

CROSS-NETWORK DIRECTORY SERVICE PROJECT USER DOCUMENTATION

**Prepared by the Sentinel Operations Center
January 31, 2018
Version: 1.0**

The Sentinel System is sponsored by the [U.S. Food and Drug Administration \(FDA\)](#) to proactively monitor the safety of FDA-regulated medical products and complements other existing FDA safety surveillance capabilities. The Sentinel System is one piece of FDA's [Sentinel Initiative](#), a long-term, multi-faceted effort to develop a national electronic system. Sentinel Collaborators include Data and Academic Partners that provide access to healthcare data and ongoing scientific, technical, methodological, and organizational expertise. The Sentinel Coordinating Center is funded by the FDA through the Department of Health and Human Services (HHS) Contract number HHSF223201400030I. This project was funded by the FDA through HHS Mini-Sentinel contract number HHSF223200910006I.

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Modification History

Version	Date	Modification	By
1.0	01/31/2018	<ul style="list-style-type: none">Initial version	Sentinel Operations Center

I. BACKGROUND

The growing adoption of distributed health data networks to facilitate large-scale evidence generation studies (e.g., comparative safety and effectiveness), as well as other public health activities, provides an opportunity to leverage those investments to create a national resource that enables a true Learning Health System. FDA, PCORI, NIH, ONC, CDC and others are supporting various forms of distributed health data networks. Together, these networking infrastructure investments can be integrated to support needs across funding agencies and the broader public health community.

The PopMedNet™ (PMN) software application currently enables creation, operation, and governance of distributed health data networks. It supports distributed within-network querying for Sentinel, PCORnet, MDPHnet, HCSRN, HMO Cancer Research Network, and NIH Health Care Systems Research Collaboratory.

The Cross-Network Directory Service (CNDS) extends PMN's existing functionality to enable cross-network discovery of potential collaborators and data sources and querying of those sources while enforcing governance rules.

A. SYSTEM OVERVIEW

To minimize the impact on existing networks, CNDS is built gently on top of PMN and leverages the existing PMN application. This is achieved by implementing CNDS as a set of services that can be invoked by PMN instances. In slightly more technical terms, CNDS provides a standard set of functions that PMN can call upon through application programming interfaces (APIs). This design limits the need for software upgrades to networks wishing to take advantage of CNDS capabilities.

Through its APIs, CNDS offers functionality to:

- Process registration requests
- Capture metadata describing users, organizations, registries/research data sets, and queryable data sources
- Enable users to search organization metadata (to identify potential collaborators) and data source metadata (to explore characteristics of electronic healthcare data sources) across networks
- Route requests and responses across networks

B. METADATA

CNDS is powered by metadata—standardized data elements about organizations and data sources. CNDS provides storage and retrieval of metadata about organizations and data sources. Visibility metadata are used to determine what organization and data source metadata can be seen by whom. The data model for storing metadata was designed to enable changes to metadata elements without software redesign or programming. CNDS **Manage Metadata** functionality allows system administrators to quickly and easily add, delete, or modify metadata elements.

C. KEY FUNCTIONAL COMPONENTS

The components necessary for the CNDS—Registration, Discovery, Communication, Governance, and Administration—are described below.

II. FUNCTIONALITY

A. CNDS PORTALS

CNDS is currently implemented in a staging environment.

- The Sentinel CNDS portal can be found here: <https://cndsedge-sentinel.popmednet.org>
- The PCORnet CNDS portal can be found here: <https://cndsedge-pcornet.popmednet.org>

From their network's portal, unregistered users can register and registered users can log in to CNDS.

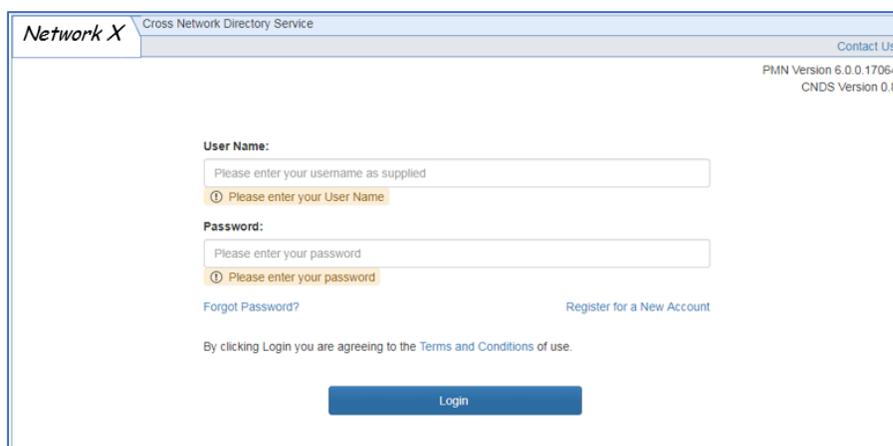
B. REGISTRATION

The Registration component of CNDS enables users to request an account and enter metadata about themselves, their organizations and their data resources, and determine what metadata others can see.

1. Request Account

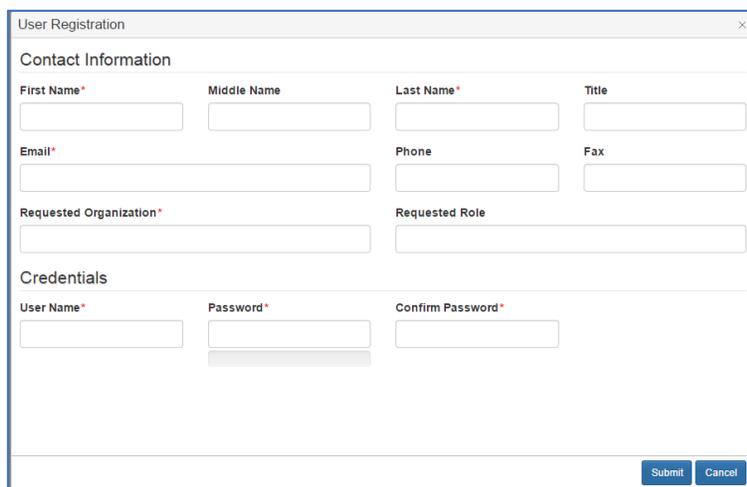
Prospective users will be able to register through the CNDS portal for their network. To register:

- Click on the "Register for a New Account" link.



The screenshot shows the 'Network X' login page for 'Cross Network Directory Service'. The page includes a 'Contact Us' link, version information (PMN Version 6.0.0.17064, CNDS Version 0.8), and a login form. The form has two input fields: 'User Name' with a placeholder 'Please enter your username as supplied' and a red asterisk indicating it is required; and 'Password' with a placeholder 'Please enter your password' and a red asterisk. Below the password field is a 'Forgot Password?' link and a 'Register for a New Account' link. At the bottom of the form is a 'Login' button. A note at the bottom states: 'By clicking Login you are agreeing to the Terms and Conditions of use.'

- Enter at least the required information (noted by red asterisks).
- Click submit.

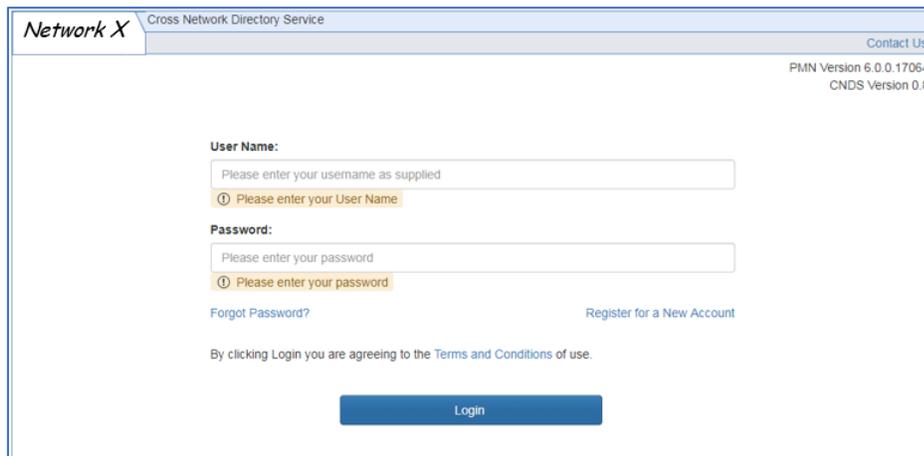


The screenshot shows the 'User Registration' form. It is divided into two main sections: 'Contact Information' and 'Credentials'. The 'Contact Information' section includes fields for 'First Name*', 'Middle Name', 'Last Name*', 'Title', 'Email*', 'Phone', 'Fax', 'Requested Organization*', and 'Requested Role'. The 'Credentials' section includes fields for 'User Name*', 'Password*', and 'Confirm Password*'. All required fields are marked with a red asterisk. At the bottom right of the form are 'Submit' and 'Cancel' buttons.

2. Login

Registered users will be able to log in through the CNDS portal for their network.

- Enter user name and password.
- Click the “Login” button.



Network X Cross Network Directory Service

Contact Us

PMN Version 6.0.0.17064
CNDS Version 0.8

User Name:
Please enter your username as supplied
Please enter your User Name

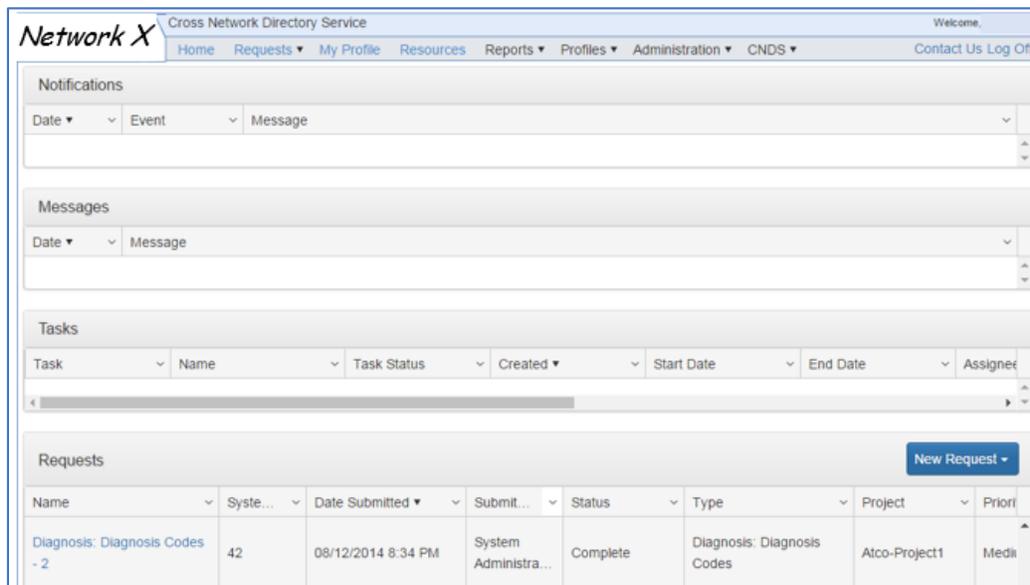
Password:
Please enter your password
Please enter your password

[Forgot Password?](#) [Register for a New Account](#)

By clicking Login you are agreeing to the Terms and Conditions of use.

Login

Once registered and logged in, a user has access to the main menu as seen in the screen shot below. It is much like the PMN main menu, except: the “Profile” menu in PMN is called “My Profile” in CNDS; the “Network” menu in PMN is split into a “Profiles” and an “Administration” menu; and CNDS has a “CNDS” menu.



Network X Cross Network Directory Service

Welcome.

Home Requests My Profile Resources Reports Profiles Administration CNDS Contact Us Log Off

Notifications

Date	Event	Message

Messages

Date	Message

Tasks

Task	Name	Task Status	Created	Start Date	End Date	Assigned

Requests [New Request](#)

Name	System	Date Submitted	Submitted By	Status	Type	Project	Priority
Diagnosis: Diagnosis Codes - 2	42	08/12/2014 8:34 PM	System Administra...	Complete	Diagnosis: Diagnosis Codes	Atco-Project1	Medi...

3. Enter User, Organization, and Date Source Metadata

Users can enter their user metadata and, with sufficient permission, their organization and data source metadata, as well.

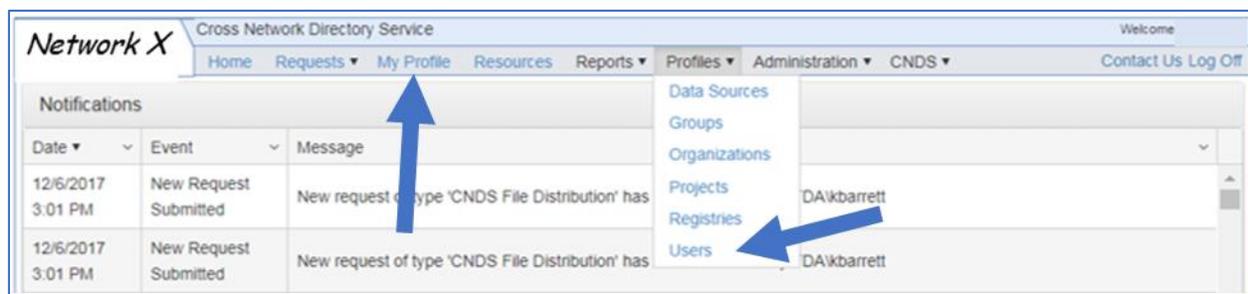
Note that there is an issue with the user interface when entering User, Organization, and Data Source Profile information. You need to be careful to check the parent when you check a child. In the example below, if you had checked “Glucose” but not “Laboratory Tests”, someone searching for either “Glucose” or “Laboratory Tests” would not discover that you have these data.

<input checked="" type="checkbox"/> Laboratory Tests
<input type="checkbox"/> Bilirubin
<input checked="" type="checkbox"/> Glucose

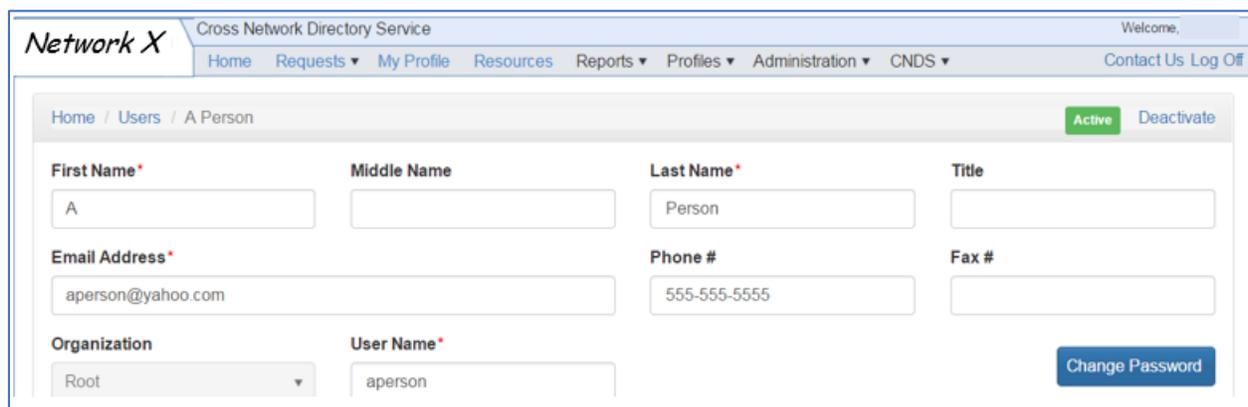
a) Enter User Profile

To enter user metadata either click on:

- “Profiles”
 - “Users”
- or
- “My Profile”



- Enter at least the required information (noted by red asterisks).

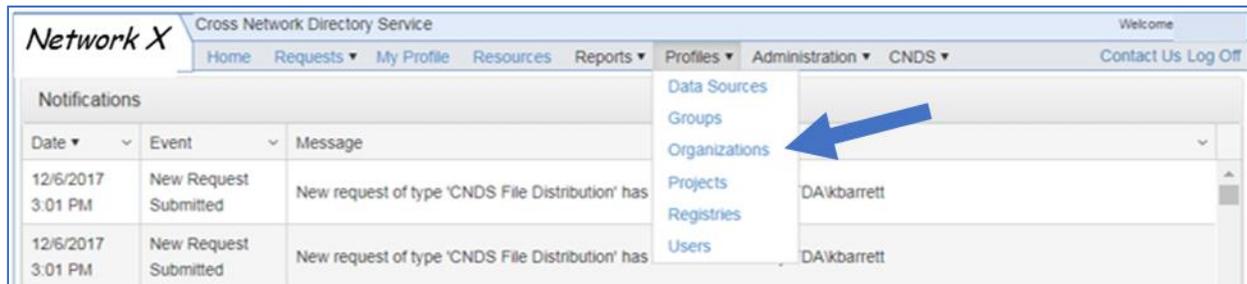


Home / Users / A Person	Active	Deactivate	
First Name*	Middle Name	Last Name*	Title
A		Person	
Email Address*	Phone #	Fax #	
aperson@yahoo.com	555-555-5555		
Organization	User Name*	Change Password	
Root	aperson		

b) Enter Organization Profile

To enter organization metadata either click on:

- “Profiles”
- “Organizations”



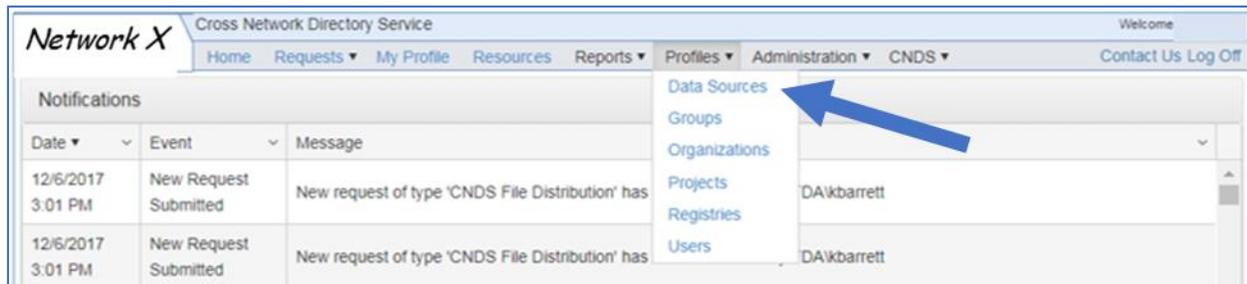
- Select the “Organization Metadata” tab
- Enter at least the required information (noted by red asterisks).

The screenshot shows the 'Organization Metadata' form in the Network X Cross Network Directory Service. The 'Organization Metadata' tab is circled in red. The form includes fields for Organization Name*, Acronym*, and Parent Organization. Below these are fields for Contact First Name, Contact Last Name, Contact Phone, and Contact Email. The form also features several sections of checkboxes for Degrees (PhD, MD, MS, MPH), Credentials (MS, RN, MD, MA, LICSW, Phd), and EHR System(s) Used (eClinicalWorks, Allscripts, AthenaHealth, PracticeFusion, Cerner, Epic, Kareo, Custom Solution). A 'Type of Organization' dropdown menu is located at the bottom of the form.

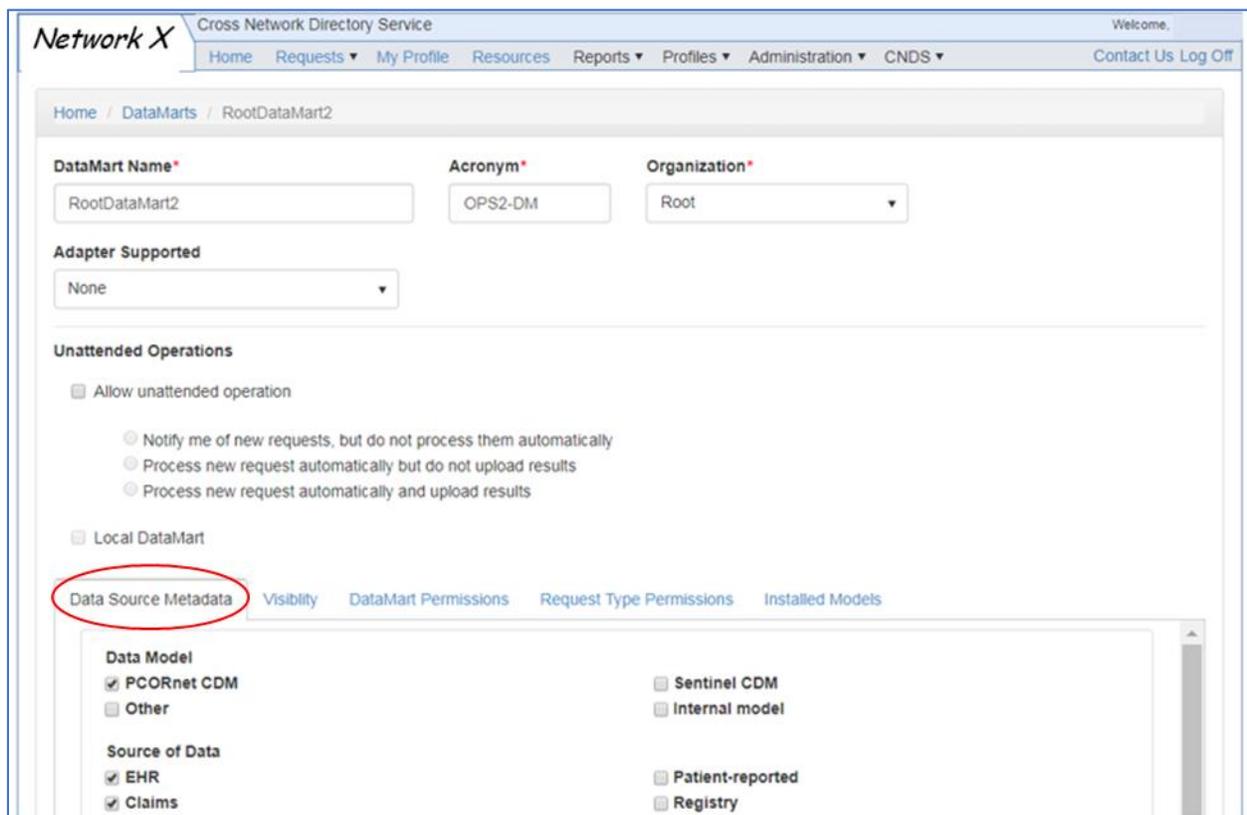
c) Enter Data Source Profile

To enter data source metadata, click on:

- “Profiles”
- “Data Sources”



- Select the “Data Source Metadata” tab
- Enter at least the required information (noted by red asterisks).



4. Enter Visibility Restrictions

CNDS governance is largely implemented through “Visibility”. That is, users with sufficient rights can indicate “who” can see “what”. The “what” is each metadata point (e.g., “Types of Data Collected”). The “who”, from the user’s perspective, is:

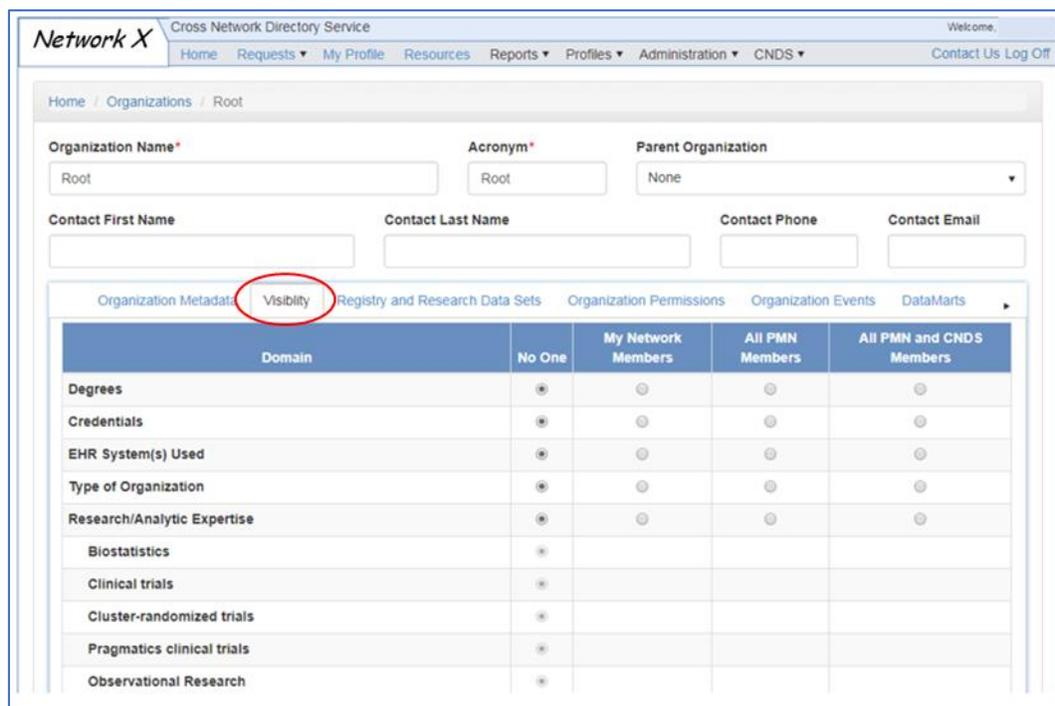
- No one (i.e., just myself and the system administrators)
- Registrants in my network
- Registrants in any PMN network
- Registrants in CNDS

a) Enter Organization Visibility Metadata

- From “Profiles - Organizations” select the “Visibility” tab

In the example below, a member of Root organization has indicated that no one (i.e., other than themselves and system administrators) should be able to find their organization metadata. If someone does a search for organizations with clinical trial expertise, Root organization will not be revealed in the search result set.

Note that a child cannot be anymore visible than its parent. In the screenshot below, to set “Biostatistics” to “All PMN Members”, the user would need to set “Research/Analytic Expertise” to “All PMN Members” (or to the wider group “All PMN and CNDS Members”). This would set all the children to the wider visibility. The user could then set any of the children to a narrower visibility, if desired.



The screenshot shows the 'Network X' interface for 'Cross Network Directory Service'. The user is logged in as 'Welcome'. The navigation menu includes Home, Requests, My Profile, Resources, Reports, Profiles, Administration, and CNDS. The current page is 'Organizations / Root'. The form shows 'Organization Name' as 'Root', 'Acronym' as 'Root', and 'Parent Organization' as 'None'. There are fields for 'Contact First Name', 'Contact Last Name', 'Contact Phone', and 'Contact Email'. Below the form, there are tabs for 'Organization Metadata', 'Registry and Research Data Sets', 'Organization Permissions', 'Organization Events', and 'DataMarts'. The 'Organization Metadata' tab is selected, and the 'Visibility' sub-tab is circled in red. The table below shows the visibility settings for various metadata points.

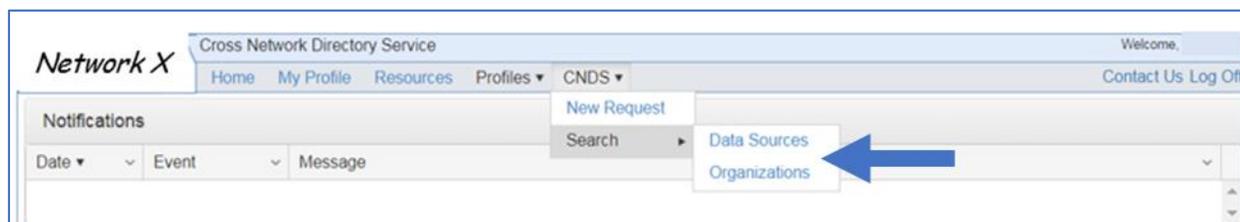
Domain	No One	My Network Members	All PMN Members	All PMN and CNDS Members
Degrees	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Credentials	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
EHR System(s) Used	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type of Organization	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research/Analytic Expertise	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biostatistics	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clinical trials	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cluster-randomized trials	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pragmatics clinical trials	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Observational Research	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

C. DISCOVERY

The Discovery component enables users to search the metadata, entered as part of registration, to find new data sources and potential organizations with which to collaborate.

Like the CNDS data model, it is designed flexibly so that the application does not require re-programming as the metadata change. That is, the list of elements that can be searched is automatically generated from the metadata stored in the database. The result set returned from a search is constrained by the visibility level set by the metadata owner (See **Governance**).

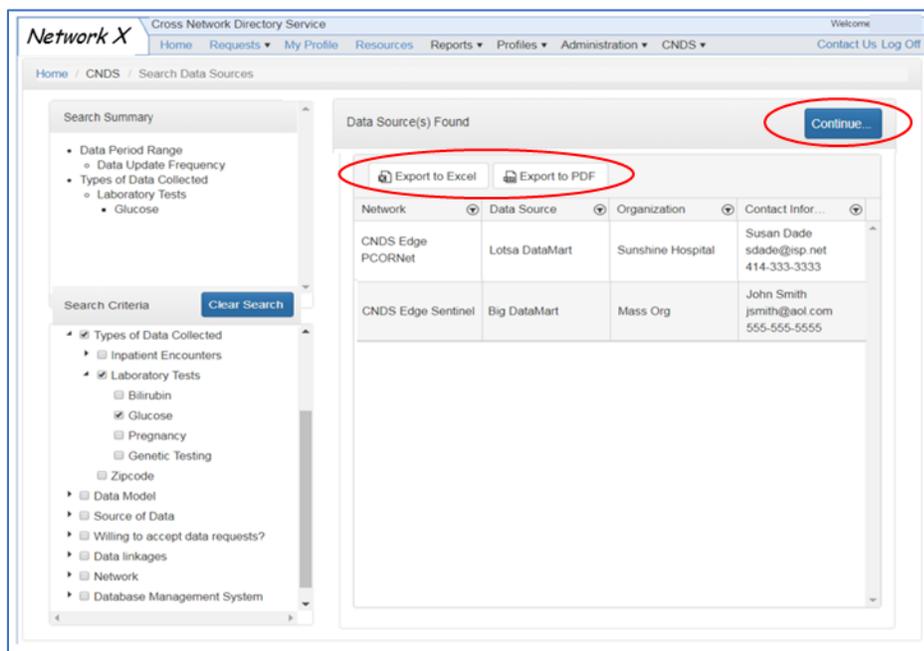
- From the CNDS menu, select Search and then either Data Sources or Organizations.



1. Search Data Sources

In the example that follows, a user from the fictitious Network X searches for data sources with a certain type of lab result data.

- The user makes selections, through a hierarchical set of domains. (Note: To expand hierarchical options, click on the arrow to the left of the parent. To select a domain, check the box to its left). In this case, the user has followed these steps:
 - Expand “Types of Data Collected”
 - Scroll down and expand “Laboratory Test Results”
 - Select Glucose
- The application returns a result set with two Data Sources—Lotsa DataMart and Big DataMart.
- The result set returned has been constrained by the visibility level set by the metadata owners (See **Governance** for details). There may be additional data sources in CNDS that have glucose lab results, but none that have chosen to make that visible to the user doing this search. In this example, the user doing the search is in the Network X. The two data sources returned are in the PCORnet and Sentinel networks, respectively. For these data sources to be found by Network X, the data source owners must have indicated the visibility level for the data in question to be either “Any PMN network” or “Any CNDS member”.
- Having found data sources that collect the data of interest (i.e., Lotsa DataMart and Big DataMart), the user can either communicate off-line by clicking on “Export to Excel” or “Export to PDF” or send a request to the owners of the identified data sources through CNDS by clicking on “Continue...” and following instructions on the subsequent screens. (For next steps, go to **Communication**)



2. Search Organizations

Searching organizations functions exactly like **Search Data Sources** above with the exception that the only option in the last step is to export the contact information and communicate off-line – that is, requests cannot be sent directly through CNDS.

D. COMMUNICATION

PMN provides functionality for creating, distributing, and responding to a variety of request types. It sends related email notifications within a single PMN network. CNDS extends these capabilities across networks by mapping common request types used by multiple networks. Using CNDS, users can send and receive requests, regardless of network affiliation, according to the governance rules of the recipients.

Picking up from where we left off in Discovery, the user can opt to send a data request directly to the DataMarts found. Requestors and recipients will receive automatic email notifications of all updates to the status of requests. Due to the complexities of other request types and differences in data models, this first version of CNDS provides functionality for sending file distribution requests only.

What follows is an example of Communication after the user has completed the search in **Search Data Sources** above and has clicked on “New Request”. In this example, the user from the Network X “discovers” two data sources outside their network—Big DataMart and Lotsa DataMart—that have glucose laboratory test results and has selected to send them a data request.

1. Send a Request – Select Data Sources

- By default, only compatible data sources are displayed on this screen (i.e., DataMarts to which requests can be directly sent). The DataMarts returned from the search are checked. The user can deselect DataMarts returned from the search by unchecking them or select others by checking them.
- Select “Select Request Type”.

Select the DataMarts you would like to include in your request.

<input checked="" type="checkbox"/>	Data Source	Acronym	Organization	Network	Adapter
<input checked="" type="checkbox"/>	Lotsa DataMart	SHDM	Sunshine Hospital	CNDS Edge PCORnet	Modular Program
<input checked="" type="checkbox"/>	Big DataMart	ML	Mass Org	CNDS Edge Sentinel	Modular Program

[Select Request Type](#)

2. Send a Request – Select the Request Type

- On this screen, the user can see the selected Data Sources – the ones listed as “Not Supported” have not been properly mapped. (For an explanation of request type mapping see **Manage Request Type Mappings**).
- Select a Project/Request Type pair – in this case CNDS/File Distribution Request

Select the Request Project and Type

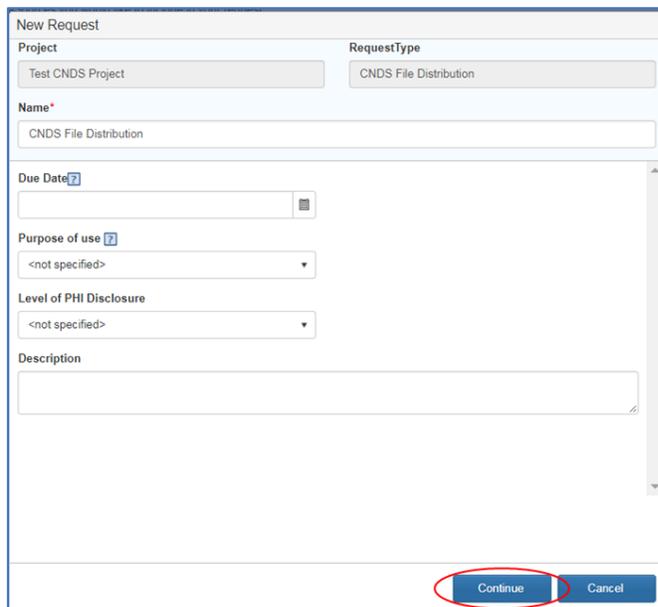
CNDS Project / CNDS File Distribution

Supported Selected DataMarts			
Network	Project	Data Source	Request Type
CNDS Edge Sentinel	CNDS Project	Lotsa DataMart	CNDS File Distribution
CNDS Edge Sentinel	CNDS Project	Big DataMart	CNDS File Distribution

[Cancel](#)

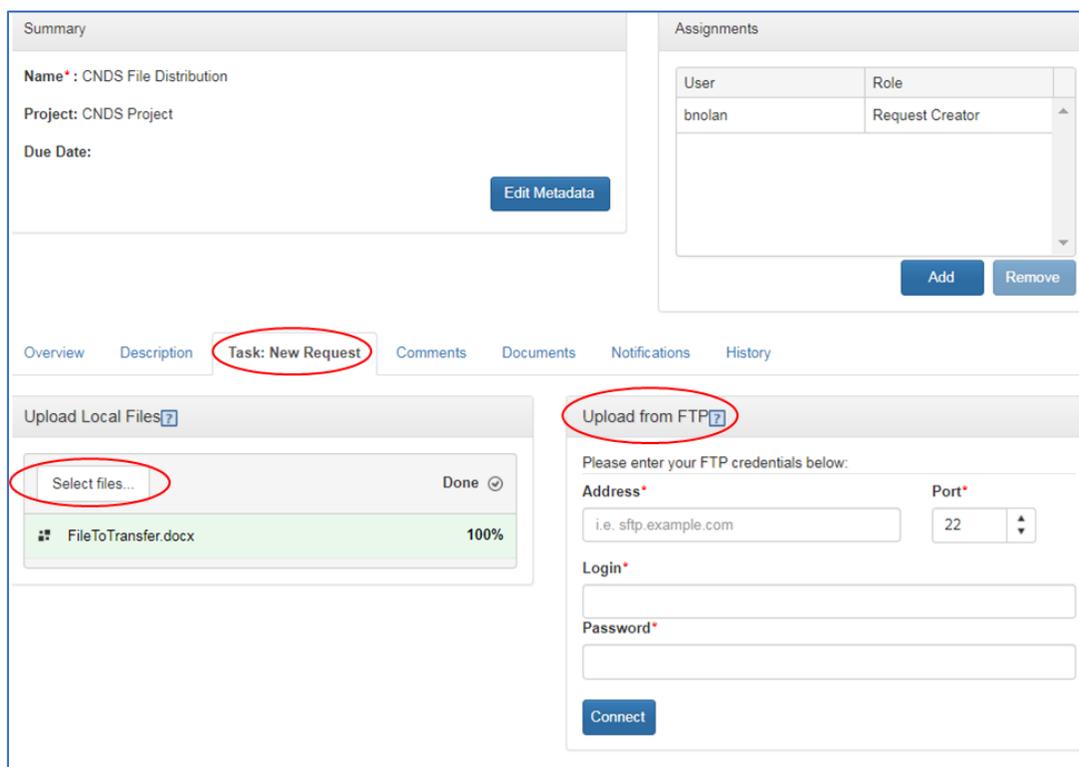
3. Send a Request – Fill Out the Request Form

- Fill out the Request Form
- Click “Continue”.



4. Send a Request – Upload File(s)

- Select the “Task: New Request” tab
- Select file(s) to upload either from either a local drive or an FTP site



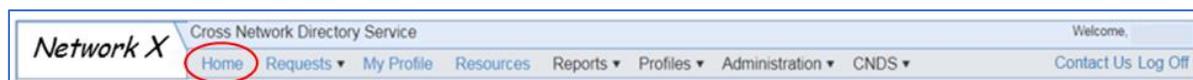
5. Send a Request – Finalizing DataMart Selection

- Scroll down to “Selected DataMarts”
- The DataMarts returned from the search—Lotsa DataMart and Big DataMart—are checked. The user could choose not to send the request to either of these DataMarts by unchecking them.
- The user can also choose to send to any of the local DataMarts that were not part of the search result set by checking them. (This might come in handy if, for example, the user knows the local DataMart does have the data of interest, but the CNDS metadata are not up-to-date).
- Click “Submit”

The screenshot shows a web interface for selecting DataMarts. It is divided into two main sections: 'External DataSources' and 'Local DataSources'. Each section contains a table with columns for 'Route (Network / Project / RequestType / DataSource)', 'Priority', and 'Due Date'. In the 'External DataSources' section, two rows are checked: 'CNDS Edge Sentinel / CNDS Project / CNDS File Distribution / Lotsa DataMart' and 'CNDS Edge Sentinel / CNDS Project / CNDS File Distribution / Big DataMart'. In the 'Local DataSources' section, four rows are listed with unchecked checkboxes: 'KB University PCORnet DataMart B', 'Zebra Health Center DataMart', and 'Test Org B DataMart CNDS'. Below the tables are buttons for 'Select All', 'Clear All', and 'Bulk Edit'. At the bottom of the form are buttons for 'Copy', 'Save', 'Submit', and 'Cancel'. A red circle highlights the 'Submit' button.

6. View Request Status

- Once the request is submitted, the requester can view its status from the “Home” screen



- Scroll down to “Requests”
- Click on the request sent
- Click on the “Task: Complete Distribution” tab
- In this example, we see Lotsa DataMart and Big DataMart in the “Incomplete Routings” section
- Once they respond to the request, they will appear in the “Completed Routings” section
- Recipients can also see the status of their requests by following the same steps

Overview Description **Task: Complete Distribution** Comments Documents History

Completed Routings

<input checked="" type="checkbox"/>	DataMart	Status	Message	History
<input type="button" value="Group"/> <input type="button" value="Ungroup"/> <input type="button" value="Resubmit"/>				

Incomplete Routings

<input checked="" type="checkbox"/>	DataMart	Status	Priority	Due Date	Message	History
<input type="checkbox"/>	f317ab61-93f2-41f2-b0fe-a7d100ef06ec	Submitted	Medium			[History]
<input type="button" value="Bulk Edit"/> <input type="button" value="Add DataMart"/> <input type="button" value="Remove DataMart"/> <input type="button" value="Edit Routing Status"/>						

7. Respond to a Request

- This step will be familiar to PopMedNet users.
- The recipient can open the request in the DataMart Client (DMC)
- Click on the request

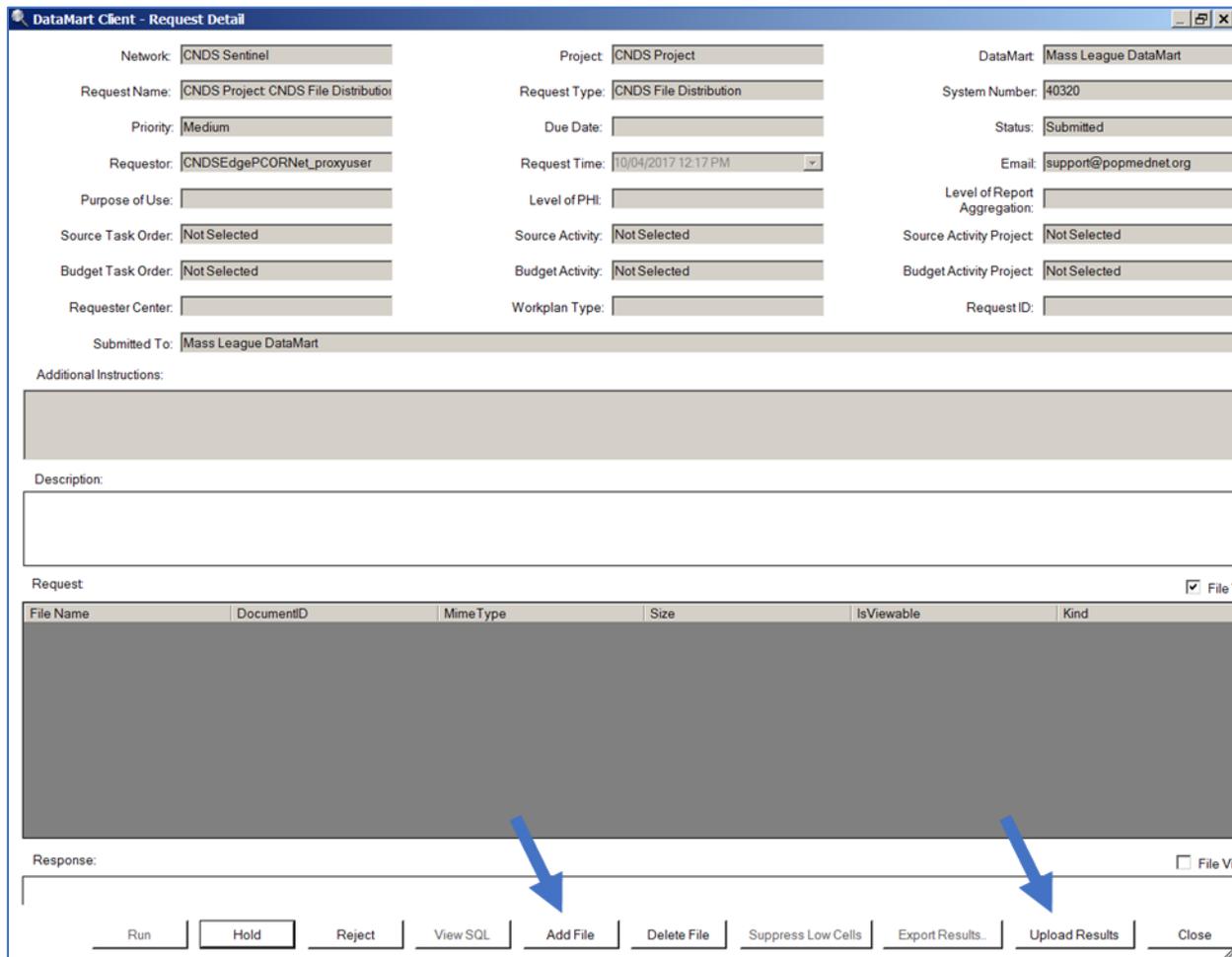
CNDS Sentinel | Sentinel | Sentinel Production | CNDS PCORnet

DataMarts: All Status: All Dates: []

Project	Request Type	Request Model	Request Name	Request ID	Priority	Due Date	Status	Requestor	Request Time	DataMart Name	Responder	Response Time	System Number
CNDS Project	CNDS File D...	Modular Pro...	CNDS Proje...		Medium		Submitted	CNDEdge...	10/4/2017 12...	Big DataMart			40320
CNDS Project	CNDS File D...	Modular Pro...	CNDS Proje...		Medium	9/8/2017	Completed	CNDEdge...	9/5/2017 2.2...	Humana Dat...	qma1	9/14/2017 11...	40311

Page size: 25 Start with Windows Automatic Refresh |< < 1 / 1 > >

- Click “Add File”
- Browse for and select the file that responds to the request
- Click “Upload Results”



DataMart Client - Request Detail

Network: Project: DataMart:

Request Name: Request Type: System Number:

Priority: Due Date:

Requestor: Request Time: Email:

Purpose of Use: Level of PHI:

Source Task Order: Source Activity: Level of Report Aggregation:

Budget Task Order: Budget Activity: Source Activity Project:

Requester Center: Workplan Type: Budget Activity Project:

Submitted To: Request ID:

Additional Instructions:

Description:

Request

File Name	DocumentID	MimeType	Size	IsViewable	Kind

Response:

Run Hold Reject View SQL **Add File** Delete File Suppress Low Cells Export Results.. **Upload Results** Close

8. Web Sources with Further Information

For further information please visit these web pages:

- [Sending PopMedNet requests](#)
- [Responding to PopMedNet requests](#)

E. GOVERNANCE

1. Visibility

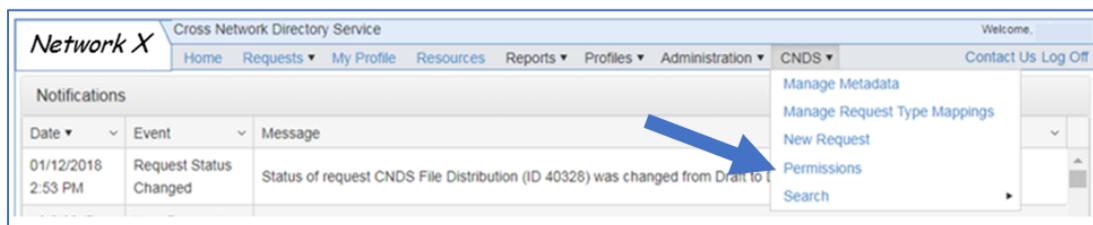
The underpinning of CNDS governance is the ability to encode visibility rules in metadata (via the Registration function) and enforce those rules while searching for organizations or data sources (via the Discovery function). Visibility rules identify who is authorized to see each organization and data source metadata element. Users can tag metadata elements as being visible to:

- No one (i.e., just myself and the system administrators)
- Registrants in my network
- Registrants in any PMN network
- Registrants in CNDS

2. Access Controls

PMN provides an extensive set of access controls which are also available to CNDS. They control every aspect of use of the application, for example: adding, editing, deleting, and viewing users, organizations, and DataMarts; responding to, rejecting, and uploading results; managing security; and running audit reports.

Users with sufficient permission can set others' permissions here.



CNDS implements the following additional access controls:

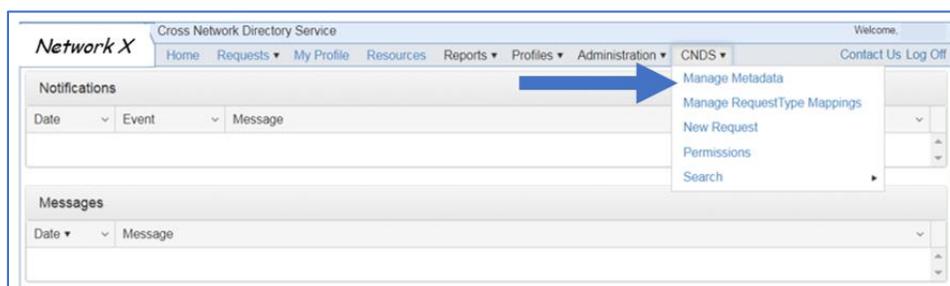
Component	Access Control	Description
Discovery	Search CNDS	Governs whether the user sees the "search" menu item used to access CNDS search and therefore whether the user can access CNDS search functionality. No additional levels of governance are applied for accessing search. Users without this permission cannot see the "Search" option in the CNDS menu.
Communication	Create CNDS Request	Governs the ability to create a request that will be sent to DataMarts in and out of network. Users who have this permission can create a request from the results of a Discovery search. Existing PMN permissions govern all other request creation functionality (e.g., edit, copy, and distribute requests).
Communication	Map Request Type	Governs the ability to associate a request type in one network with a request type in another network. Users without this permission cannot see the "Manage Request Type Mappings" option in the CNDS menu.
Governance	Manage Metadata	Governs the ability to perform all functions related to metadata management including adding, editing, deleting domains, and assigning domains to organization and/or data sources. Users without

Component	Access Control	Description
		this permission cannot see the "Manage Metadata" option in the CNDS menu.
Governance	Manage CNDS Access & Permissions	Governs the ability to set CNDS permissions for security groups and assign users to CNDS security groups. Users without this permission cannot see the "Permissions" option in the CNDS menu.
Governance	Create CNDS Security Group	Governs the ability to create a CNDS security group
Governance	Edit CNDS Security Group	Governs the ability to edit the description/name of a CNDS security group. (Note: It does not govern the ability to assign permissions to the security group. This is covered by the access control "Manage CNDS Access & Permissions").
Governance	Delete CNDS Security Group	Governs the ability to delete a CNDS security group. Deleting is performed by clicking "remove" in associated row of the security group table. Deleting will remove the group from the CNDS database and all profiles to which it is assigned.

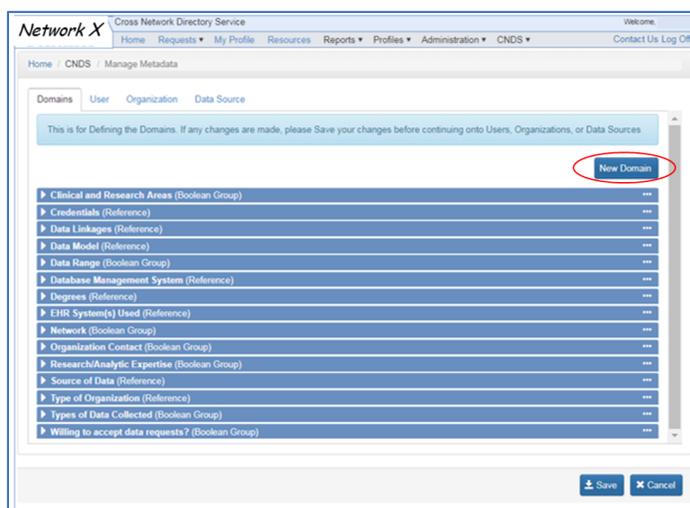
F. ADMINISTRATION

1. Manage Metadata

Users with sufficient permissions can manage metadata. They can add, edit, or delete metadata elements by selecting "CNDS – Manage Metadata".

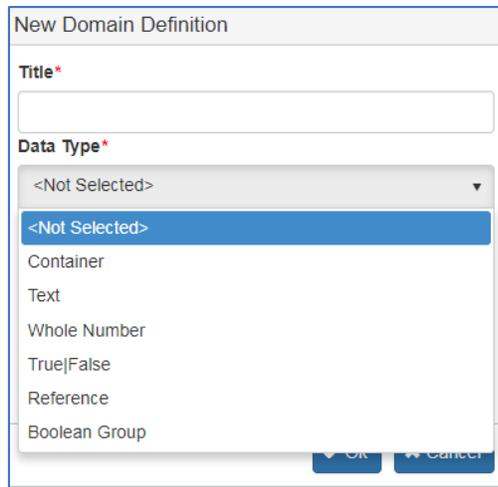


- From the screen below, select "New Domain"



a) Create a New Domain

- In this example, the domain “Data Model” is being created.
- The user must assign a data type and, in this case, selects “Reference”¹.



b) Add Reference Values

In the example below, the metadata field “Data Model” created in the previous step is expanded. The user has added four possible values for Data Model: PCORnet CDM, Sentinel CDM, Internal Model, Other. Because “Supports Multi-Value Selection” is checked, users will be able to select any, or all, of these values for the domain “Data Model”. This was accomplished through the following steps for each of the four values:

- Select the “New Domain” button to add values for the reference.
- The “Title” box is where to enter the value that will appear to users when entering and searching.
- The “Description” box is where to enter a more complete description of the value.
- When done entering each value, click the “Update” button.
- Later these reference values can be edited using the “Edit” button.
- If “Supports Multi-Value Selection” is checked, users will be able to select more than one value for the reference from a set of checkboxes. If it is unchecked, only one value will be allowed.

¹ For a description of the metadata types, see the section on Administration – Manage Metadata in the *ASPE CNDS Design and Technical Documentation*. Note that the metadata type called “Container” is not fully implemented in this version of the software and should not be used.

New Domain

References Supports Multi-Value Selection

Title	Description	
PCORnet CDM	PCORnet Common Data Model	<input type="button" value="Edit"/> <input type="button" value="Remove"/>
Sentinel CDM	Sentinel Common Data Model	<input type="button" value="Edit"/> <input type="button" value="Remove"/>
Internal Model	A model specific to a particular data source	<input type="button" value="Edit"/> <input type="button" value="Remove"/>
<input type="text" value="Other"/>	A model other than those listed above	<input checked="" type="button" value="Update"/> <input type="button" value="Cancel"/>

c) Associate Domains with Resources

The last step in creating domains is to indicate which resources (i.e., organizations or data sources) they are associated with.

- Click on the “Data Source” tab.
- Indicate which metadata elements are to be associated with data source.
- In this example, several domains (e.g., Data Period Range, Types of Data Collected) have been checked. This means that when users select “Profiles – Data Sources” to indicate what data exist in their data source and set visibility, they will see these domains.
- The “Organization” tab works the same way.

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Domains User Organization **Data Source**

Select the metadata definitions that are applicable for the Data Source entity type.

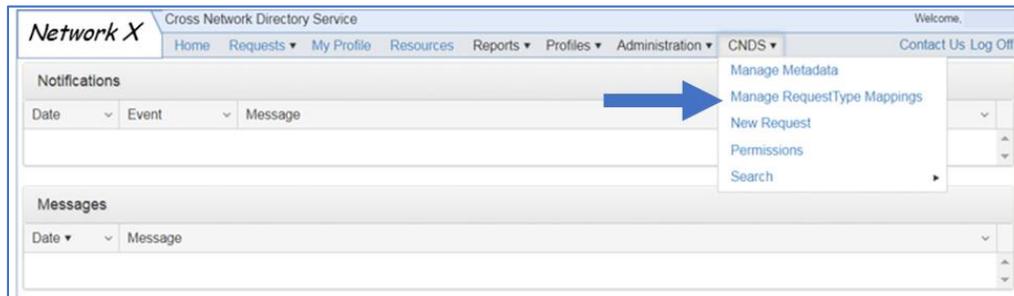
- Data Period Range
- All data types
- Research/Analytic Expertise
- Types of Data Collected
- Data Model
- Source of Data
- Degrees
- Clinical and research areas
- Willing to accept data requests?
- Credentials
- Organization Contact
- Data linkages
- Network

2. Manage Request Type Mappings

Before users can send cross-network requests, a user with CNDS administrator permissions must map request types and DataMarts between the two networks. These mappings indicate which networks can submit specified types of requests to target DataMarts. The following steps show how an administrator would create a new request type mapping.

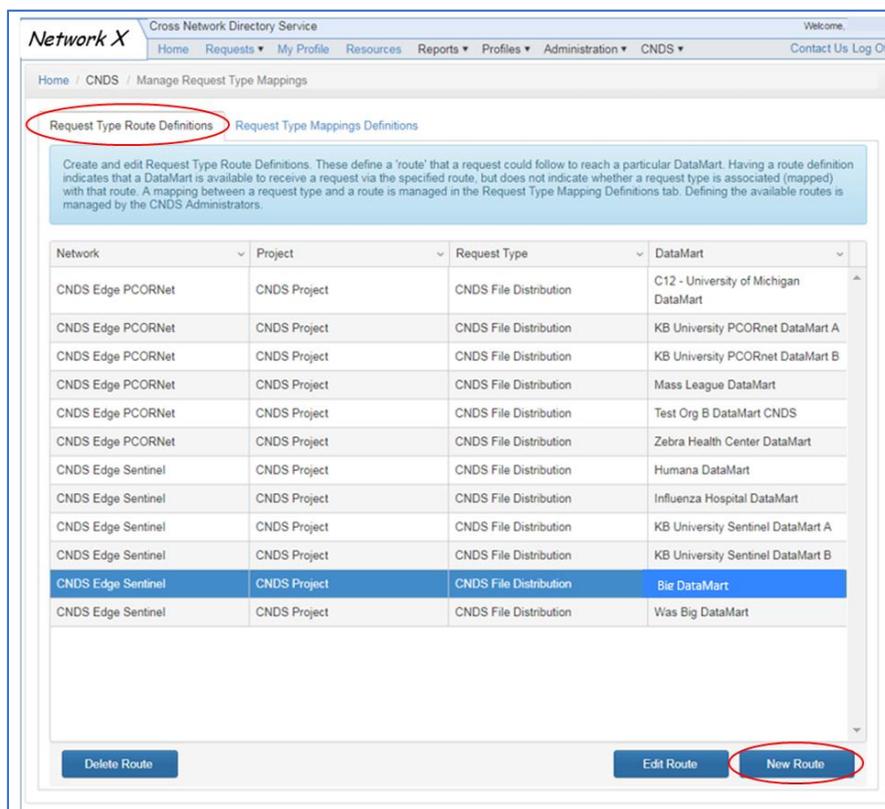
- From the CNDS menu, click on “Manage Request Type Mappings”

a) Select Manage Request Type Mappings



The first step in the mapping process is to identify a target data source whose owner is willing to receive requests from outside its network and the type of request(s) allowed. Creating a new route to the data source indicates that the DataMart is available to receive a cross network request.

- Select the tab “Request Type Route Definitions”
- Select “New Route”



- Fill in the recipient data source information and the request type the owner is willing to receive from other networks, as below and select “OK”.

New RequestType Route Definition

Network*

Project*

RequestType*

DataSource*

Because request types in each network are defined independently, the second step in the mapping process is required to indicate which request type (from the sender’s network) can be submitted to a recipient DataMart. Mappings define the link between a sender’s request type and the DataMarts that are available to process that request type.

- Select the tab “Request Type Mappings Definitions”
- Select “New Mapping”

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Request Type Route Definitions **Request Type Mappings Definitions**

Create and edit Request Type Mapping Definitions. The mappings define the links between request types and any available routes to DataMarts. In order to send cross-network requests, a request type must be mapped to follow routes which were previously defined in the Request Type Route Definitions tab. A mapping indicates that the request type can be submitted to the specified DataMart. Defining the mappings is managed by the CNDS Administrators.

Network	Project	Request Type
CNDS Edge PCORNet	CNDS Project	CNDS File Distribution
CNDS Edge Sentinel	CNDS Project	CNDS File Distribution

As shown in the screenshot below the administrator:

- Fills in the sender's network and the request type
- Selects from the list of available DataMarts (i.e, DataMarts that have indicated in the "Request Type Route Definitions" tab that they are able to receive and process the sender's specified request type).

New RequestType Mapping Definition

Source Network RequestType

Network* **Project***

CNDS Edge PCORNet CNDS Project

RequestType*

CNDS File Distribution

RequestType Route Definitions

Select the routes the source request type could submit requests to. Only routes that belong to a Project different that the source Project are available for selection.

	Network	Project	RequestType	DataSource
<input type="checkbox"/>	CNDS Edge Sentinel	CNDS Project	CNDS File Distribution	Big DataMart
<input checked="" type="checkbox"/>	CNDS Edge Sentinel	CNDS Project	CNDS File Distribution	Humana DataMart
<input checked="" type="checkbox"/>	CNDS Edge Sentinel	CNDS Project	CNDS File Distribution	Influenza Hospital DataMart
<input checked="" type="checkbox"/>	CNDS Edge Sentinel	CNDS Project	CNDS File Distribution	KB University Sentinel DataMart A
<input type="checkbox"/>	CNDS Edge Sentinel	CNDS Project	CNDS File Distribution	KB University Sentinel DataMart B
<input type="checkbox"/>	CNDS Edge Sentinel	CNDS Project	CNDS File Distribution	Test Org A