File Delivery

Files can be delivered to one of two locations:

1. **Delivery to Amazon AWS S3 Bucket**
   The system is configured with an S3 bucket on Amazon AWS for each incoming state. States utilizing a directly upload to the S3 bucket will be provided with appropriate IAM credentials. Files delivered to the bucket will be processed automatically in the nightly batch process.

   The AWS Bucket will be named **datafiles.[state name]**. Within that bucket will be two folders, **production** and **staging**, corresponding to the respective application environments. A third folder, **development**, is used for delivering test samples and historical data files, and for local testing. A fourth folder, **disabled** is for developer use only and can be ignored by providers unless otherwise directed.

2. **Delivery to SFTP Server**
   States unable to upload files to an S3 bucket will be provided with credentials for a secure SFTP server. Files delivered to the SFTP server will be periodically transferred to the appropriate S3 bucket, and subsequently processed. Credentials to the SFTP server will be provided during onboarding.

   The FTP Server login will be **datafiles[state name]**. Within the home folder of the account will be two folders, **production** and **staging**, corresponding to the respective application environments. A third folder, **development**, is used for delivering test samples and historical data files, and for local testing. A fourth folder, **disabled** is for developer use only and can be ignored by providers unless otherwise directed.

File Formats

The R3DASHBOARD system accepts data in any number of standardized formats.

1. **Comma Separated Values**
   Comma Separated Values, or CSV, files are delimited text files that use a comma to separate variable-length field values, typically including one record per line, and typically one collection or data entity per file (e.g., customer, sale, license). They are frequently the output of spreadsheet, database, or automated system programming tools.

   More information available at https://en.wikipedia.org/wiki/Comma-separated_values

   A sample of this file format is included in the appendix.

2. **JSON**
   Javascript Object Notation, or JSON, is a lightweight, text-based, language-independent data interchange format. It is white-space agnostic and provides for both individual object and collection data mapping.

   More information available at https://www.json.org/

   A sample of this file format is included in the appendix.

Frequency

Files will be delivered nightly, 7 days a week (preferred).

Files should be delivered after 12am eastern and before 5am eastern.

Included Data

The Sale file should include all sales transacted since the last time files were sent. This usually translates into all sales from the prior day. In the case that files are not delivered nightly, any file delivered is assumed to include all data collected since the last delivery.

The Customer data file should contain only those customer records that are related to the sales transactions included in the Sale file.

The License data file should contain **ALL** hunting and fishing license records from the system. This facilitates the application identifying any new licenses that have not been previously identified and categorized.

Personally Identifiable Information and Customer Number

The R3Dashboard application requires a unique ID per customer in order to match transactions from one year to the next and calculate churn and new recruit rates. However, this ID data value does not have to be the actual provider system customer ID. If the provider considers Customer Number to be limited- or non-shareable PII, they can instead send a non-reversible hash of the customer ID data value. As long as it can be used to link together transactions for the same licensee over multiple years, it is suitable for our purposes.

Content

The files should include data relating to the sales transacted since the last time files were sent. This usually translates into all sales from the prior day. In the case that files are not delivered nightly, any file delivered is assumed to include all data collected since the last delivery.

The Customer file should only include the customers related to the sales in the Sale file.

File Naming Convention

Files will be named according to the following convention:

- 2 letter state abbreviation; followed by
- "_" (underscore); followed by
- 8 digit file pulled date in YYYYMMDD format; followed by
- "_" (underscore); followed by
- File type designation ("license", "customer", "sale"); followed by
- "_" (underscore); followed by
- GUID representing unique "batch" of data (see below); followed by
- ".csv" or ".json" as appropriate to file type sent

Examples: ia_20210501_license_ 958250ab-292e-4127-acd2-d80d0ade7896.csv

ia_20210501_customer_ 958250ab-292e-4127-acd2-d80d0ade7896.csv

ia_20210501_sale_ 958250ab-292e-4127-acd2-d80d0ade7896.csv

Batch ID

A "batch" is a set of related files sent to R3Dashboard.org. Each set of related license, customer, and sale data files, should be named using the same unique 32-character batch GUID (with or without the usual dashes).

If a second set of files is sent on the same calendar day, those files should be named using a new GUID that is distinct from prior batches sent on that day.

GUID batch ID's should not be duplicated.

A unique GUID should still be used even if using a single file format.

More information on GUIDs available at https://betterexplained.com/articles/the-quick-guide-to-guids/

Data Duplication

Sender should make best efforts not to send duplicate data.

That said, the R3Dashboard.org application data load processes have been built to be idempotent to minimize chance of duplication in case the same data is loaded more than once.

Deleting Sales

The Delete action is made available so that license sales included in a file sent in a prior period and subsequently voided by the provider can be removed from the R3 database. The endpoint is limited to deleting sales created in the previous 45 days by default, but this can be adjusted per provider, as necessary.

Note that the Delete action is intended to be used for sales which have been created in a prior period. It is expected that sales created and voided in the same reporting period (same day) will simply be excluded from the file sent for that period. If this is not the case, and a sale and it's subsequent deletion will be included in the same file, then provider must ensure that the sale create action request row occurs in the data file before the delete action request row.

Merging Customers

The Customer file format includes the **merge_state_customer_id** field to facilitate merging customer records in subsequent periods. This field should be blank in all cases except merge requests.

Merge requests should be included in the regular nightly Customer data file. The data row should include a complete customer data record of the customer to be removed, along with the merge_state_customer_id field containing the state customer id of the **persisting** customer record.

The effect of a customer merge in the R3Dashboard database is:

1. the customer record matching the **state_customer_id** in the merge request data row is deactivated
2. all historical sales data attached to the customer identified by the state_customer_id in the request will be attached to the customer identified by the **merge_state_customer_id**
3. any affected time periods will be re-summarized in the next nightly batch
4. any future customer or sales transactions identified by the "old" state_customer_id will kick out as **errors**

If either of the customer records cannot be found in the R3Dashboard database, the request will fail.

Note: Merge requests are presently only available when sending separate license, customer, and sale datafiles. The All (combined) data format does not provide the ability to send merge requests.

License Data File Specification

*File should include a header row using the values from the **Identifier** column.*

Field	Identifier	Description	Data Type	Format/Values	Notes
State Identifier	state	State to which this data applies	Alpha	2-character state abbreviation	Optional, strongly recommended
License ID	state_license_id	Unique license ID used by state	Alphanumeric		
Description	description	Generic description for license	Alphanumeric	Max 255 chars	Required
License Type	state_license_type	Privilege granted (hunting, fishing, combination)	Character	H = Hunting, F = Fishing, C = Combination O = Other	Optional, if known and available
		Alternative Format	String	Hunt, Fish, Combo, Other	
		Alternative Format	String	Hunting, Fishing, Combination, Other	
		Alternative Format	Alphanumeric	[as provided by state]	
License Residency	license_residency	In-state residency status of license	Alphanumeric	1, R = Resident 0, N = Non-Resident NA, or nil = N/A	Required
		Alternative Format	[per state]	[as provided by state]	
License Duration	duration	Duration of the license, in years	Integer	# of years duration or 99 for lifetime	Required Durations of 1 year or less = 1

* Residency and Duration of licenses may be provided at the transaction level

* "nil" above refers to an empty value or empty string ""

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Customer Data File Specification

*File should include a header row using the values from the **Identifier** column.*

Field	Identifier	Description	Data Type	Format/Values	Notes
State Identifier	state	State to which this data applies	Alpha	2-character state abbreviation	Optional, strongly recommended
Customer ID	state_customer_id	Unique customer ID used by state	Alphanumeric		Required
Birth Year	birth_year	Year of customer's birth	Integer	YYYY	
	age	*Alternative Field: Age*	Integer	NNN	
Gender	gender	Gender of customer	Character	M = Male, F = Female O = Other N, NA, or nil = N/A	Required
		Alternative Format	String	Male, Female, Other, NA	
		Alternative Format	[per state]	[as provided by state]	
State of Residence	customer_residence	Customer home state of residence	String	2-character state abbreviation or NA	Required
Merge Request State Customer ID	merge_state_customer_id	State customer ID into which this record should be merged	Alphanumeric		Required only for MERGE CUSTOMER requests, blank otherwise.

* It is necessary that state maintains and provides a unique customer ID that allows identification of prior year/license purchases

* Residency of customer may be provided at the transaction level

* "nil" above refers to an empty value or empty string ""

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Sale Data File Specification

*File should include a header row using the values from the **Identifier** column.*

Field	Identifier	Description	Data Type	Format/Values	Notes
State Identifier	state	State to which this data applies	Alpha	2-character state abbreviation	Optional, strongly recommended
Action	action	Action to take: Create or Delete	Alpha	C = Create D = Delete	Defaults to 'C' if not provided
Sales ID	state_sale_id	Unique id of sales transaction	Alphanumeric		Required
Customer ID	state_customer_id	ID of customer table record of purchaser	Alphanumeric		Required
License ID	state_license_id	ID of license table record of license	Alphanumeric		Required
Purchase Date	purchase_date	Date of purchase	Date	YYYY-MM-DD or YYYYMMDD	Required Any delimiter permitted, no delimiter permitted
		Alternative Format	Date	MM-DD-YYYY or MMDDYYYY	Any delimiter permitted, no delimiter permitted
Effective Date	effective_date	Effective date of license	Date	YYYY-MM-DD or YYYYMMDD	Required Any delimiter permitted, no delimiter permitted
		Alternative Format	Date	MM-DD-YYYY or MMDDYYYY	Any delimiter permitted, no delimiter permitted
Expiration Date	expiration_date	Expiration date of license	Date	YYYY-MM-DD or YYYYMMDD	Optional, preferred, if available Any delimiter permitted, no delimiter permitted
		Alternative Format	Date	MM-DD-YYYY or MMDDYYYY	Any delimiter permitted, no delimiter permitted
Residency	sale_residency	In-state residency status of transaction	Integer	1 = Resident 0 = Non-Resident nil = N/A	Optional, depending on state residency configuration
		Alternative Format	[per state]	[as provided by state]	

** For DELETE actions, all fields after **Sales ID** are optional.*

* "nil" above refers to an empty value or empty string ""

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Appendix A – Sample CSV Format Files

LICENSE sample CSV data file

```
state, state_license_id, description, state_license_type, license_residency, duration
SD, HUNT1YR, "1 year resident hunting license", H, 1, 1
SD, FISH1YR, "1 year resident fishing license", F, 1, 1
```

CUSTOMER sample CSV data file

```
state, state_customer_id, birth_year, gender, customer_residence
SD, 1393886, 1982, M, SD
SD, 1609056, 1978, F, SD
```

SALE sample CSV data file

```
state, action, state_sale_id, state_customer_id, state_license_id, purchase_date, effective_date, expiration_date, sale_residency
SD, C, 123456789, 1393886, HUNT1YR, 2021-01-25, 2021-01-25, 2022-01-24, 1
SD, C, 123454542, 1609056, FISH1YR, 2021-01-20, 2021-01-20, 2022-01-19, 1
SD, D, 987654541, , , , , ,
```

* Header rows are required in all files

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Appendix B – Sample JSON Format Files

LICENSE sample JSON data file

```json
{
  "licenses":[
    {
      "state":"SD",
      "state_license_id":"HUNT1YR",
      "description":"1 year resident hunting license",
      "state_license_type":"H",
      "license_residency":"1",
      "duration":"1"
    },
    {
      "state":"SD",
      "state_license_id":"FISH1YR",
      "description":"1 year resident fishing license",
      "state_license_type":"F",
      "license_residency":"1",
      "duration":"1"
    }
  ]
}
```

CUSTOMER sample JSON data file

```
{
  "customers":[
    {
      "state":"SD",
      "state_customer_id":"1393886",
      "birth_year":"1982",
      "gender":"M",
      "customer_residence":"SD",
      "merge_state_customer_id":""
    },
    {
      "state":"SD",
      "state_customer_id":"1609056",
      "birth_year":"1978",
      "gender":"F",
      "customer_residence":"SD",
      "merge_state_customer_id":""
    }
  ]
}
```

SALE sample JSON data file

```
{
  "sales":[
    {
      "state":"SD",
      "action":"C",
      "state_sale_id":"123456789",
      "state_customer_id":"1393886",
      "state_license_id":"HUNT1YR",
      "purchase_date":"2021-01-25",
      "effective_date":"2021-01-25",
      "expiration_date":"2022-01-24",
      "sale_residency":"1"
    },
    {
      "state":"SD",
      "action":"C",
      "state_sale_id":"123454542",
      "state_customer_id":"1609056",
      "state_license_id":"FISH1YR",
      "purchase_date":"2021-01-20",
      "effective_date":"2021-01-20",
      "expiration_date":"2022-01-19",
      "sale_residency":"1"
    },
    {
      "state":"SD",
      "action":"D",
      "state_sale_id":"987654541"
    }
  ]
}
```