

## CIM Identities Web Services Test Cases

This program comes with two different clients, a desktop and web browser version. Despite similar appearances, test cases will be presented for both versions. The web browser version is more robust and could be easily modified to add other functionality if needed by the developer, while the desktop version would require more effort to make changes due to the IDE-specific code used to build it.

### CIMIdentitiesJSP

CIMIdentitiesJSP is a JSP (Java Server Page) meant to be viewed in a web browser. This version was tested in Chrome Version 60.0.3112.90. Appearance and functionality of the program may vary across web browsers.

EPRI Enter Data View Database Query

[Github: Source Code](#)

**Name**

Name  
Name

**Name Type**

Name  
Name

Description  
Description

**Name Type Authority**

Name  
Name

Description  
Description

☒ Randomly Generate UUID  
☐ Enter UUID Here:

☒ Insert  
☐ Modify  
☐ Delete

save

Figure 1: Home page of the CIMIdentitiesJSP service, built using Bootstrap template provided by w3schools

The “Enter Data” page provides the user the ability to insert, modify, or delete data within the CIMIdentities database.

## Insert

The CIMIdentities.xsd describes a minimum occurrence of 0 for every data field, so theoretically a blank entry could be inserted (it would be given a UUID, however). In practice, a name combined with a Name Type name is what gives a CIM Identity its true uniqueness rather than the UUID, so the min occurrence would be changed to 1 and the code would need to be modified appropriately by not allowing null/empty string values.

### 1) Inserting Blank Data

The screenshot shows a web application interface for data entry. At the top is a dark navigation bar with the following tabs: **EPRI**, **Enter Data**, **View Database**, and **Query**. Below the navigation bar, on the left, is a link: [Github: Source Code](#).

The main content area is divided into three sections, each with a title and a form:

- Name**: Contains a text input field labeled "Name" and a dropdown menu.
- Name Type**: Contains a text input field labeled "Name", a dropdown menu, and a text input field labeled "Description" with a dropdown menu.
- Name Type Authority**: Contains a text input field labeled "Name", a dropdown menu, and a text input field labeled "Description" with a dropdown menu.

Below these sections are three radio buttons for action selection:

- ☒ Randomly Generate UUID
- ☐ Enter UUID Here:
- ☐ Insert
- ☐ Modify
- ☐ Delete

At the bottom of the form is a **save** button.

On the right side of the interface, under the heading "Data inserted:", the following information is displayed:

- Name:**
- NameType Name:**
- NameType Description:**
- NameTypeAuthority Name:**
- NameTypeAuthority Description:**
- mRID:** bd4825e3-2a4f-42af-9534-733410d292b8

Figure 2: Although blank data should never be inserted, the database is initially setup so that only the UUID makes it unique. A more practical example using the CIM standard would have at a minimum the Name and NameType Name

## 2) Inserting a Regular Entry

EPRI

Enter Data

View Database

Query

[Github: Source Code](#)

Name

A New Entry

A Test 0

Name Type

Meter Reading

Meter Reading

Description

Meter Entry Description

Name Type Authority

KUB

KUB

Description

Knoxville Utilities Board

Knoxville Utilities Board

☒ Randomly Generate UUID

☐ Enter UUID Here:

☒ Insert

☐ Modify

☐ Delete

save

Data inserted:

**Name:** A New Entry  
**NameType Name:** Meter Reading  
**NameType Description:** Meter Entry Description  
**NameTypeAuthority Name:** KUB  
**NameTypeAuthority Description:** Knoxville Utilities Board  
**mRID:** 7a8d8745-34bc-4718-8260-70183aacfb0f

Figure 3: Here we see a full data entry. Although it's selectable, the "Enter UUID" field does not allow manual entry of a UUID, as UUID assignments are handled by the server.

**Note:** The drop boxes are for easily assigning common entries such as "Meter Reading" or the name of a utility under Name Type Authority. All existing entries in the database are added to the dropboxes upon page reload, though the code easily be rewritten to allow asynchronous updates instead.

## Modify

When modifying an entry, the UUID is required to know which entry to change. When providing the UUID in the “Enter UUID” text box, the corresponding fields should automatically be populated if it’s a valid entry. Change whichever fields need to be modified, click “Save” and a message will pop up displaying the old data followed by the new data replacing it.

### 1) Modifying an Existing Entry

**EPRI** **Enter Data** View Database Query

[Github: Source Code](#)

### Name

Name

Daniel Lowe

### Name Type

Name

Meter Reading

Description

Description

### Name Type Authority

Name

EPRI

Description

Description

☐ Randomly Generate UUID

☒ Enter UUID Here: 

7fc2024c-76c9-40b4-8268-...

☒ Insert

☐ Modify

☐ Delete

save

Figure 4: A UUID is copy/pasted into the "Enter UUID" box. If the UUID exists, the information will automatically be populated and desired changes can be made before selecting "Save".



## Delete

Delete behaves similarly to modify, filling in all of the object's fields for verification purposes. All that's necessary is the UUID of the object to be deleted.

### 1) Attempting to Delete With Incorrect UUID

EPRI

Enter Data

View Database

Query

[Github: Source Code](#)

Name

Daniel Lowe

Name Type

Meter Reading

Description

Description

Name Type Authority

EPRI

Description

Description

☐ Randomly Generate UUID

☒ Enter UUID Here: 

9fc2024c-76c9-40b4-8268-

☐ Insert

☐ Modify

☒ Delete

save

No deletion made.  
Provided UUID does not currently exist in the database.  
Please double check input UUID.

Figure 7: Similar to "modify", an error message will pop up if the user tries to delete an entry using the incorrect UUID.

## 2) Proper Entry Deletion

EPRI

Enter Data

View Database

Query

[Github: Source Code](#)

Name

Daniel Lowe

Name Type

Meter Reading

Description

Name Type Authority

EPRI

Description

☐ Randomly Generate UUID

☒ Enter UUID Here: 7fc2024c-76c9-40b4-8268-5cb5d856ef81

☐ Insert

☐ Modify

☒ Delete

save

Data deleted:

mRID: 7fc2024c-76c9-40b4-8268-5cb5d856ef81

Name: Daniel Lowe

Name Type Name: Meter Reading

Name Type Description: Generic Description

Name Type Authority Name: EPRI

Name Type Authority Description: Electric Power Research Institute

Figure 8: Correct entry deletion. A message will pop up informing the user of what was deleted. If it were deleted by mistake, the entry could be re-added with a different UUID.

## View Database

The “View Database” tab is meant to provide a look at all current entries in the database. It is automatically sorted alphabetically by name, and can be sorted by the other fields by clicking the column header. By default it displays 10 entries and can be set to show as many as 1000. This value can be modified easily within the code if desired.

### 1) Sort the Table By Clicking the Column of Desired Sorting. Click a Second Time to Reverse Sort.

## CIM Database Entries

entry	UUID	Name	NameType Name	NameType Description	NameTypeAuthority Name	NameTypeAuthority Description
1	bd4825e3-2a4f-42af-9534-733410d292b8					
2	7a8d8745-34bc-4718-8260-70183aacfb0f	A New Entry	Meter Reading	Meter Entry Description	KUB	Knoxville Utilities Board
3	1e6ee4fa-1e47-4a09-80d4-916129d11f76	A Test 0	HRIS, Sr Analyst	None	test	Tennessee Valley Authority
4	ad2a4697-e6b5-4071-9ea9-831d9e09855e	A Test 01	Composite Switch	Company Executive Officer	TVA	nameTest
5	18a12cfa-532a-456b-b587-58950d2e1204	A Test 01	Composite Switch	Company Executive Officer	TVA	nameTest
6	2909aa29-b835-4e59-bfc1-561393fe391b	A Test 032	CEO	Generic Description	test	SOAP Test3
7	da3cd262-1ce9-49d7-b49c-679a8b887167	A Test 041	Composite Switch	Casts spells	Test3	Test4

Figure 9: Sorted by "Name" in alphabetical order.

## CIM Database Entries

entry	UUID	Name	NameType Name	NameType Description	NameTypeAuthority Name	NameTypeAuthority Description
94	1fee7d08-9077-45c9-bfb1-a5d23f6cde06	Test UUID	Test NameType Name	Test NameType Description	Test NTA Name	Test NTA Description
92	6b64eb6e-8265-43a0-90b9-31e7e2e1d053	Test Name	Test NameType Name	Test NameType Description	Test NTA Name	Test NTA Description
93	8a1e8a70-0b56-449e-aeaa-9ef2cbde77ed	Test Name	Test NameType Name		Test_name NTA	
88	704f338c-65b5-4db6-8e62-aa23e1f04f32	test	test	test	test	test
89	dfe21a7b-a374-452a-8669-3a1ce87b2603	test	test	v	test	test
90	4b1dc672-5332-4086-a358-e1e07a7b5a18	test	test	test	test	test
91	cb72ec25-e993-4e05-a6d7-67d3c601b479	Test	Test1	Test2	Test3	Test4
87	94cd8d83-6fc7-4bdb-93c3-f81ec37fb1c0	t				
86	096835c1-64bc-4c19-a606-61d8c6b23a9e	SQA Test	NT Name	NT Des	NTA Name	NTA Des
85	da3dbfe3-f952-4acb-912b-7ff3e2201a0e	SOAP Test4	SOAP Test4	SOAP Test4	SOAP Test4	SOAP Test4
84	b62f9afa-712d-498b-a0d3-30ed2122788e	SOAP Test3	SOAP Test3	SOAP Test3	SOAP Test3	SOAP Test3
	h313ha65-a7ac-4e32-h872-					

Figure 10: Reverse sorted by name.

### 2) Change the Number of Entries on Screen



## CIM Database Entries

entry	UUID	Name	NameType Name	NameType Description	NameTypeAuthority Name	NameTypeAuthority Description
94	1fee7d08-9077-45c9-bfb1-a5d23f6cde06	Test UUID	Test NameType Name	Test NameType Description	Test NTA Name	Test NTA Description
92	6b64eb6e-8265-43a0-90b9-31e7e2e1d053	Test Name	Test NameType Name	Test NameType Description	Test NTA Name	Test NTA Description
93	8a1e8a70-0b56-449e-aeaa-9ef2cbde77ed	Test Name	Test NameType Name		Test_name NTA	
88	704f338c-65b5-4db6-8e62-aa23e1f04f32	test	test	test	test	test
89	dfe21a7b-a374-452a-8669-3a1ce87b2603	test	test	v	test	test
90	4b1dc672-5332-4086-a358-e1e07a7b5a18	test	test	test	test	test
91	cb72ec25-e993-4e05-a6d7-67d3c601b479	Test	Test1	Test2	Test3	Test4
87	94cd8d83-6fc7-4bdb-93c3-f81ec37fb1c0	t				
86	096835c1-64bc-4c19-a606-61d8c6b23a9e	SQA Test	NT Name	NT Des	NTA Name	NTA Des
85	da3dbfe3-f952-4acb-912b-7ff3e2201a0e	SOAP Test4	SOAP Test4	SOAP Test4	SOAP Test4	SOAP Test4

Figure 11: Default screen listing only 10 entries.

7	da3cd262-1ce9-49d7-b49c-679a8b887167	A Test 041	Composite Switch	Casts spells	Test3	Test4
6	2909aa29-b835-4e59-bfc1-561393fe391b	A Test 032	CEO	Generic Description	test	SOAP Test3
4	ad2a4697-e6b5-4071-9ea9-831d9e09855e	A Test 01	Composite Switch	Company Executive Officer	TVA	nameTest
5	18a12cfa-532a-456b-b587-58950d2e1204	A Test 01	Composite Switch	Company Executive Officer	TVA	nameTest
3	1e6ee4fa-1e47-4a09-80d4-916129d11f76	A Test 0	HRIS, Sr Analyst	None	test	Tennessee Valley Authority
2	7a8d8745-34bc-4718-8260-70183aacfb0f	A New Entry	Meter Reading	Meter Entry Description	KUB	Knoxville Utilities Board
1	bd4825e3-2a4f-42af-9534-733410d292b8					

Figure 12: 100 results now listed per page.

## Query

The “Query” tab provides a simple query tool that searches for exact values. It is not case-sensitive, however, so if the name “Billy Bob” is searched, it will provide results for “Billy Bob”, “billy bob”, “BILLY BoB”, etc., however it won’t provide results for just “billy”.

### Query the DB

Select:

☐ UUID:

☒ Name :

☐ NameType Name :

☐ NameType Description :

☐ NameTypeAuthority Name :

☐ NameTypeAuthority Description :

Submit

entry	UUID	Name	Name Type Name	Name Type Description	NameTypeAuthority Name	NameTypeAuthority Description
33	95ced897-95ba-43ba-9c54-c274a971d2f3	Daniel Lowe	Meter Reading			
34	b8806289-3d0d-4eac-af9d-96f381973984	Daniel Lowe	Meter Reading		EPRI	
35	aeb89af1-c11c-4b44-91cf-27f1129845e4	Daniel Lowe	Meter Reading			
36	b5689095-1311-4602-b551-3bd4f1edc9a7	Daniel Lowe	Meter Reading			
37	b46a3862-fbbc-4ada-913b-6470de857d20	Daniel Lowe	Meter Reading			

Figure 13: Querying the client for “Daniel Lowe”. Case is unimportant here, but this tool only searches exact phrases and only searches one field at a time. Server/client source code could be modded to make this more robust.

## CIMIdentitiesClient

CIMIdentitiesClient is a desktop application that requires internet access to connect to a remote database to make changes. It has two tabs: one for inserting, modifying, or deleting data, and the other tab for viewing the data and exporting it to a csv for further manipulation if desired.

### Insert

As with the JSP client, insert has the same functionality here in that you can insert a blank entry if desired. Any string is accepted (a stream of numbers is converted to a String value).

The screenshot shows the CIMIdentitiesClient application window. The window has a title bar with standard OS controls. The 'Data Entry' tab is selected, and the 'View Database' tab is also visible. The form contains several input fields and dropdown menus. The 'Name' field contains 'Daniel Lowe', and the 'Select Name' dropdown also shows 'Daniel Lowe'. The 'NameType Name' field contains 'Meter Reading', and the 'Select Name' dropdown also shows 'Meter Reading'. The 'NameType Description' field contains 'Generic Description', and the 'Select Description' dropdown also shows 'Generic Description'. The 'NameTypeAuthority Name' field contains 'LCUB', and the 'Select Name' dropdown also shows 'LCUB'. The 'NameTypeAuthority Description' field contains 'Lenoir City Utilities Board', and the 'Select Description' dropdown also shows 'Lenoir City Utilities Board'. At the bottom, there are radio buttons for 'UUID' (set to 'Randomly Generate') and 'Enter Here:'. Below these are radio buttons for 'Insert', 'Modify', and 'Delete', with 'Insert' selected. A 'Submit' button is at the bottom right.

Figure 14: An entry is about to be inserted.

Name  Select Name

NameType Name  Select Name


NameType Description  Select Description

NameType Authority Name  Select Name

NameType Authority Description  Select Description

UUID ☒ Randomly Generate

Message

 Data inserted:

Name: Daniel Lowe  
NameType Name: Meter Reading  
NameType Description: Generic Description  
NameType Authority Name: LCUB  
NameType Authority Description: Lenoir City Utilities Board

OK

Figure 15: Confirmation message appears when entry has been inserted.

## Modify

When modifying an entry, the UUID of the entry to be changed is needed. All fields must be filled in here (the drop box might allow a faster entry for longer descriptions). An incorrect UUID will result in an error message.

The screenshot shows a web application interface with a 'Modify' form and a 'Message' dialog box.

**Modify Form:**

- NameType Description:** A dropdown menu with 'None' selected.
- NameTypeAuthority Name:** A text input field containing 'NTA Name'.
- NameTypeAuthority Description:** A text input field containing 'NTA Des'.
- UUID:** A section with two radio buttons: 'Randomly Generate' (unselected) and 'Enter Here:' (selected). The 'Enter Here:' option has a text input field containing the UUID '7a8d8745-34bc-4718-8260-70183aacfb0f'.
- Action:** Three radio buttons: 'Insert' (unselected), 'Modify' (selected), and 'Delete' (unselected).
- Submit:** A button labeled 'Submit'.

**Message Dialog Box:**

- Title:** 'Message' with a close button (X).
- Icon:** A blue circle with a white 'i' (information icon).
- Text:**
  - Data modified:**
  - mRID: 7a8d8745-34bc-4718-8260-70183aacfb0f
  - Previous Name: A New Entry
  - Previous NameType Name: Meter Reading
  - Previous NameType Description: Meter Entry Description
  - Previous NameTypeAuthority Name: KUB
  - Previous NameTypeAuthority Description: Knoxville Utilities Board
  
  - New Name: Daniel Lowe
  - New NameType Name: NT Name
  - New NameType Description: None
  - New NameTypeAuthority Name: NTA Name
  - New NameTypeAuthority Description: NTA Des
- Buttons:** An 'OK' button at the bottom right.

Figure 16: Modifying an entry. Note that ALL fields must be filled in or else they will be replaced with blanks.

## Delete

As with modifying, the UUID is needed for deletion. In this case, only the UUID is needed. An incorrect UUID will result in an error message.

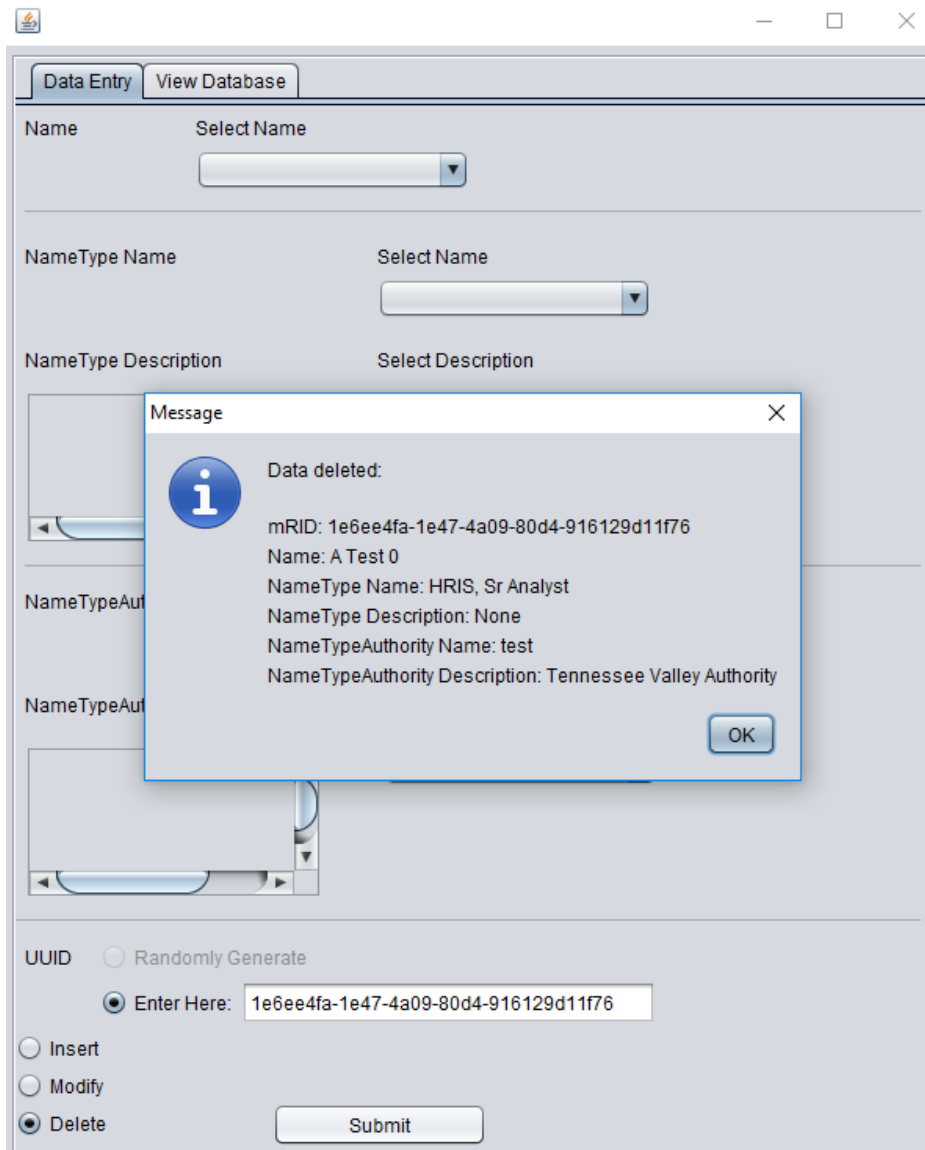
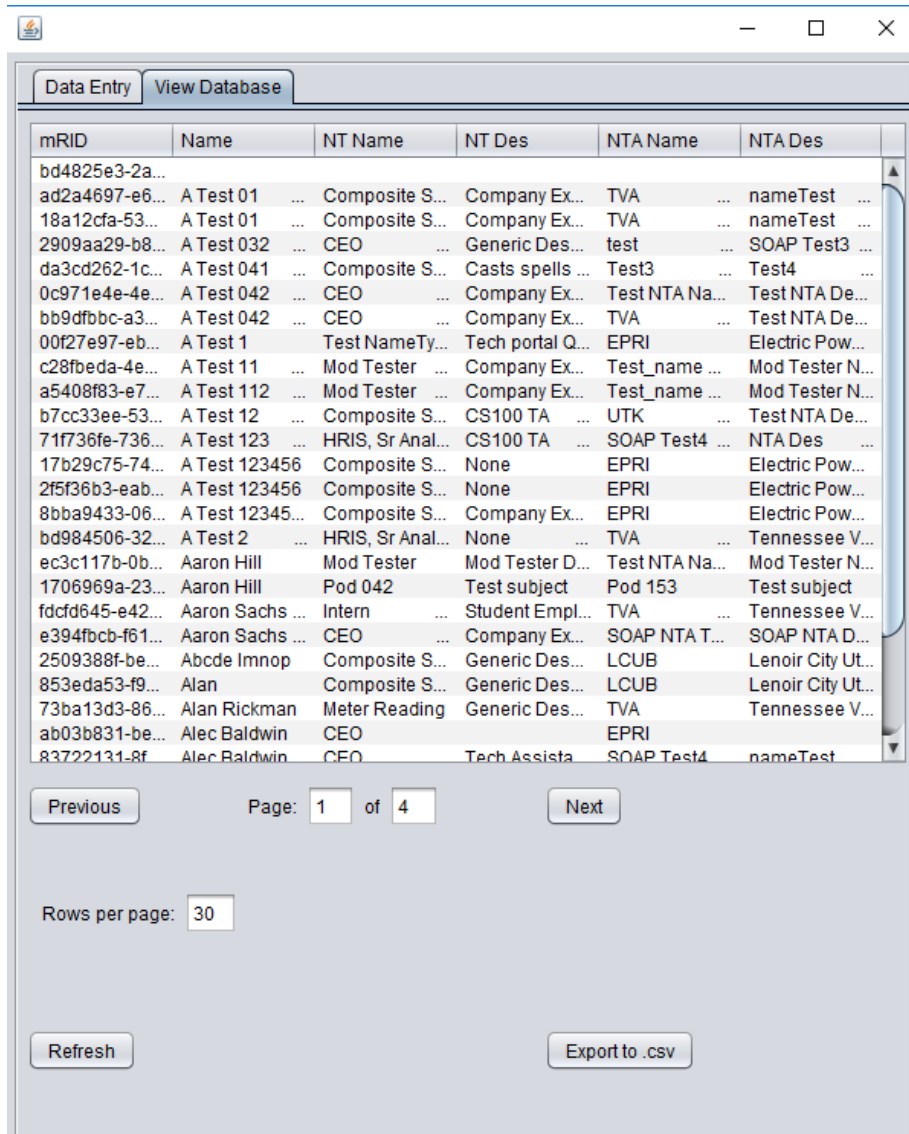


Figure 17: Only the UUID is needed for deletion. A confirmation dialog will show the data that was deleted.

## View Database

The “View Database” tab allows you to view the contents of the PostgreSQL database without having to interface with the command line tools or GUI provided by PostgreSQL (which some security settings may not allow the installation of). It provides somewhat similar functionality to the JSP client’s database view tab, allowing the user to change results per page or export to a CSV file if desired.



mRID	Name	NT Name	NT Des	NTA Name	NTA Des
bd4825e3-2a...					
ad2a4697-e6...	A Test 01	...	Composite S...	Company Ex...	TVA
18a12cfa-53...	A Test 01	...	Composite S...	Company Ex...	TVA
2909aa29-b8...	A Test 032	...	CEO	Generic Des...	test
da3cd262-1c...	A Test 041	...	Composite S...	Casts spells	Test3
0c971e4e-4e...	A Test 042	...	CEO	Company Ex...	Test NTA Na...
bb9dfbbc-a3...	A Test 042	...	CEO	Company Ex...	TVA
00f27e97-eb...	A Test 1	Test NameTy...	Tech portal Q...	EPRI	Electric Pow...
c28fbeda-4e...	A Test 11	...	Mod Tester	Company Ex...	Test_name
a5408f83-e7...	A Test 112	...	Mod Tester	Company Ex...	Test_name
b7cc33ee-53...	A Test 12	...	Composite S...	CS100 TA	UTK
71f736fe-736...	A Test 123	...	HRIS, Sr Anal...	CS100 TA	SOAP Test4
17b29c75-74...	A Test 123456	...	Composite S...	None	EPRI
2f5f36b3-eab...	A Test 123456	...	Composite S...	None	EPRI
8bba9433-06...	A Test 12345...	...	Composite S...	Company Ex...	EPRI
bd984506-32...	A Test 2	...	HRIS, Sr Anal...	None	TVA
ec3c117b-0b...	Aaron Hill	...	Mod Tester	Mod Tester D...	Test NTA Na...
1706969a-23...	Aaron Hill	...	Pod 042	Test subject	Pod 153
fdcf645-e42...	Aaron Sachs	...	Intern	Student Empl...	TVA
e394fbcf-f61...	Aaron Sachs	...	CEO	Company Ex...	SOAP NTA T...
2509388f-be...	Abcde Imnop	...	Composite S...	Generic Des...	LCUB
853eda53-f9...	Alan	...	Composite S...	Generic Des...	LCUB
73ba13d3-86...	Alan Rickman	...	Meter Reading	Generic Des...	TVA
ab03b831-be...	Alec Baldwin	...	CEO	EPRI	
83722131-8f...	Alec Baldwin	...	CEO	Tech Assista	SOAP Test4

Previous Page: 1 of 4 Next

Rows per page: 30

Refresh Export to .csv

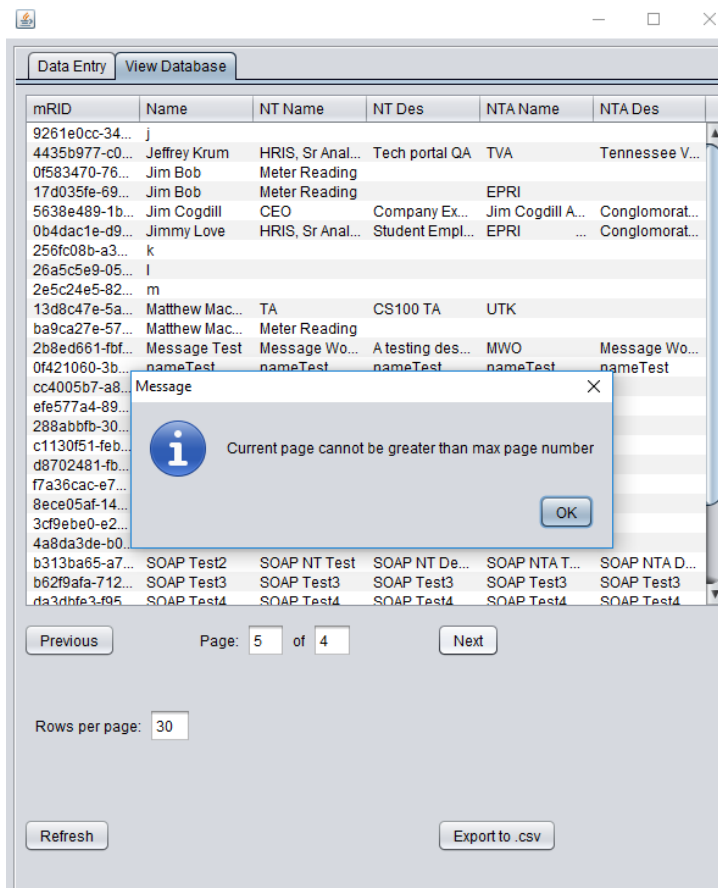
Figure 18: The View Database tab.

## Next/Previous Buttons

The next/previous buttons behave as expected, doing nothing if on the first page and selecting “Previous” or the last page and selecting “Next”.

## Page

Here you can manually type the page number to view. An appropriate error message will appear if the page number is invalid (shown below).





## Export to CSV

Clicking this button brings up the option to save the data as a CSV file. It defaults to "Documents".

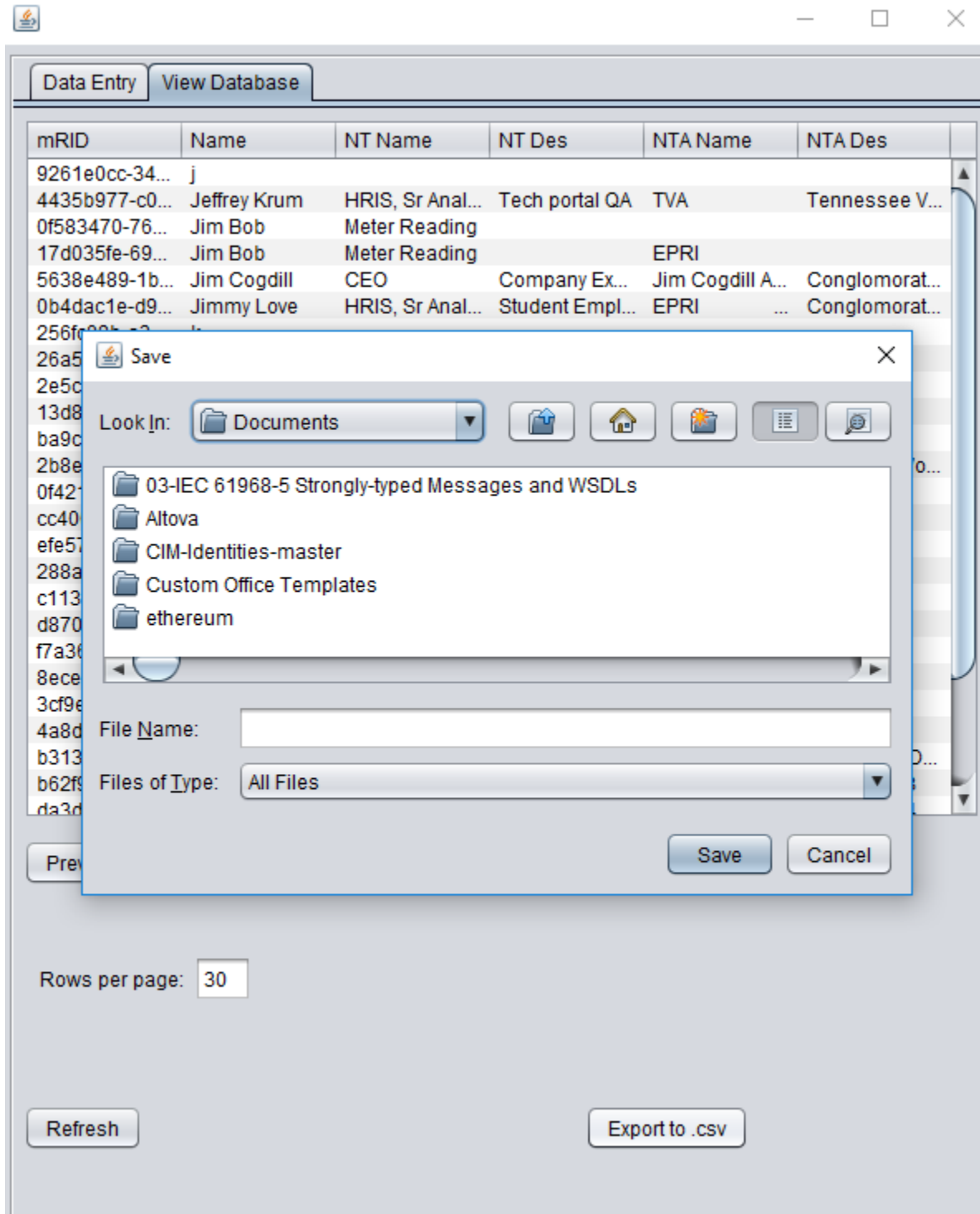


Figure 19: Saving the file as csv.