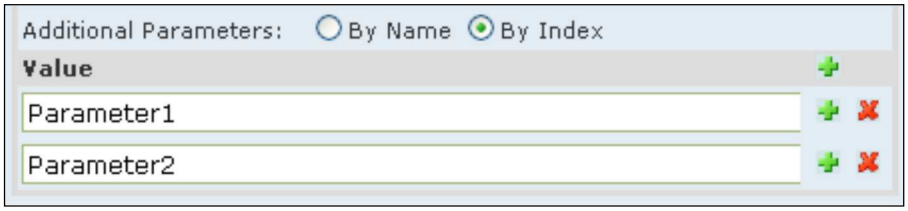
Indicates that the Schedule should obtain data by executing one of the data services defined for the selected exchange.



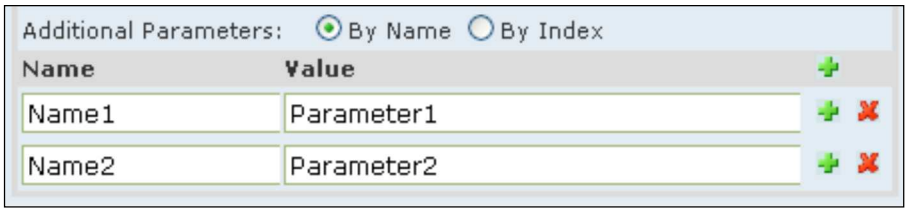
The following additional steps should be performed:

a. Select a data service to be executed from the dropdown list. The list of available data services will be filtered based on the selected **Exchange**.

b. Enter the additional parameters to be passed to the selected data service. These parameters may be specified by index value, or sequence, as follows:



Alternatively, the additional parameters may be specified by name or key, as follows:



To add additional parameters to the list to be supplied use the control. To remove parameters from the list, use the control

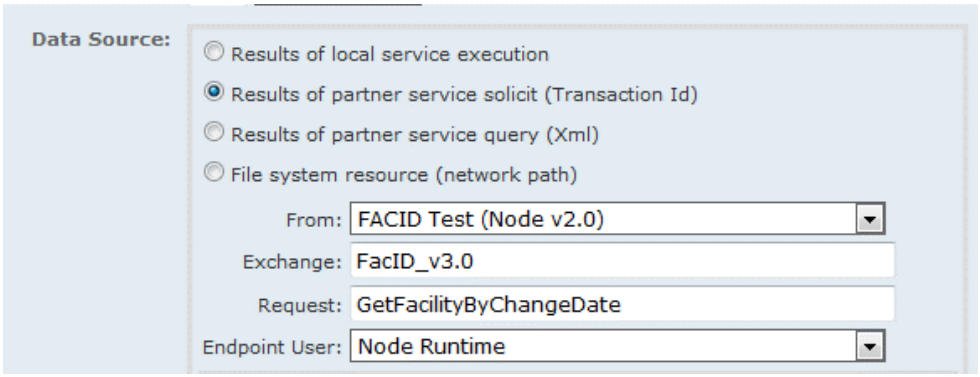
Results of Partner Solicit

Indicates that the Schedule should execute a *Solicit* primitive method against a specified Exchange Network partner Node. The *Solicit* execution will be conducted asynchronously, with OpenNode2 simply requesting the Solicit execution for the defined parameters and recording the returned transaction ID.

Note: Consult the Flow Configuration Document (FCD) for the exchange to learn the requirements of setting up a solicit request.

When Solicit is specified as the data source, the **Result Process** area is disabled since the asynchronous nature of the source request will not allow OpenNode2 to take any specific action.

Note: Since the Solicit operation against the Network Partner Node is asynchronous, OpenNode2 will not explicitly take any action in response to the request being issued. Rather, a subsequent processing step will be engaged when the resulting file is returned to OpenNode2 by the Network Partner.



The following additional steps should be performed:

a. In the **From** field, select a Network Partner against which the *Solicit* should be executed. The dropdown list of Network Partners are defined on the Configuration tab under Network Partners.

b. If the chosen partner is a v2.0 endpoint, an **Exchange** text box will appear. Node v2.0 requires that the name of the exchange be supplied

c. In the **Request** field, enter the name of the data service request to be executed against the selected Network Partner.

d. In the **Endpoint User** field, select the NAAS account to use for the operation. The Node Runtime is the default NAAS account used by OpenNode2. Additional NAAS accounts can be set up on the Configuration tab.

e. Enter the additional parameters to be passed to the specified data service. These parameters may be specified by index value, or sequence, as described above in relation to local service executions.

Result of Partner Service Query

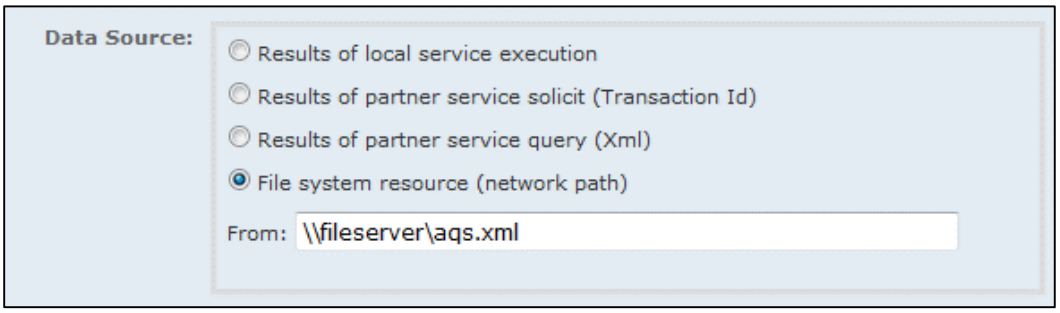
Indicates that the Schedule should execute a *Query* primitive method against a specified Exchange Network partner Node. The *Query* execution will be conducted synchronously, requiring that the OpenNode2 wait for a response from the Network Partner Node.

Note: Consult the Flow Configuration Document (FCD) for the exchange to learn the requirements of setting up a query request.

The steps for setting up a Query request are the same as the Solicit request described above.

File System Resource

Indicates that the Schedule should retrieve the desired data from a specific network path location.



The following additional steps should be performed:

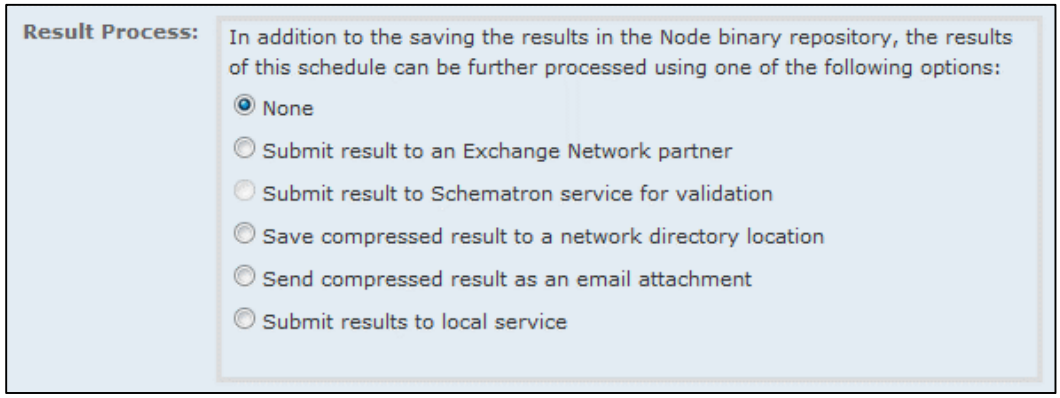
a. Enter a fully qualified path to the location of the desired file.

Result Process Configuration

The following **Result Process** options will be available for a Schedule.

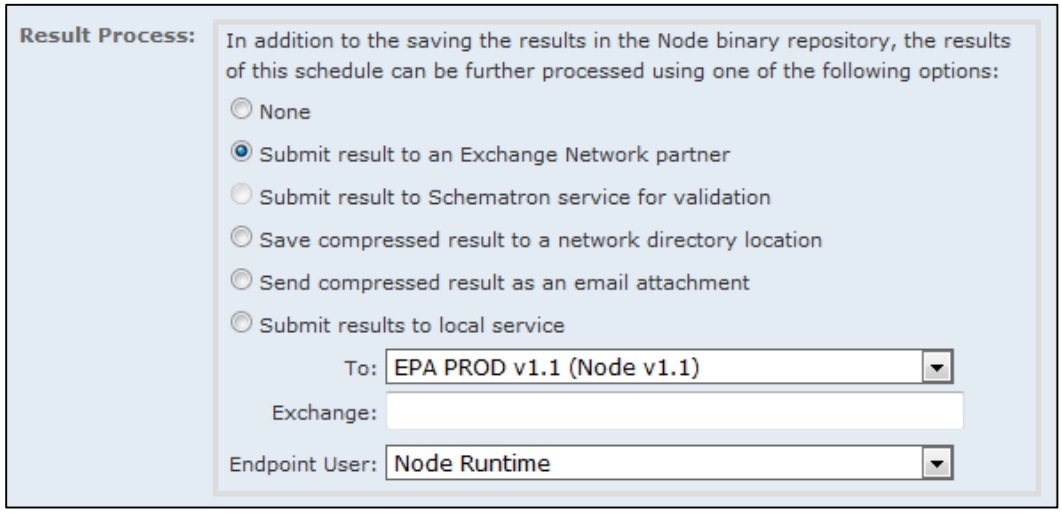
None

Indicates that the Schedule should take no specific action upon completion of the Data Source extraction.



Submit Results to Partner

Indicates that the Schedule should submit the data obtained from the Data Source to a partner Node.



The following additional steps should be performed:

a. Select a Network Partner to whom the resulting data file should be *Submitted*. The dropdown list of Network Partners will be that defined on the **Configuration** tab.

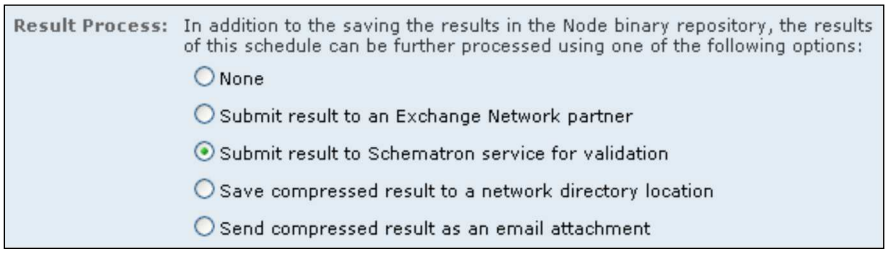
b. Enter the name of the Exchange to be invoked on the selected Network Partner.

c. If the selected Network Partner supports *Network Node Specifications v2.0*, you may also enter the name of the operation to be executed against the selected Network Partner.

Submit Results to Schematron

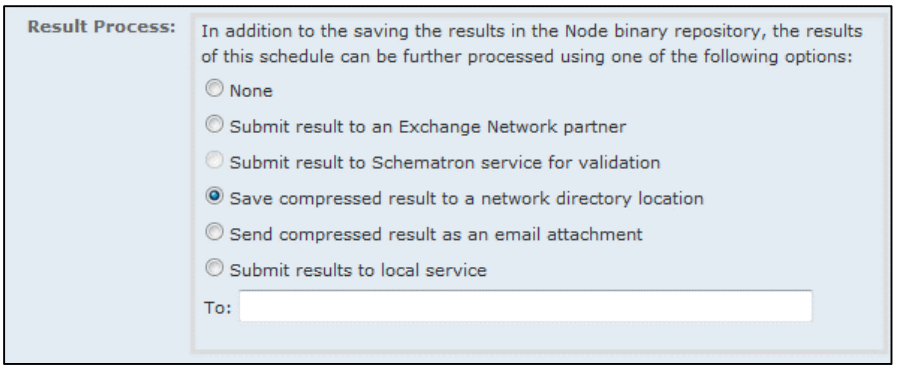
The result data will be submitted to the EPA Schematron Web service-based XML document validation utility.

Note: This option will be disabled if Schematron support is not available for the Exchange selected for this Schedule.



Save Result to Network Directory

The result data will be saved to a network location.

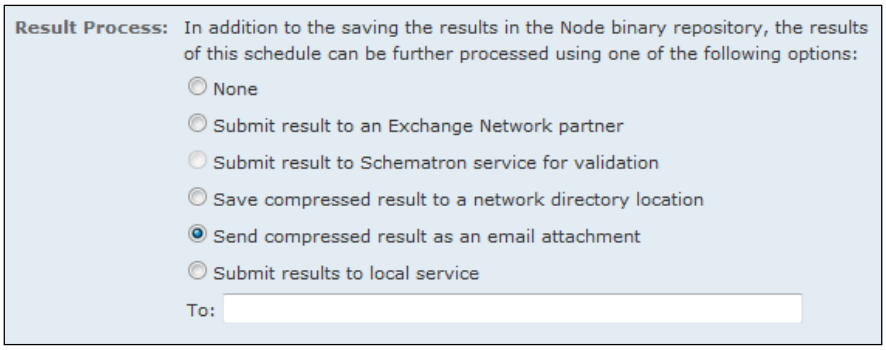


The following additional steps should be performed:

a. Enter a fully qualified path to the desired destination of the resulting file.

Send Result as an Email Attachment

The result data will be sent to a given email recipient.

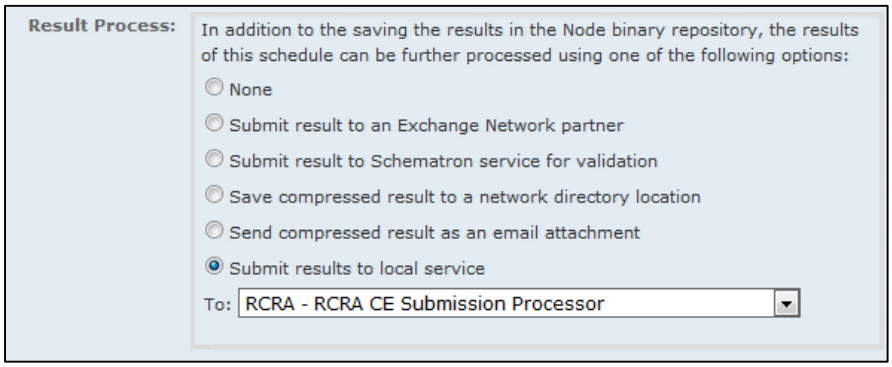


The following additional steps should be performed:

a. Enter a valid email address to which the resulting file should be sent.

Submit Results to Local Service

The result data will be fed into the plugin's submission processor service. Note that this option is only available if the plugin for the selected Exchange has a submission processor implementer service defined. For example, the results of a query against a remote node could be saved to a set of database staging tables for the exchange.

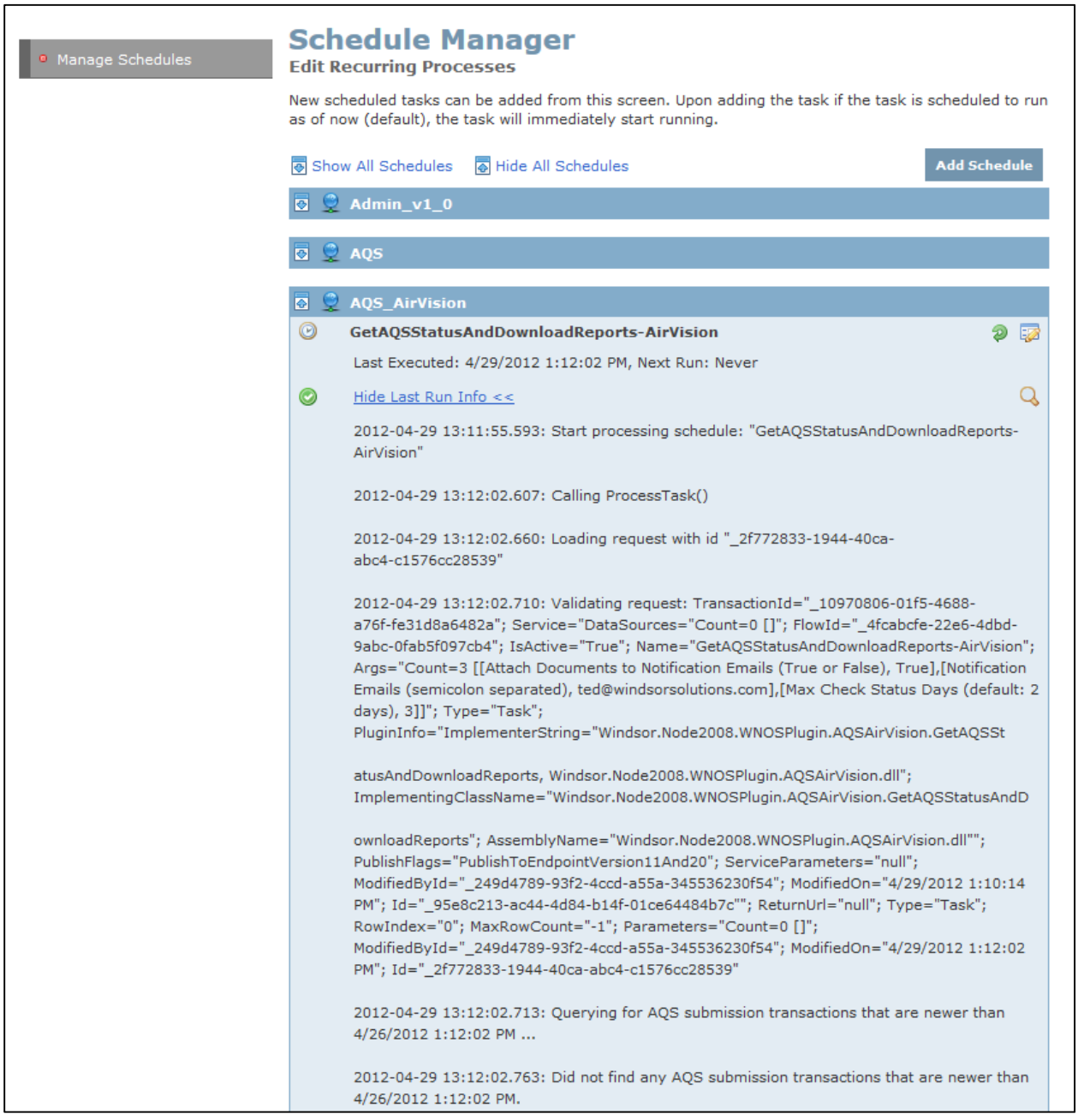


The following additional steps should be performed:

a. Select the submission processor service for the selected exchange.

Viewing the Last Run Log for a Schedule

Click the **Show Last Run Info >>** hyperlink beneath the desired Schedule from the main **Manage Schedules** screen to view a log of events associated with the last execution of that Schedule. The processing results will be displayed as illustrated below.



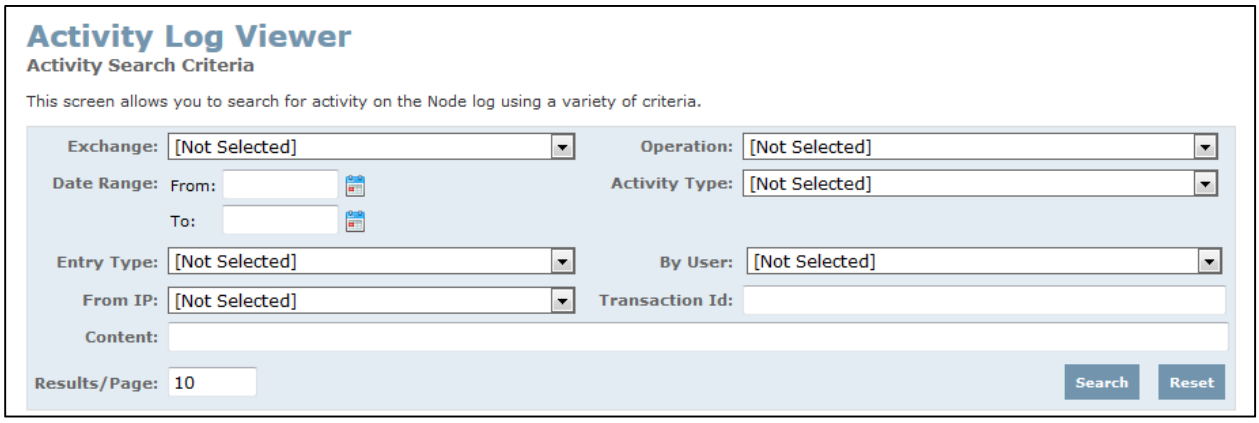
Activity

About Activity Logging

The **Activity** tab allows you to review the various types of activity conducted against your Node. You may specify a variety of criteria to search for specific operations or events of interest. The activities are logged in a persistent state in the supporting OpenNode2 metadata database

All administrative operations conducted using Node Admin are recorded in the activity logs, as well as all external accesses to the Node, and any internally initiated processes.

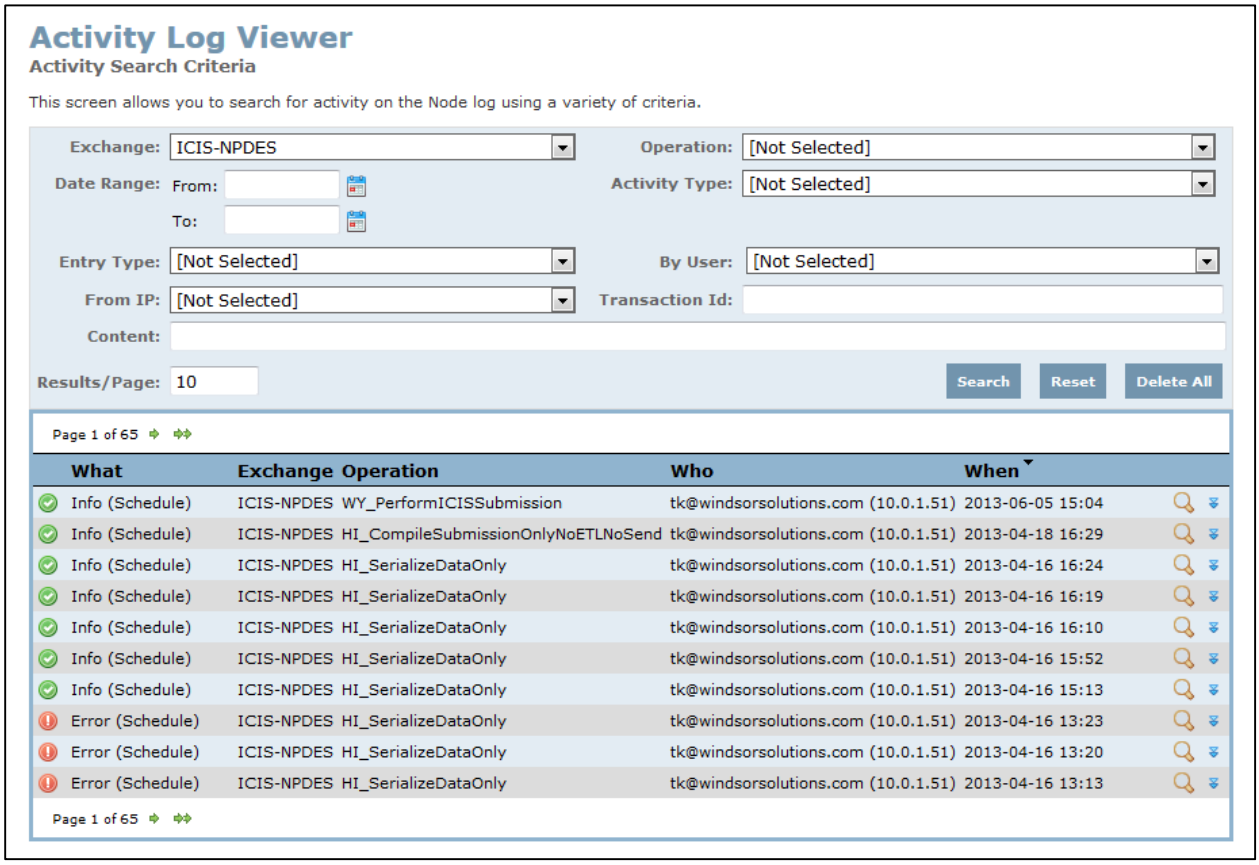
When the **Activity** tab is selected, the application will initially display the **Activity Log Viewer** as illustrated below, enabling the entry of a variety of criteria that may be used to inquire on the activity logs.



Searching the Activity Log

To search the activity log, perform the following steps:

1. Enter the desired search criteria.
2. Click the **Reset** button to clear any entered search criteria.
3. Click the **Search** button to initiate the search. The results will be displayed below the search criteria panel as illustrated below.



Viewing Activity Detail

To view the detailed information for a specific record in the activity log, perform the following steps:

1. Click the button next to the activity log item in question. The details of the log item will be displayed immediately below the selected activity log entry as illustrated below.

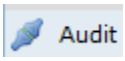
2. Click the button again to hide the details of the log item. The image below shows the transaction detail for the inbound processing of a submission to the ICIS data flow. The details displayed will vary depending on the transaction type.

Audit (Download) ICIS-NETDMR NetDMR.GetBasicPermitInfo_v1.0 chris_tyler@windsorsolutions.com (10.0.0.2) 2012-08-29 16:15

2012-08-29 16:15:01.183	Visit from endpoint version EN11 for method Download.
2012-08-29 16:15:01.183	Attempting to validate user token csm:IiKaBeCRDqKZ_Mzsvs1Qhqftep4_MyZzXq4TCVQ5ZHKKylJkqgpYdjOE-9LQsYRl.UTo1cpftHTD6pqVUzkkmLakcA5KFkN2XGcNrPki38tt-ritB8yq49bZ-VBWBro23.3IcA2rDndP8ZYg8nVqwSQwon4rbh2qsB-AKTnccRYIBf4yVSoXGt1g,,. from IP 10.0.0.2.
2012-08-29 16:15:02.090	Successfully validated user token csm:IiKaBeCRDqKZ_Mzsvs1Qhqftep4_MyZzXq4TCVQ5ZHKKylJkqgpYdjOE-9LQsYRl.UTo1cpftHTD6pqVUzkkmLakcA5KFkN2XGcNrPki38tt-ritB8yq49bZ-VBWBro23.3IcA2rDndP8ZYg8nVqwSQwon4rbh2qsB-AKTnccRYIBf4yVSoXGt1g,,. with user name chris_tyler@windsorsolutions.com.
2012-08-29 16:15:02.093	Successfully got local user account for chris_tyler@windsorsolutions.com.
2012-08-29 16:15:02.123	User chris_tyler@windsorsolutions.com authorized for flow ICIS-NETDMR and method Download
2012-08-29 16:15:02.157	Document: DontAutoCompress="False"; IsZipFile="True"; Id="_57846233-5231-424e-8344-d8913c970834"; DocumentName="_52552c90-29a8-4011-8f51-7c16aaf4ff71_Response.zip"; DocumentId="_57846233-5231-424e-8344-d8913c970834"; Content="Count=1216 [...]"; ContentByteSize="1216"; Type="ZIP".
2012-08-29 16:15:02.157	Document: DontAutoCompress="False"; IsZipFile="False"; Id="_dd62231e-1c7d-4791-8c39-a8840ab97855"; DocumentName="GetBasicPermitInfoParams-parameter.xml"; DocumentId="_dd62231e-1c7d-4791-8c39-a8840ab97855"; Content="Count=447 [...]"; ContentByteSize="447"; Type="XML".

Entry Type Icons

Each entry in the activity log is classified as a specific type. Each entry is also displayed with an icon for easy reference. The meaning of each of the entry types is as follows:



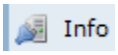
These log entries describe general activities conducted against the OpenNode2. There are four types of activities classified in this way:

a. Activities conducted within Node Admin, including adding, modifying, or deleting a record such as a global argument, a user account, or a schedule. The log entry will display the details of the change that was made.

b. Activities conducted against one of the OpenNode2 endpoints, including invocation of the *Authenticate, Query*, *Solicit*, *GetStatus*, *Download*, and *Submit* primitive methods. The relevant primitive method will be displayed in parentheses as part of the entry type.

c. Authentication attempts to the Node Admin interface.

d. Authentication attempts to one of the OpenNode2 endpoints.



These log entries describe background processes that were executed successfully by OpenNode2 in response to asynchronous processing requests to the OpenNode2. These will include processing of received *Solicit* requests, processing of received *Submit* requests, and processing of schedules defined within Node Admin. The relevant processing type will be displayed in brackets as part of the entry type.

These log entries describe any type of error condition encountered by the OpenNode2. There are three types of activity classified in this way:

a. Authentication failures to Node Admin or one of the OpenNode2 endpoints.

b. Failures encountered in response to requests to the OpenNode2 endpoints, for example, errors during processing of a Query or Solicit request.

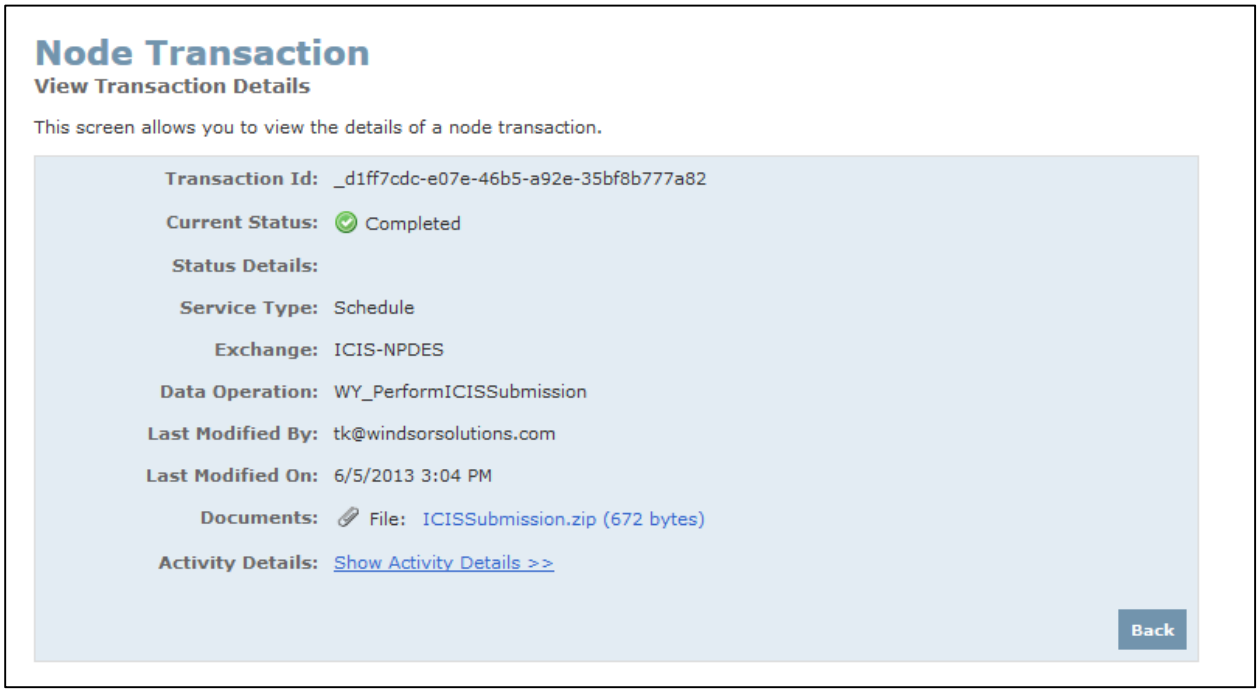
c. Failures encountered by the background processes executed by OpenNode2 in response to asynchronous processing requests to the OpenNode2.

Viewing Transaction Detail

If a given activity log entry has an associated transaction a icon will appear at the right side of the entry. A transaction is recorded any time an OpenNode2 operation interacts with any external Node partner.

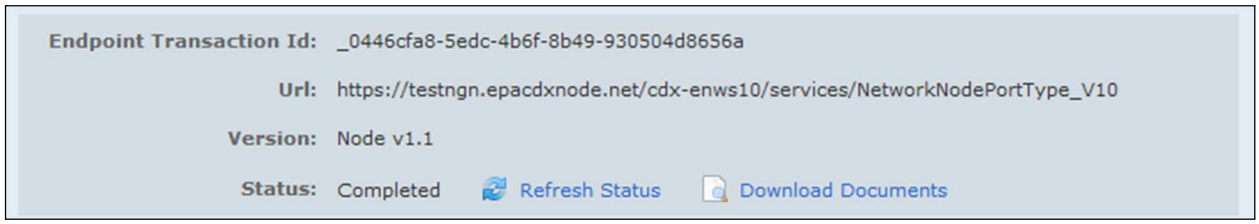
To view the transaction detail for a specific record in the activity log, perform the following steps:

1. Click the icon next to the activity log item in question. The transaction details page will be displayed as illustrated below.
2. Click the **Back** button on your browser to return to the previously displayed activity log entries.



A transaction may be associated with one or more documents. These documents can be downloaded by clicking on the hyperlink for the desired document from the list presented at the bottom of the page.

If a transaction involves a Submit or Solicit operation, an administrator can run a "GetStatus" request against the target node by clicking the **Refresh Status** link at the bottom of the transaction detail screen as shown below. Furthermore, a "Download" can be performed against the remote node for the transaction by clicking the **Download Documents** link shown below.



Profile

About Your Profile

The Profile Tab allows you to review and modify information about your account, including password changes and management of notifications you wish to receive related to the activities of the Node.

Three sections within the Profile tab may be accessed using the toolbar on the left side of the page:

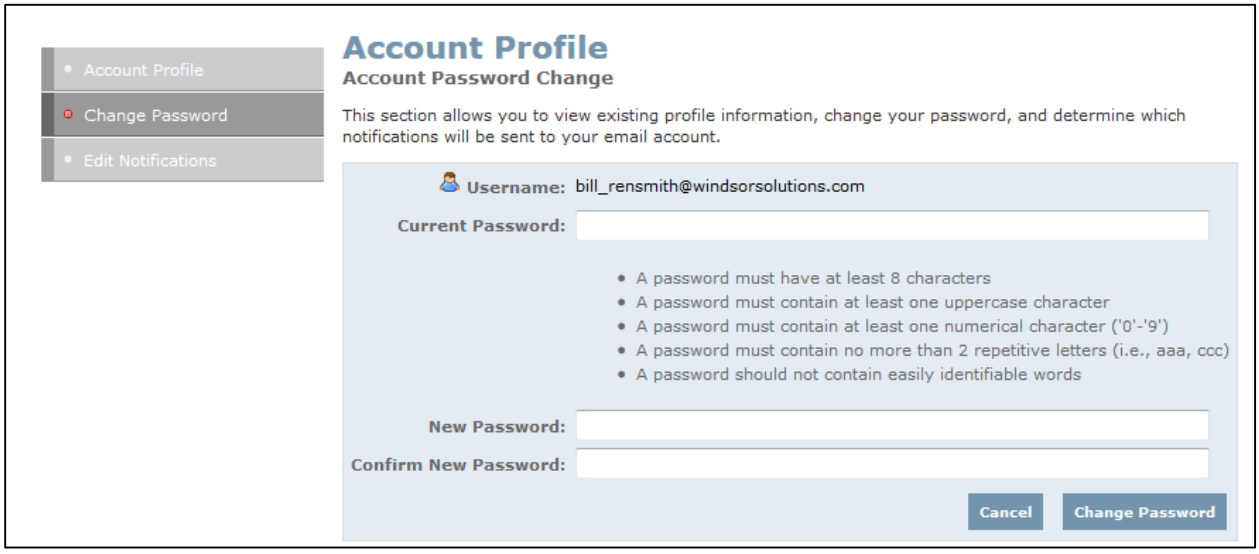
Account Profile	This section allows the currently-logged-in user to view existing profile information.
Change Password	This section allows the currently-logged-in user to change the password for the user account.
Edit Notifications	This section allows for creation, modification, and deletion of notifications for the current user's notification settings.

When the **Profile** tab is selected, the application will initially display the Account Profile section as illustrated below. When selected, the Account Profile section will display a brief summary of your account details.

Change Password

This section allows you to change the password for your account. Note that your password will be updated on the NAAS and will affect all uses of your account.

When selected, the **Change Password** section will display the following page.



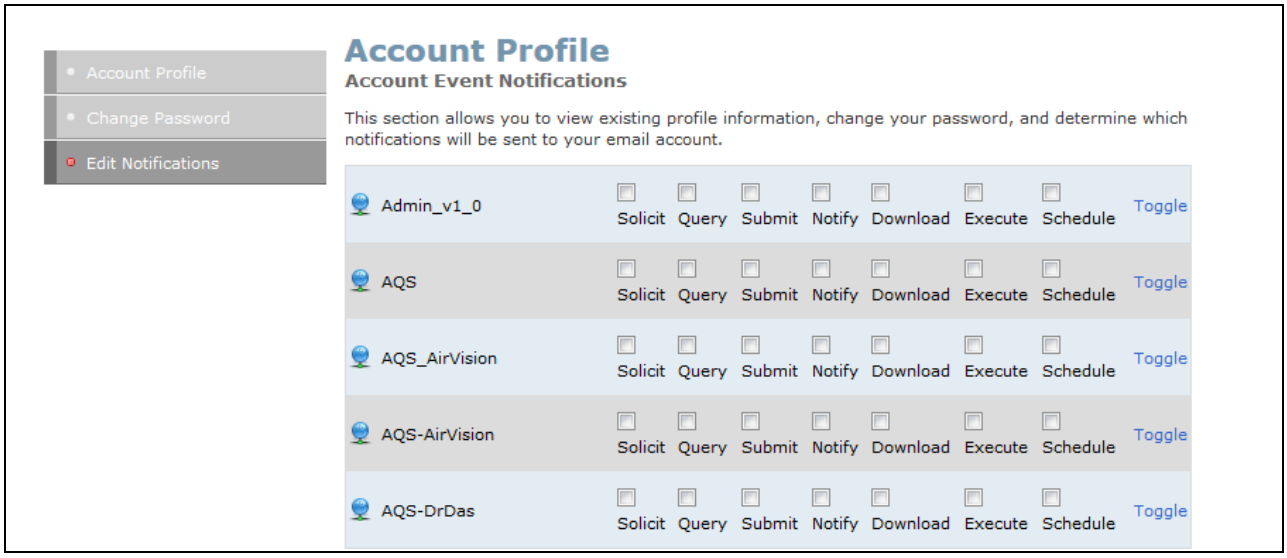
To change your password, perform the following steps:

1. Enter your current password in the **Current Password** field.
2. Enter your new password in the **New Password** field.
3. Re-enter your new password in the **Confirm New Password** field.
4. Click the **Change Password** button to save the changed password to the OpenNode2 metadata database and to NAAS, and return to the Account Profile section.
5. Click the **Cancel** button to discard any changes and return to the Account Profile section.

Edit Notifications

This section allows you to view and modify the notifications that will be sent to your user account email address when certain Data Services are executed by the Node. You may request that you are notified in the event of a particular data service being queried, solicited, downloaded, submitted, executed (for schedules), or notified.

When selected, the Edit Notifications section will display a list of the available data exchanges defined to OpenNode2 together with a series of checkboxes that can be used to indicate that notifications should be sent to you for the relevant Exchange Network primitive operations conducted against each exchange.



To modify notifications for your account, perform the following steps:

1. Check the checkboxes next to each notification event desired. The five notifications options available for each exchange include:

   Solicit The user will be notified if the *Solicit* primitive is invoked for the selected exchange.

   Query The user will be notified if the *Query* primitive is invoked for the selected exchange.

   Submit The user will be notified if the *Submit* primitive is invoked for the selected exchange.

   Notify The user will be notified if the *Notify* primitive is invoked for the selected exchange.

   Execute The user will be notified if the *Execute* primitive is invoked for the selected exchange.

   Schedule The user will be notified if a schedule is executed for the selected exchange.

2. Click the **Toggle** hyperlink to either select or deselect the notification checkboxes for the relevant exchange. Each checkbox will switch from checked to unchecked or vice versa depending on its current state.

3. Click **Save** to save the changes to the notification settings and return to the Account Profile section.

4. Click the **Cancel** button to discard any changes and return to the Account Profile section.

Appendix A: OpenNode2 Included Plug-ins

OpenNode2 version 1.2 and above include 5 preconfigured plug-ins, primarily designed for administrative and maintenance functions.

Admin_v1_0

The Admin flow was created by EPA to allow nodes to publish detailed information about transactions received by the node. These are often also called "Transaction Tracking Services". The Transaction Tracking services allow administrators to search and analyze user activities and other related information associated with a CDX dataflow during a specific period of time**.** At the time of this writing, the FCD has not yet been published to the Exchange Network website.

Services:

GetTransactionCount (Query or Solicit) - The service returns the number of transactions given a set of criteria.

GetTransactionDetail (Query or Solicit) - The service returns the all available transaction details given a transaction Id.

GetTransactionList (Query or Solicit) - The service returns a list of transactions given a set of criteria.

ENDS_v20

The Exchange Network Discovery Service (ENDS) is a set of tools that are intended to provide a centrally hosted, searchable directory of nodes and services on the Exchange Network. Since all Exchange Network Nodes use the same generic WSDL file, nodes cannot self-describe using standard web services technology, thus necessitating the need for a directory service. For additional information about the Exchange Network Discovery Service, visit the Exchange Network website (http://www.exchangenetwork.net/exchange-network-discovery-service-ends/)

Services:

GetServices (Query) - Allows for querying for a list of services, filterable by node name, dataflow, service name, and node version. OpenNode2 gathers the information to deliver in the response from a combination of data in deployment.config and inspection of the Flow and Service data in the OpenNode2 database.

Flow-Security

Services:

BulkAddUsers (Task) – This service is used by the OpenNode2 Admin Security screen.

GetAuthorizedUsers (Query) – This service is used by the OpenNode2 Admin Security screen.

UserAuthorizationRequestSubmitProcessor (Submit) – This service is used to process requests for new accounts submitted to the node. At this time, this service is only accessed from the HERE Client application.

NCT

The Node Certification Test (NCT) data flow is intended to be used to prove that a specific Node 2.0 implementation is capable of responding to all of the Exchange Network primitive commands (Query, Solicit, Submit, Download, etc.). For additional information about the NCT data flow, visit the Exchange Network website (http://www.exchangenetwork.net/node/test.htm)

Services:

Execute_v1.0 (Execute)

Notify_v1.0 (Notify)

Query_v1.0 (Query) – The Query service accepts a single parameter to specify the format (e.g. zipped or, unzipped) of the response. The result set is a response that contains a (sub)set of 10 first level children

Solicit_v1.0 (Solicit) – The Solicit service accepts a single parameter to specify the format (e.g. zipped, or unzipped) of the response. The result set is a canned response that contains a set of 10 first level children.

Submit_v1.0 (Submit) - The Submit service will be used to send a small zipped test file to the candidate Node

Windsor

The Windsor data flow is a set of tasks that perform the routine maintenance tasks of deleting temporary files, and refreshing the list of NAAS users. The schedules for the Windsor tasks are automatically configured when deploying OpenNode2, and scheduled to run daily.

Services:

Clean temporary folder (Task) – The Task service deletes the files generated throughout the day in the temporary folder (the specific temporary folder location is specified in the deployment.config file).

Refresh NAAS Users (Task) – The Task refreshes a local table of NAAS users to improve lookup performance.

Appendix B: Common Tasks

This section lists the steps to perform common tasks on OpenNode2.

Updating the OpenNode2 Default NAAS User Account

OpenNode2 uses an embedded NAAS account username and password to interact with other nodes. OpenNode2 refers to this account as the "Node Runtime" account. This NAAS account is set in an OpenNode2 configuration file. Occasionally, an agency may need to update the NAAS account credentials used by OpenNode2 when the agency's node administrator changes or their email address changes. This section describes the procedure for updating the account used by OpenNode2.

Note: This procedure requires file system access on the OpenNode2 server and direct database access to the OpenNode2 metadata database.

1. On the server that hosts the OpenNode2 Node Orchestration Service (NOS), typically the web server, navigate to the OpenNode2 installation directory. Typically this will be **D:\OpenNode2** or similar.
2. Navigate to the **config** subdirectory and open **deployment.config** in a text editor. This file contains the settings used by OpenNode2.
3. Scroll to the section with the setting for "naas.runtime.id". The value in this field is your existing NAAS account used by OpenNode2 to interact with other partners by default. It will be in the form of an email address.
4. Update the naas.runtime.id and naas.runtime.password to the new NAAS credentials. Save and close the file.
5. Connect to the OpenNode2 metadata database using a database administration tool such as SQL Server Management Studio, TOAD, or Oracle SQL Developer. Log in using an account that has table UPDATE permissions.
6. Open the NAccount table and locate the record with the old NAAS account email address. Update the row with the new NAAS email address set in step 4 above.
7. Open the Services console and locate the OpenNode2 Node Orchestration Service (ONOS) in the list of services. Restart the WNOS service.

If the service restarts correctly, the process has been completed successfully. All future interactions by OpenNode2 with other partner nodes will now use the updated credentials by default. If the service stops immediately, examine the event log to determine the problem. The NAAS account email address used in both step 4 and 6 must be identical or the ONOS service will not restart.