




ETL Project Anesthesia Compliance Management

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December 13, 2020



Project Overview

COLORADO ASSOCIATION OF N x +

https://coana.org

COANA
Colorado Association of Nurse Anesthetists

LOGIN Search

HOME ABOUT US JOIN CONTACT US ADVOCACY RESOURCES MEETINGS

MEMBER AREA LOGIN FALL MEETING WAS A SUCCESS! UPCOMING EVENTS

Colorado has 1252 actively licensed non-physician anesthesia clinicians

- The primary purpose of these clinicians is to keep a patient comfortable and alive during a medical procedure.
- These professionals require extensive training and credentials to practice.
- More than 85% are Certified Registered Nurse Anesthetists (CRNA's).

Type here to search

12/7/2020 2:40 PM

Problem Statement

- Managing Nurse Anesthetists licensing is complicated
 - ... and if not done properly can be costly
- A Nurse Anesthetist is an advanced practice nurse and must maintain two licenses concurrently a) Advanced anesthesia b) underlying RN
- “Compact” licensing permits the two licenses to be issued from separate states which makes it harder to ensure compliance
- It can be interpreted as fraud if a Nurse Anesthetist bills Medicare while either license is expired or out of compliance. This can result in refunds, fines, loss of license due to censure and contract breach

Project Overview

- Develop an improved process for managing non-physician anesthesia licensing compliance
 - Extract
 - Colorado Professional License file with approximately 1.2 million licenses including healthcare workers, plumbers, electricians etc.
 - Filter this master file into in a Registered Nurse and a separate Anesthesia license file.
 - Create a fictitious employee file that is representative of an anesthesia practice team roster (utilized public information)
 - Stage the targeted files for project use and github repository. The original file was too big to push to github
 - Cleaning:
 - Remove excess columns
 - Establish a protocol to deal with duplicate but relevant many-to-one clinician license types
 - Create a matching element for each clinician to enable merging/joining of licensing and employee data
 - Stage clean and simplified files for placement into a relational database
 - Load
 - Author an ERD for planning and archive purposes
 - Create the table schema and tables in PGAdmin
 - Import the 'transformed' licensing and employee files into the PGAdmin tables
 - Make the database available for use via sqlalchemy
 - See the value
 - Produce two exception reports to establish a timely process for identifying and tracking at risk licensing issues
 - Produce two compliance reports to establish a process and format for timely employee compliance

Extract Source & Highlights

Results for "professional" | Page x +

← → ↻ https://data.colorado.gov/browse?q=professional&sortBy=relevance

professional

76 Results Sort by Most Relevant

Authority

Official

Community

Categories

Agriculture

Business

Demographics

Economic Growth

Education

Show All...

View Types

Calendars

Professional and Occupational Licenses in Colorado

Regulations

Professional and occupational license types in Colorado from the Department of Regulatory Agencies (DORA).
[More](#)

Tags hppp, healthcare professions profile program, professions and occupations, business licenses, occupational licenses, and 10 more API Docs

Updated December 7, 2020
Views 9,741

Professional and Occupational License Types in Colorado

Regulations

Detail on 122 license types containing records for over 1 million individuals or businesses from the Department of Regulatory Agencies (DORA), who are or have been licensed with the Division of
[More](#)

Tags professions and occupations, business licenses, occupational licenses, healthcare licenses, license types, and 9 more API Docs

Updated December 7, 2020
Views 2,466

Persons Associated with Charitable Organizations, Paid

Dataset

Datasets

Non-profit organization (NPO) data of registrants' officers, directors, trustees, professional fundraising consultants from the Colorado Department of State Division of Charity (SOS).

Updated December 7, 2020
Views

The primary licensing information was sourced from the State of Colorado a the data.Colorado.gov site presented in the image herein.

Type here to search

2:13 PM 12/7/2020 26



Professional and Occupational Licenses in Colorado

Regulations

Professional and occupational license types in Colorado from the Department of Regulatory Agencies (DORA).

View Data Visualize Export API ...

Access this Dataset via SODA API

The Socrata Open Data API (SODA) provides programmatic access to this dataset including the ability to filter, query, and aggregate data.

[API Docs](#)

[Developer Portal](#)

API Endpoint:

<https://data.colorado.gov/resource/7s5z-vewr>

JSON

Copy

About this Dataset

Updated
December 7, 2020

Contributing Agency Information

Data Last Updated Metadata Last Updated

Citation DORA - Department of Regulatory Agencies
Agency Program Page <https://www.colorado.gov/dora>

A large CSV file was downloaded to complete the project. The file is updated daily and an API is available that could be utilized to support a regular cadence or even a compliance application.

Views
9,745

Downloads
1,703

Unit of Analysis

Tabular

Anesthesia File Example

```
In [26]: df=pd.read_csv('license_central.csv')
df.head()
```

Out[26]:

	lastName	firstName	middleName	suffix	entityName	city	state	mailZipCode	licensePrefix	subCategory	...	licenseStatusDescription	specialty	title
0	Lonnquist	Eryn	Amelia	NaN	NaN	Denver	CO	80206	TL					
1	James	Joseph	NaN	NaN	NaN	Golden	CO	80401	APE					
2	Lenthall	Sandra	R	NaN	NaN	Morrison	CO	80465	COS					
3	Baker	Allison	W	NaN	NaN	Kingman	AZ	86409	PE					
4	Hubbach	John	Wallace	NaN	NaN	Castle Rock	CO	80104	DEN					

5 rows x 24 columns

Out[27]:

	lastName	firstName	middleName	suffix	entityName	city	state	mailZipCode	licensePrefix	s
400	Charles	James	Robert	NaN	NaN	Golden	CO	80401	APN	
552	Stagg	Russell	Adair	NaN	NaN	Meeker	CO	81641	C-APN	
835	Sampier	Nicole	Louise A	NaN	NaN	Tampa	FL	33602	APN	
1646	Trouskie	William	Leonard	JR	NaN	Rifle	CO	81650	APN	
2359	Penix	Patrick	Alexander	NaN	NaN	Fort Collins	CO	80526	APN	

```
In [28]: anesthesia.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 2448 entries, 400 to 1231681
Data columns (total 24 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   lastName                             2448 non-null   object
1   firstName                             2448 non-null   object
2   middleName                           2200 non-null   object
3   suffix                               44 non-null     object
4   entityName                           0 non-null      object
5   city                                 2448 non-null   object
6   state                                2448 non-null   object
7   mailZipCode                           2447 non-null   object
8   licensePrefix                         2448 non-null   object
9   subCategory                           2210 non-null   object
10  licenseNumber                         2448 non-null   object
11  licenseFirstIssueDate                 2448 non-null   object
12  licenseLastRenewedDate                2447 non-null   object
13  licenseExpirationDate                 2448 non-null   object
14  licenseStatusDescription              2448 non-null   object
15  specialty                             3 non-null      object
16  title                                 0 non-null      float64
17  degrees                               1800 non-null   object
18  caseNumber                            7 non-null      object
19  programAction                         7 non-null      object
20  disciplineEffectiveDate               7 non-null      object
21  disciplineCompleteDate                1 non-null      object
22  linkToVerifyLicense                  2448 non-null   object
23  linkToViewHealthcareProfile           745 non-null    object
dtypes: float64(1), object(23)
memory usage: 478.1+ KB
```

Nurse File Example

Out[29]:

	lastName	firstName	middleName	suffix	entityName	city	state	mailZipCode	licensePrefix	subCategory	...	licenseStatusDescription	specialty	tit
6	Saracino	Jodi	Kay	NaN	NaN	Arvada	CO	80004	RN	NaN	...	Active	NaN	Na
7	Neal	Carmen	Darlene	NaN	NaN	Longview	TX	75608	RN					
8	Freeland	Judith	A.	NaN	NaN	BAILEY	CO	80421	RN					
11	Healy	Julie	E	NaN	NaN	Colorado Springs	CO	80920	RN					
18	Englade	Keith	Steven	NaN	NaN	Aurora	CO	80013	RN					

In [30]: regnurse.info()

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 196995 entries, 6 to 1231867
Data columns (total 24 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   lastName                             196994 non-null object
1   firstName                             196993 non-null object
2   middleName                           180778 non-null object
3   suffix                               615 non-null    object
4   entityName                           1 non-null      object
5   city                                 196194 non-null object
6   state                               194724 non-null object
7   mailZipCode                          195656 non-null object
8   licensePrefix                        196995 non-null object
9   subCategory                          0 non-null      object
10  licenseNumber                         196991 non-null object
11  licenseFirstIssueDate                 196994 non-null object
12  licenseLastRenewedDate                 196990 non-null object
13  licenseExpirationDate                  196994 non-null object
14  licenseStatusDescription               196995 non-null object
15  specialty                             0 non-null      object
16  title                                 0 non-null      float64
17  degrees                               153935 non-null object
18  caseNumber                             6990 non-null    object
19  programAction                         6990 non-null    object
20  disciplineEffectiveDate                6990 non-null    object
21  disciplineCompleteDate                 2640 non-null    object
22  linkToVerifyLicense                   196995 non-null object
23  linkToViewHealthcareProfile            120532 non-null object
dtypes: float64(1), object(23)
memory usage: 37.6+ MB
```

Employee File Example

Out[39]:

	lastName	firstName	middleName	employeeNum	city	state	mailZipCode	title	hireDate	projectIndicator
0	Tobin	David	A	40	winston salem	NC	27103	CRNA	12/27/2016 0:00	1
1	Barfield	Benjamin	James	67	Denver	CO	80238	AA	6/5/2013 0:00	1
2	Ackerman	Serena	Maija	97	Mount Shasta	CA	96067	CRNA	3/16/2009 0:00	1
3	Shank	Claudine	Dale A	107	Colorado Springs	CO	80921	CRNA	7/7/2004 0:00	1
4	Sims	John	NaN	112	Little Rock	AR	72210	CRNA	12/13/2016 0:00	1

In [40]: employees.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 80 entries, 0 to 79
Data columns (total 10 columns):
#   Column          Non-Null Count  Dtype
---  ---
0   lastName         80 non-null    object
1   firstName        80 non-null    object
2   middleName       67 non-null    object
3   employeeNum      80 non-null    int64
4   city             80 non-null    object
5   state            80 non-null    object
6   mailZipCode      80 non-null    int64
7   title            80 non-null    object
8   hireDate         80 non-null    object
9   projectIndicator 80 non-null    int64
dtypes: int64(3), object(7)
memory usage: 6.4+ KB
```

Transform Highlights

Local Project Repository

File Explorer window showing the 'etl-project' directory. The window displays a list of files and folders. Three red boxes highlight specific groups of files:

- Extract Output:** employee_roster, license_anesthesia, license_regnurse, license_type
- Transform Output:** loadAnesthesiaLicense, loadEmployeeRoster, loadNurseLicense, loadone, queryone
- Compliance Reports:** report_anesthesia_compliance, report_anesthesia_redflag, report_nurse_compliance, report_nurse_redflag

Name	Date modified	Type	Size
ipython_checkpoints	12/9/2020 11:28 AM	File folder	
employee_roster	12/10/2020 1:20 PM	Microsoft Excel Co...	6 KB
license_anesthesia	12/9/2020 11:57 AM	Microsoft Excel Co...	713 KB
license_regnurse	12/9/2020 11:58 AM	Microsoft Excel Co...	63,582 KB
license_type	12/7/2020 2:39 PM	Microsoft Excel Co...	10 KB
load_erd	12/10/2020 1:30 PM	Microsoft Excel W...	13 KB
loadAnesthesiaLicense	12/10/2020 12:40 PM	Microsoft Excel Co...	358 KB
loadEmployeeRoster	12/10/2020 1:21 PM	Microsoft Excel Co...	5 KB
loadNurseLicense	12/10/2020 12:40 PM	Microsoft Excel Co...	18,443 KB
loadone	12/10/2020 1:28 PM	Microsoft SQL Ser...	2 KB
queryone	12/10/2020 2:47 PM	Microsoft SQL Ser...	2 KB
README	12/9/2020 11:32 AM	MD File	1 KB
report_anesthesia_compliance	12/10/2020 12:40 PM	Microsoft Excel Co...	12 KB
report_anesthesia_redflag	12/10/2020 12:40 PM	Microsoft Excel Co...	1 KB
report_nurse_compliance	12/10/2020 12:40 PM	Microsoft Excel Co...	9 KB
report_nurse_redflag	12/10/2020 12:40 PM	Microsoft Excel Co...	1 KB
Rodgers_ETL_Working_Document	12/10/2020 5:48 PM	Microsoft Word D...	18 KB
Rodgers_Pitchbook_ETLProject	12/10/2020 5:06 PM	Microsoft PowerPo...	3,621 KB
transform.ipynb	12/10/2020 2:33 PM	IPYNB File	135 KB

Notebook Example

```
In [113]: # Create a last plus first name matching element to merge dataframes
nurse['matchName'] = nurse['lastName'] + nurse['firstName']
nurse.head()
```

Out[113]:

	lastName	firstName	middleName	suffix	entityName	city	state	mailZipCode	licensePrefix	subCategory	...	specialty	title	degrees	caseNumbe
0	Saracino	Jodi	Kay	NaN	NaN	Arvada	CO	80004	RN	NaN	...	NaN	NaN	~Bachelors of Science in Nursing	NaN
1	Neal	Carmen	Darlene	NaN	NaN	Longview	TX	75608	RN	NaN	...	NaN	NaN	~Assoc of Science in Nursing	NaN
2	Freeland	Judith	A.	NaN	NaN	BAILEY	CO	80421	RN	NaN	...	NaN	NaN	NaN	NaN
3	Healy	Julie	E	NaN	NaN	Colorado Springs	CO	80920	RN	NaN	...	NaN	NaN	~Associate Degree in Nursing	NaN
4	Englade	Keith	Steven	NaN	NaN	Aurora	CO	80013	RN	NaN	...	NaN	NaN	~Bachelors of Science in Nursing	NaN

5 rows × 25 columns

```
In [114]: #nurse.info()
```

```
In [115]: # Remove unneeded columns
del nurse["suffix"]
del nurse["entityName"]
del nurse["subCategory"]
del nurse["specialty"]
del nurse["title"]
del nurse["licenseFirstIssueDate"]
del nurse["licenseLastRenewedDate"]
del nurse["degrees"]
del nurse["caseNumber"]
```

Load Highlights

Entity Relationship Diagram

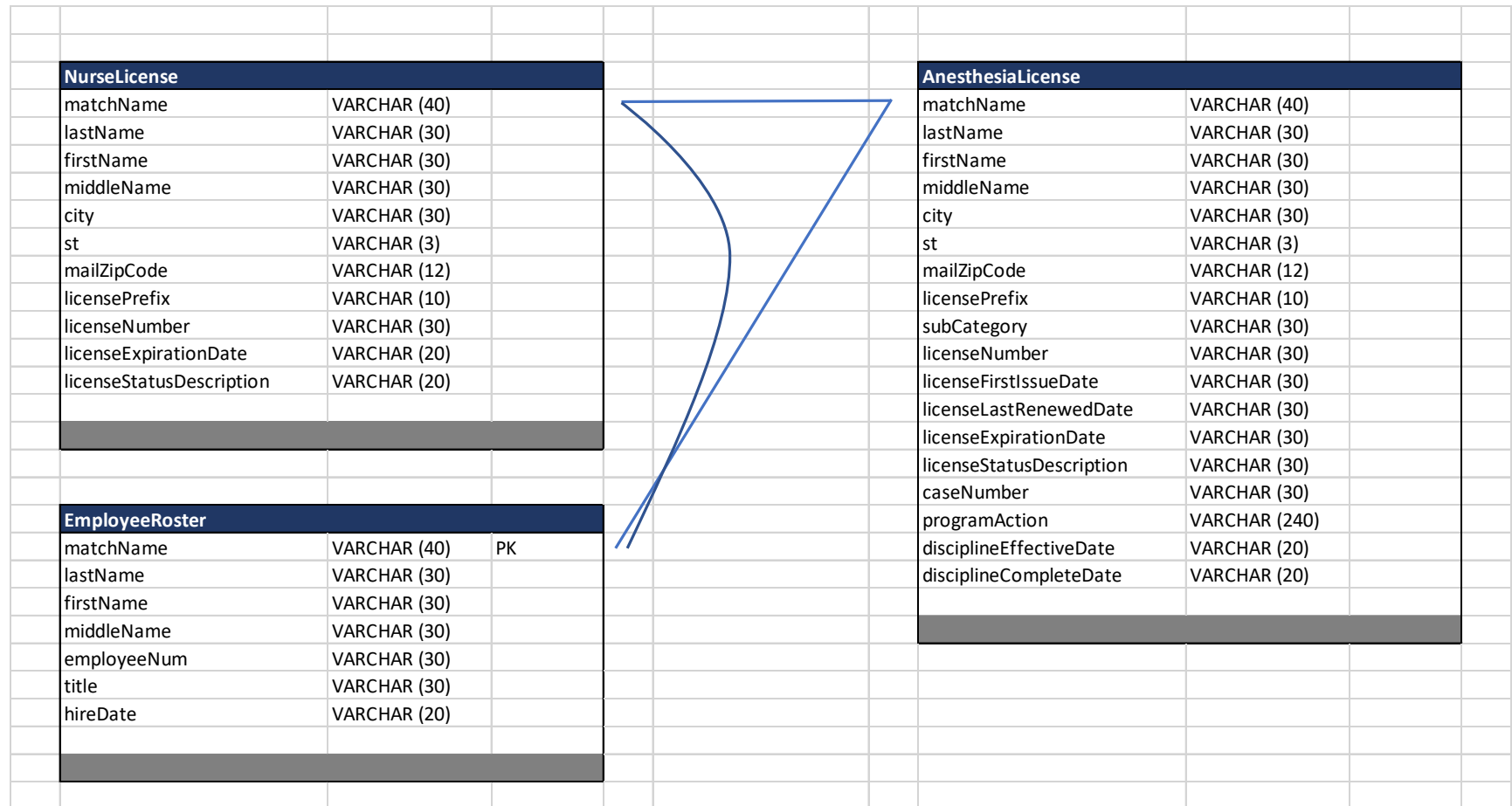


Table Schema - employeeRoster

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Servers' tree shows the 'aEtlChallenge' database. The 'Query Editor' is active, showing SQL code for creating the 'employeeRoster' table. The 'Data Output' tab is selected, displaying a table with 8 rows of employee data. The table has columns: lastname, firstname, middlename, employeenum, and title.

```
1 -- Rodgers ETL-Project Table Setup
2
3 -- employeeRoster table setup
4 DROP TABLE employeeRoster
5
6 CREATE TABLE employeeRoster (
7     lastName VARCHAR (30),
8     firstName VARCHAR (30),
9     middleName VARCHAR (30),
10    employeeNum VARCHAR (30),
11    title VARCHAR (30),
12    hireDate VARCHAR (20),
13    matchName VARCHAR (40) PRIMARY KEY
14);
15 SELECT * FROM employeeRoster
16 LIMIT 20
17
18 -- nurseLicense table setup
19 DROP TABLE nurseLicense
20
21 CREATE TABLE nurseLicense (
22     lastName VARCHAR (30),
23     firstName VARCHAR (30),
24     middleName VARCHAR (30),
25     city VARCHAR (50),
26     st VARCHAR (3),
27     mailZipCode VARCHAR (12),
28     licensePrefix VARCHAR (10),
```

	lastname character varying (30)	firstname character varying (30)	middlename character varying (30)	employeenum character varying (30)	title character
1	Ackerman	Serena	Maija	97	CRNA
2	Adams	Chad	R	1049	CRNA
3	Ahern	Caitlin	Molra	1260	CRNA
4	Balyer	Ean	[null]	859	AA
5	Barfield	Benjamin	James	67	AA
6	Bishop	Trent	M	1258	CRNA
7	Boudreaux	David	Michael	551	CRNA
8	Bramm	Innathan	David	976	AA

Table Schema - nurseLicense

The screenshot shows the pgAdmin 4 web interface in a browser. The left sidebar displays the database structure: PostgreSQL 13 > Databases (8) > aEtiChallenge > Schemas (1) > public > nurseLicense. The central Query Editor shows the following SQL script:

```
18 -- nurseLicense table setup
19 DROP TABLE nurseLicense
20
21 CREATE TABLE nurseLicense (
22     lastName VARCHAR (30),
23     firstName VARCHAR (30),
24     middleName VARCHAR (30),
25     city VARCHAR (50),
26     st VARCHAR (3),
27     mailZipCode VARCHAR (12),
28     licensePrefix VARCHAR (10),
29     licenseNumber VARCHAR (30),
30     licenseExpirationDate VARCHAR (30),
31     licenseStatusDescription VARCHAR (40),
32     matchName VARCHAR (40)
33     -- FOREIGN KEY (matchName) REFERENCES emplo
34 );
35
36 SELECT * FROM nurseLicense
37 LIMIT 20
38
39 -- anesthesiaLicense table setup
40 DROP TABLE anesthesiaLicense
41
42 CREATE TABLE anesthesiaLicense (
43     lastName VARCHAR (30),
44     firstName VARCHAR (30),
45     middleName VARCHAR (30),
46     city VARCHAR (50),
47     st VARCHAR (3)
```

The right pane shows the 'Data Output' tab with a table of 8 rows. A green message box at the bottom right states: 'Successfully run. Total query runtime: 73 msec. 20 rows affected.'

	lastname	firstname	middlename	city	st
1	Saracino	Jodi	Kay	Arvada	CO
2	Neal	Carmen	Darlene	Longview	TX
3	Freeland	Judith	A.	BAILEY	CO
4	Healy	Julie	E	Colorado Springs	CO
5	Englade	Keith	Steven	Aurora	CO
6	Mangus	Danielle	Christine	Denver	CO
7	Adams	Michelle	M	Penrose	CO
8	Schmeidler	Bonaventure	[null]	MT ST. JOSEPH	NH

Table Schema - anesthesiaLicense

The screenshot shows the pgAdmin 4 web interface in a browser window. The left sidebar displays the database structure for 'PostgreSQL 13', including 'Databases (8)', 'aEtiChallenge', and 'public' schema. The main panel shows the 'Query Editor' with the following SQL script:

```
36 LIMIT 20
37
38 -- anesthesiaLicense table setup
39 DROP TABLE anesthesiaLicense
40
41 CREATE TABLE anesthesiaLicense (
42     lastName VARCHAR (30),
43     firstName VARCHAR (30),
44     middleName VARCHAR (30),
45     city VARCHAR (50),
46     st VARCHAR (3),
47     mailZipCode VARCHAR (12),
48     licensePrefix VARCHAR (10),
49     subCategory VARCHAR (30),
50     licenseNumber VARCHAR (30),
51     licenseFirstIssueDate VARCHAR (30),
52     licenseLastRenewedDate VARCHAR (30),
53     licenseExpirationDate VARCHAR (30),
54     licenseStatusDescription VARCHAR (40),
55     caseNumber VARCHAR (30),
56     programAction VARCHAR (240),
57     disciplineEffectiveDate VARCHAR (20),
58     disciplineCompleteDate VARCHAR (20),
59     matchName VARCHAR (40)
60     -- FOREIGN KEY (matchName) REFERENCES employeeRoster(matchName)
61 );
62 SELECT * FROM anesthesiaLicense
63 LIMIT 20
```

The 'Data Output' tab shows the results of the SELECT query, displaying 8 rows of data:

	lastName	firstName	middleName	city	st
1	Charles	James	Robert	Golden	CO
2	Stagg	Russell	Adair	Meeker	CO
3	Sampler	Nicole	Louise A	Tampa	FL
4	Trouskie	William	Leonard	Rifle	CO
5	Penix	Patrick	Alexander	Fort Collins	CO
6	Skidmore	Mark	Verlyn	Golden	CO
7	Peterson	Steven	Kyle	Fi Collins	CO
8	Brav	William	Olnev	Skinnerville	AI

A green status bar at the bottom right indicates: 'Successfully run. Total query runtime: 57 msec. 20 rows affected.'

SQLAlchemy Reporting

Anesthesia License Red Flag Report

Notebook
Example

	Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
81	Smith	Catherine	Vu	1255	CRNA	11/24/2020 0:00	1082	11/24/2020 12:00:00 AM	Expired

CSV Output

Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
Smith	Catherine	Vu	1255	CRNA	11/24/2020 0:00	1082	11/24/2020 0:00	Expired

RN Sub-License Red Flag Report

	Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
20	Gates	Niki	Lynn	522	CRNA	6/19/2018 0:00	NaN	NaN	NaN
25	Jernigan	Amanda	Rhea	129	CRNA	3/14/2017 0:00	195510.0	03/14/2017 12:00:00 AM	Expired
43	Lagrimas	Carl	None	775	CRNA	9/27/2019 0:00	NaN	NaN	NaN
44	Lam	Bao	Thai	370	CRNA	3/2/2018 0:00	NaN	NaN	NaN
77	Sims	John	None	112	CRNA	12/13/2016 0:00	NaN	NaN	NaN

Notebook
Example

CSV Output

Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
Gates	Niki	Lynn	522	CRNA	6/19/2018 0:00			
Jernigan	Amanda	Rhea	129	CRNA	3/14/2017 0:00	195510	3/14/2017 0:00	Expired
Lagrimas	Carl		775	CRNA	9/27/2019 0:00			
Lam	Bao	Thai	370	CRNA	3/2/2018 0:00			
Sims	John		112	CRNA	12/13/2016 0:00			
Skinner	Zachary		697	CRNA	1/23/2020 0:00			
Starr	Ann	Warner	969	CRNA	12/13/2018 0:00	122350	12/15/2011 0:00	Expired
Vial	Leslie	Elaine	334	CRNA	8/29/2018 0:00			
Wieser	Christopher	Lee	1215	CRNA	5/5/2020 0:00			

Anesthesia License Compliance Report

	Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
0	Ackerman	Serena	Maija	97	CRNA	3/16/2009 0:00	6026	09/30/2021 12:00:00 AM	Active
1	Adams	Chad	R	1049	CRNA	7/2/2018 0:00	1154	09/30/2022 12:00:00 AM	Active
4	Balyer	Ean	None	859	AA	3/20/2019 0:00	109	01/31/2022 12:00:00 AM	Active
5	Barfield	Benjamin	James	67	AA	6/5/2013 0:00	10	01/31/2022 12:00:00 AM	Active
8	Boudreaux	David	Michael	551	CRNA	10/12/2010 0:00	100010	09/30/2022 12:00:00 AM	Active

Notebook
Example

Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
Ackerman	Serena	Maija	97	CRNA	3/16/2009 0:00	6026	9/30/2021 0:00	Active
Adams	Chad	R	1049	CRNA	7/2/2018 0:00	1154	9/30/2022 0:00	Active
Balyer	Ean		859	AA	3/20/2019 0:00	109	1/31/2022 0:00	Active
Barfield	Benjamin	James	67	AA	6/5/2013 0:00	10	1/31/2022 0:00	Active
	David	Michael	551	CRNA	10/12/2010 0:00	100010	9/30/2022 0:00	Active
	Jonathan	David	926	AA	10/21/2013 0:00	24	1/31/2022 0:00	Active
	Tara	Suzanne	168	CRNA	8/9/2011 0:00	100049	9/30/2021 0:00	Active
	Leah	Sue	513	CRNA	3/30/2007 0:00	5252	9/30/2021 0:00	Active
Christie	Timothy	Robert	139	CRNA	12/16/2010 0:00	100021	9/30/2022 0:00	Active
Croshal	Andrea	Lynn	906	AA	5/27/2016 0:00	61	1/31/2022 0:00	Active
De Lay	Mary	S	662	CRNA	3/10/2010 0:00	25019	9/30/2022 0:00	Active
Engelmann	Amy	Lynne	499	CRNA	10/4/2011 0:00	100055	9/30/2021 0:00	Active
Engstrom	Jaclyn	Marie	591	CRNA	10/8/2019 0:00	995091	9/30/2021 0:00	Active
Heringhaus	Nathan	S	1041	CRNA	4/15/2015 0:00	991732	9/30/2021 0:00	Active

CSV Output

RN Sub-license Compliance Report

	Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
0	Ackerman	Serena	Maija	97	CRNA	3/16/2009 0:00	181740.0	09/30/2021 12:00:00 AM	Active
1	Adams	Chad	R	1049	CRNA	7/2/2018 0:00	167534.0	09/30/2021 12:00:00 AM	Active
2	Ahern	Caitlin	Moira	1260	CRNA	10/23/2020 0:00	1622686.0	09/30/2021 12:00:00 AM	Active
5	Bishop	Trent	M	1258	CRNA	11/13/2020 0:00	1671331.0	09/30/2022 12:00:00 AM	Active
6	Boudreaux	David	Michael	551	CRNA	10/12/2010 0:00	197160.0	09/30/2022 12:00:00 AM	Active

Notebook
Example

Last_Name	First_Name	Middle_Name	Employee_Number	Title	Hire_Date	License_Number	Expiration_Date	License_Status
Ackerman	Serena	Maija	97	CRNA	3/16/2009 0:00	181740	9/30/2021 0:00	Active
Adams	Chad	R	1049	CRNA	7/2/2018 0:00	167534	9/30/2021 0:00	Active
	Caitlin	Moira	1260	CRNA	10/23/2020 0:00	1622686	9/30/2021 0:00	Active
	Trent	M	1258	CRNA	11/13/2020 0:00	1671331	9/30/2022 0:00	Active
	David	Michael	551	CRNA	10/12/2010 0:00	197160	9/30/2022 0:00	Active
	Tara	Suzanne	168	CRNA	8/9/2011 0:00	160403	9/30/2021 0:00	Active
Burgos-Viera	Nelson		623	CRNA	1/24/2017 0:00	1645472	9/30/2022 0:00	Active
Carpenter	Leah	Sue	513	CRNA	3/30/2007 0:00	180068	9/30/2021 0:00	Active
Christie	Timothy	Robert	139	CRNA	12/16/2010 0:00	197930	9/30/2022 0:00	Active
Copelin	Craig	Ernst	1261	CRNA	10/9/2020 0:00	1671382	9/30/2022 0:00	Active
Davignon	Amy	Rebecca	1234	CRNA	8/14/2009 0:00	177961	9/30/2022 0:00	Active
De Lay	Mary	S	662	CRNA	3/10/2010 0:00	1658405	9/30/2022 0:00	Active
Dunn	Alexander	Joseph	254	CRNA	3/28/2016 0:00	190775	9/30/2021 0:00	Active

CSV Output

Ancillary Resources

Associate Websites

(Out-of-scope but might use later)



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FALL MEETING WAS A SUCCESS!

Thank you to everyone who participated in the Fall Virtual Meeting! We are happy to report it was a success and we hope to see you at the next one!

UPCOMING EVENTS

Have you renewed your membership for 2020-2021? [Renew Today.](#)



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Membership Benefits

Membership Automatic Renewal Policy

Membership Categories and Privileges

Puerto Rico Registered Nurse Anesthetists (RNAs) Affiliation Form

Member Advantage Program

CRNA Careers

AANA Membership Benefits

"One Million Thank-yous" Program

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Original Project Proposal

- Pull professional licensing data from Colorado.gov and create a reporting process to better manage expired and pending expiration licenses.
 - Extract
 - Ideally – utilize an API from the CO-DORA license listing that is updated daily.
 - Add fictitious employee file to align with the state licensing status (fabricated with publicly available info)
 - Add the state license expiration and license name information if needed from “Professional-Types” csv
 - Cleaning:
 - Narrow the dataset to the appropriate license types, i.e. separate anesthetists from the other professional types such as plumber or electrician.
 - Drop unnecessary information required to meet the license management process (simplify)
 - Determine if additional information is needed for the underlying RN license
 - Note: Out of state / compact license will not be included in dataset, missing RN license will be part of risk reporting later in project
 - Load
 - Load to a PGAdmin database with the idea that the data set might provide feeds to third-party credentialing software such as Apogee or scheduling software such as Qgenda.
 - See the value
 - Join the dataset with the states license type and reoccurring expiration data cycle dates
 - Join the dataset with a (fabricated) employee file based on license number and/or name
 - Produce a report of “at-risk clinical employees” whose licenses show a) expired or b) about to expire (w/in 30 days)
 - Ancillary, determine number of practicing CRNA and AA’s in state of Colorado ... always wondered