

LEAF
D A T A S Y S T E M S

POWERED BY MJ FREEWAY

Leaf Data Systems
State of Washington
WSLCB Licensee User Manual v 1.0
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Introduction to the Seed to Sale Process

Before beginning to explain seed to sale processes, it is imperative to define key terms relating to the data for the industry in Leaf Data Systems.

Definitions

Areas mean the physical location at a licensee facility where a plant or product is located.

Batch is a term used to group plants and product with identical attributes together. (See also *plant batch*, *harvest batch*, and *intermediate/end product batch*)

Card Reg. Number represents an employee id number that may be issued by a licensed facility to its employees, and is used for record keeping purposed; this is not a required field.

Concentrated Cannabis is the extracted oil or collected trichomes from any plants of the genus *Cannabis*.

Conversions are an inventory transaction where the input of one inventory type can yield the output of an additional inventory type, resulting in the appropriate inventory levels being incremented/decremented accordingly; additionally, associated waste weight relative to the conversion may be recorded.

Destructions are any destruction of marijuana plants or products, measured by count for plants, and measured by weight for products.

End Products are a type of inventory produced by a Processing Facility from intermediate products, to include the subcategories of liquid edible, solid edible, concentrate for inhalation, topical, infused mix, packaged marijuana mix, sample jar, usable marijuana, capsules, tinctures, transdermal patches, and suppositories; end products may be transferred to Retailer Facilities for sale to consumers.

External ID is a flex-field used to cross-reference naming conventions/additional data relative to the associated record when data is acquired via API from a third-party business management software vendor.

Global ID means a unique identifier that is assigned to every line item record within Leaf Data Systems.

Harvests mean the event during which a particular harvest batch is culled, weighed, and documented as harvested material.

Harvest Batch means a plant or group of plants of the same strain that have been harvested; harvest batches may contain all or part of any plant batch, and can also include plants from differing plant batches as long as they are the same strain; a harvest batch is 'closed' once all of the dry weight of the batch has been 'finished' into inventory lots.

Harvest Materials represent the flower and other material produced from a harvest.

Immature Plants are a type of inventory including plants that are in their vegetative phase, which are tracked as inventory. (See also *Propagation Material*)

Initial Inventory is defined as inventory entered upon implementation of Leaf Data Systems representing current on-hand inventory at licensed facilities.

Intermediate Products are a type of inventory that is produced at a Processing Facility, to include the subcategories of marijuana mix, non-solvent based concentrate, hydrocarbon concentrate, CO₂ concentrate, ethanol concentrate, food grade solvent concentrate, and infused cooking medium; intermediate products are used to produce end products, but cannot be transferred to a retailer until they are converted to their end product state.

Inventory Lot means the flowers, leaves, or other plant matter from one or more marijuana plants from the same batch.

Inventory Transfers are the documented event logging the transport of marijuana or any related products from one licensed facility to another.

Inventory Types represent the concept of inventory lots that will exist at a licensee facility, whereas the inventory lots represent the physical inventory on hand of a given inventory item.

Lab Results are the record entered by testing laboratory facilities that provide quality assurance analysis for marijuana products.

Licensee means a production facility, a processing facility, a retailer facility, a producer/processor facility, a licensed transporter, a co-op, or a tribe.

Manifest refers to the documentation for the purposes of transporting marijuana or related products and contains the data from the inventory transfer record.

Marijuana means the dried leaves and flowers of a plant of the genus *Cannabis*.

Mature Plants are an inventory type which includes living plants that have been converted to inventory; plants must be converted into inventory prior to being added to an inventory transfer.

Plant is defined as any marijuana plant that is in the vegetative or flowering phase, but not yet harvested.

Plant Batch means a plant or group of plants of the same strain.

Processing Facility means a licensed facility in which marijuana plant extractions and infusions take place.

Production facility means a business that acquires, possesses, cultivates, delivers, transfers, transports, supplies or sells marijuana.

Production Runs are the extraction batch, which is created by producing concentrated cannabis from one or more harvest batches of marijuana.

Propagation Material refers to marijuana plants that are in the propagation phase, to include seeds, clones, and tissue cultures; propagation material is tracked as inventory until the plants reach their vegetative phase, at which point they are converted into living plant records. (See also *Immature Plants*)

Retailer means a business that acquires, possesses, delivers, transfers, transports, supplies, sells or dispenses marijuana or related supplies and educational materials to medical marijuana patients and/or retail marijuana consumers.

Sale means a record of the transaction occurring upon dispensing of marijuana from a licensee to a patient/customer.

Strains represent a specific sub-species of any plant of the genus *Cannabis*.

Testing laboratory means any independent QA laboratories to test marijuana, edible marijuana products and marijuana-infused products that are to be sold.

User means any individual from or affiliated with the WSLCB, as well as any individual from or affiliated with any WA licensees who have a profile created for access within Leaf Data Systems.

The Plant to Product Life Cycle of Marijuana

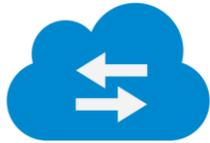
Plant propagation via seed, cuttings, or tissue culture begins at the Production Facility, where all living plants and propagation material are tracked throughout their growth phases. They progress from propagation material to vegetative (immature plants) and then flowering (mature plants) stages. Upon harvest, weights are gathered which represent the flower and other material being produced, and continue to be entered as product dries to include finished product, trim, and waste weights. Samples of flower and other material are sent to a Testing Laboratory where the required testing can be performed. While product samples are undergoing lab testing, the remaining lots of the associated product remain quarantined until passing test results have been entered by the Testing Laboratory.

Once harvest batches have been released from lab quarantine, packages in the form of inventory lots may be transferred to Processing Facilities in order to undergo extraction and infusion processes. Processing Facilities process the usable marijuana for sale, or extract the cannabinoid compounds from the plant, which can then be packaged for sale directly as concentrated cannabis for inhalation, or processed into marijuana-infused products. Again, samples are sent to a Testing Laboratory for final testing prior to being transported to Retailers to be distributed to consumers.



Understanding How the Data is Captured into Leaf

Application Programming Interface (API)

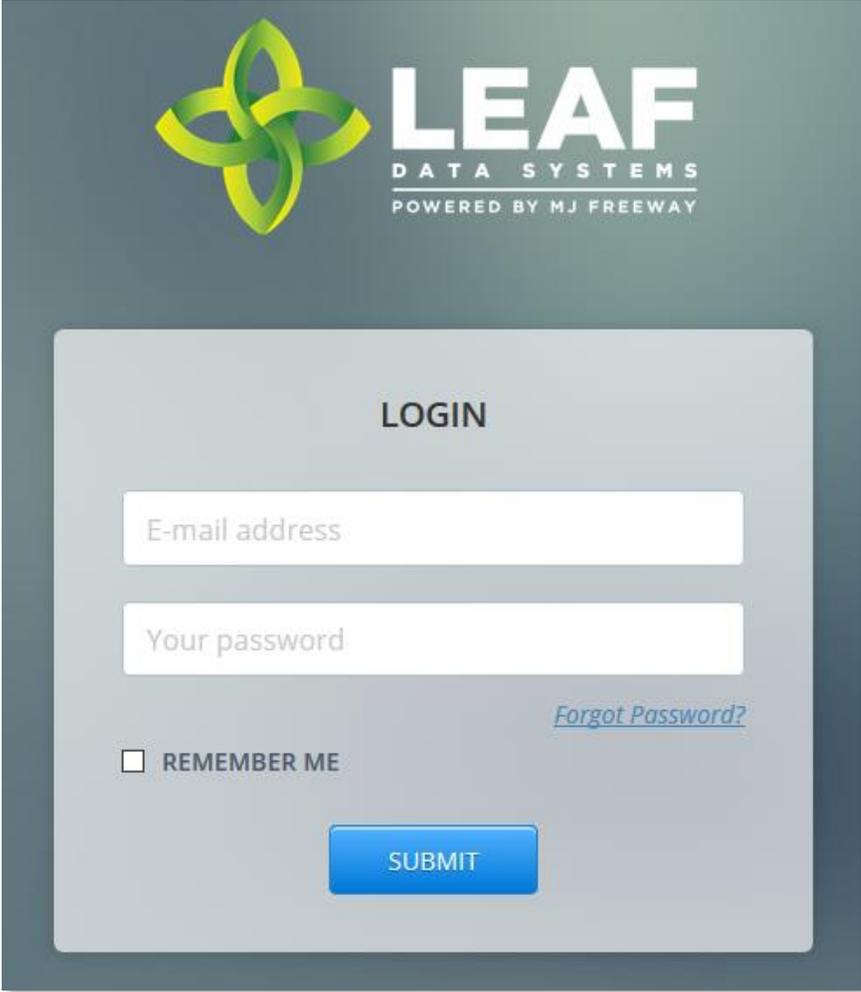


Licenseses who currently utilize business management software provided by a third party vendor to manage their plants, inventory, and sales are able to integrate their existing system with Leaf Data Systems via an Application Programming Interface (API). An API is a set of requirements that governs how one application communicates with another; a tool, or library that assists developers in writing code that interfaces with other software. MJ Freeway’s API details for Leaf Data Systems are available for any software company to utilize for their clients’ benefit.

Site Navigation

Logging In

If the licensed Administrator has enabled your profile within Leaf Data Systems, your email address will serve as your username for logging in. Before logging in the first time, select the 'Forgot Password?' link in order to create a password that is only known to you. (See **Figure 1.1** to the right.)



LEAF
DATA SYSTEMS
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LOGIN

E-mail address

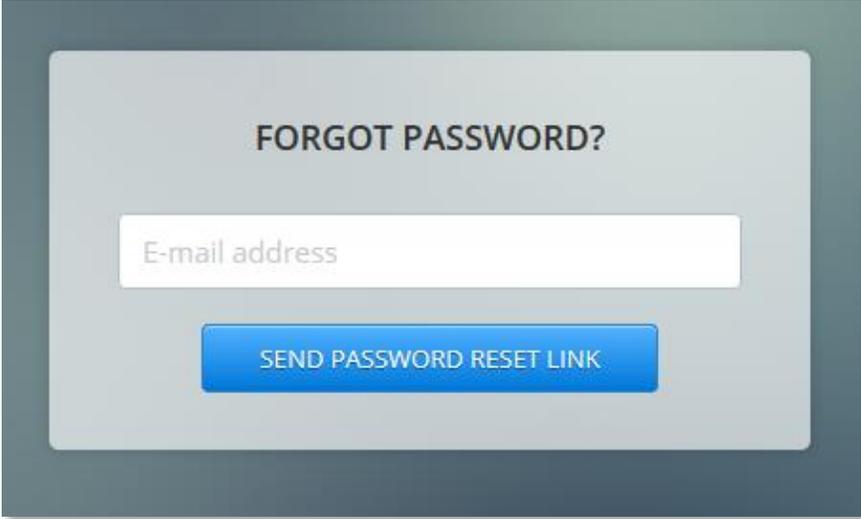
Your password

[Forgot Password?](#)

REMEMBER ME

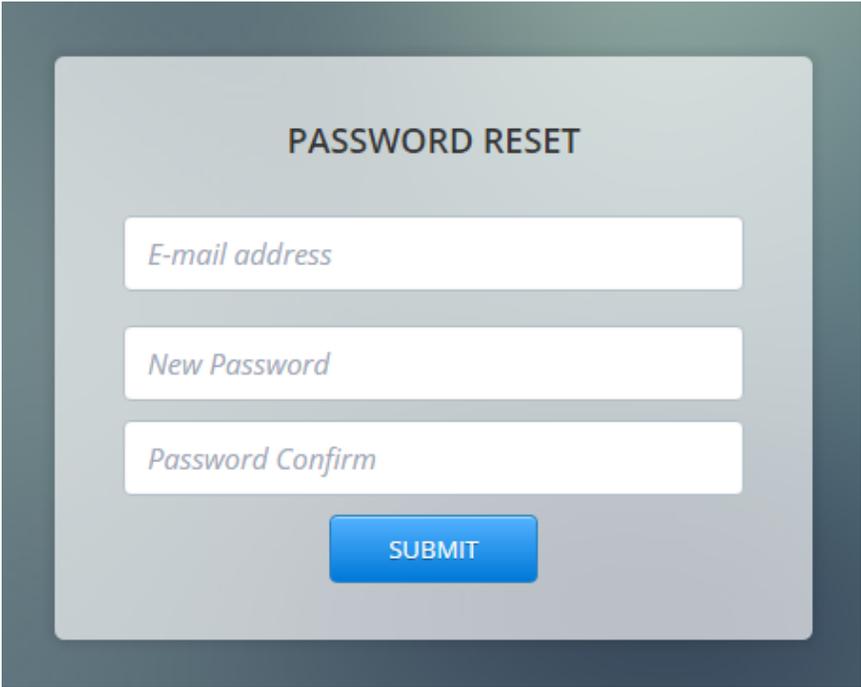
SUBMIT

Enter your email address into the 'Forgot Password?' window, and click the blue button 'Send Password Reset Link' to have the link emailed to you. (See **Figure 1.2** to the right.)



The screenshot shows a rectangular form with a light gray background and a dark gray border. At the top center, the text "FORGOT PASSWORD?" is displayed in a bold, black, sans-serif font. Below this text is a white input field with the placeholder text "E-mail address" in a light gray font. Underneath the input field is a blue button with the text "SEND PASSWORD RESET LINK" in white, uppercase, sans-serif font.

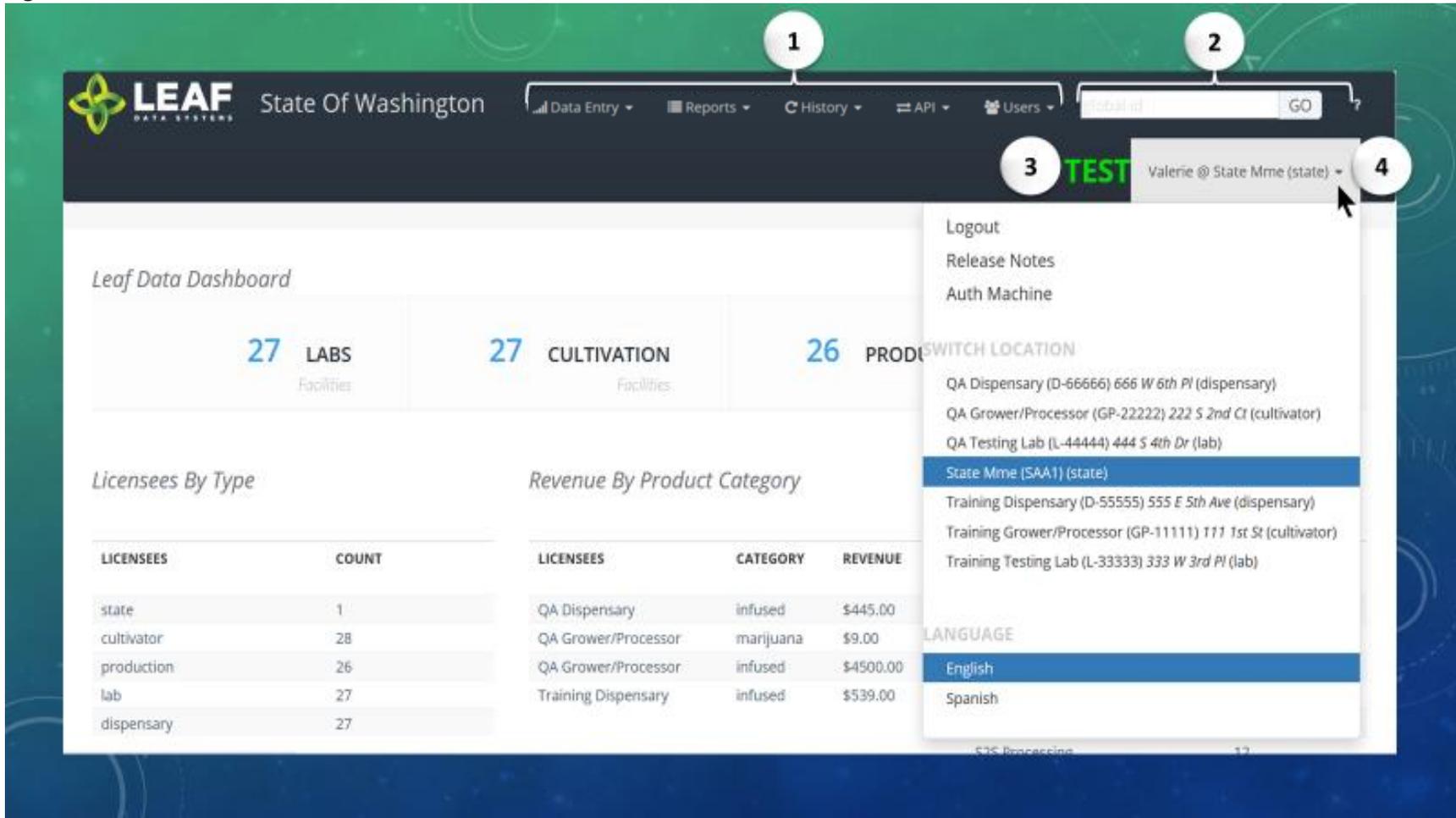
Upon clicking the link in the email you receive, you will be prompted to enter your email address and choose a new password. Once you have confirmed your password and hit the 'Submit' button, you will then be able to login to the main URL with your email address and password. (See **Figure 1.3** to the right.)



The screenshot shows a rectangular form with a light gray background and a dark gray border. At the top center, the text "PASSWORD RESET" is displayed in a bold, black, sans-serif font. Below this text are three white input fields stacked vertically. The first field has the placeholder text "E-mail address", the second has "New Password", and the third has "Password Confirm", all in a light gray font. At the bottom center of the form is a blue button with the text "SUBMIT" in white, uppercase, sans-serif font.

Menus

Figure 1.4



1

Main Menu – enables navigation to the various areas of Leaf Data

Users Menu – holds a list of all authorized users for viewing and limited modification. Authorization levels for users can be modified by an 'administrative' user of Leaf Data Systems.

API Menu – offers information regarding the API coding information available for clients to integrate their information into Leaf Data Systems as well as test functionality for API integration.

History Menu – contains filterable historical data relevant to a licensee’s information within Leaf.

Reports Menu – contains filterable current data relevant to a licensee’s information within Leaf.

Data Entry Menu – allows for manual entry or data file upload (csv format) for all data points relevant to a licensee’s classification to be captured within Leaf.

2

Global ID Search – allows a user to search within Leaf Data Systems by any plant, batch, or inventory global ID.

3

Environment – denotes the environment of Leaf Data Systems to which you are logged in, if you are not logged into ‘Production’, for example, ‘Training,’ ‘Test,’ or ‘Stage.’

4

User Menu – provides the ability to log out a user, and for Admin roles to authenticate a browser on a specific computer for use by all users.

Logout – when selected, user logged into a browser will be logged out.

Release Notes – click to view the most recent ‘Release Notes’ relative to the environment you are logged into.

Location Menu – enables users to toggle between Leaf instances of each license they are authorized to access.

Common Site Functions

Figure 1.5

The screenshot displays the LEAF State Of Washington interface. At the top, there is a navigation bar with the LEAF logo, the text "State Of Washington", and several menu items: "Data Entry", "Reports", "History", "API", "Users", and a search bar containing "global id" with a "GO" button. Below the navigation bar, the word "TEST" is displayed in green. The main content area is titled "Batch Report" and features a search and filter section. This section includes input fields for "LICENSEES ID", "GLOBAL ID", "EXTERNAL ID", "AGENT ID", and "TYPE", along with date range filters for "PLANTED DATE FROM" and "HARVESTED DATE FROM". A "filter" button is present, and an "Export" button is located to the right. Below the filter section is a table with the following columns: GLOBAL ID, EXTERNAL ID, LICENSEES ID, AGENT ID, LABEL, DETAILS, DISPOSALS, AREA, STATUS, TYPE, and STRAIN. The table contains five rows of data, all with "open" status and "concentrated cannabis" type. Arrows next to the "EXTERNAL ID" and "DETAILS" headers indicate sorting options. A "4" in a circle points to the "DETAILS" column header. A "3" in a circle points to the "Export" button. A "1" in a circle points to the filter section, and a "2" in a circle points to the "EXTERNAL ID" header.

GLOBAL ID	EXTERNAL ID	LICENSEES ID	AGENT ID	LABEL	DETAILS	DISPOSALS	AREA	STATUS	TYPE	STRAIN
WAD-55555.BA2E1KR		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KS		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KT		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KU		D-55555	Valerie Burns					open	concentrated cannabis	
WAD-55555.BA2E1KV		D-55555	Valerie Burns					open	concentrated cannabis	

1

Filtering – data fields at the top of forms allow for filtering by key data points relevant to the form

2

Sorting – arrows adjacent to column headers allow for ascending and descending sorting of data within the columns

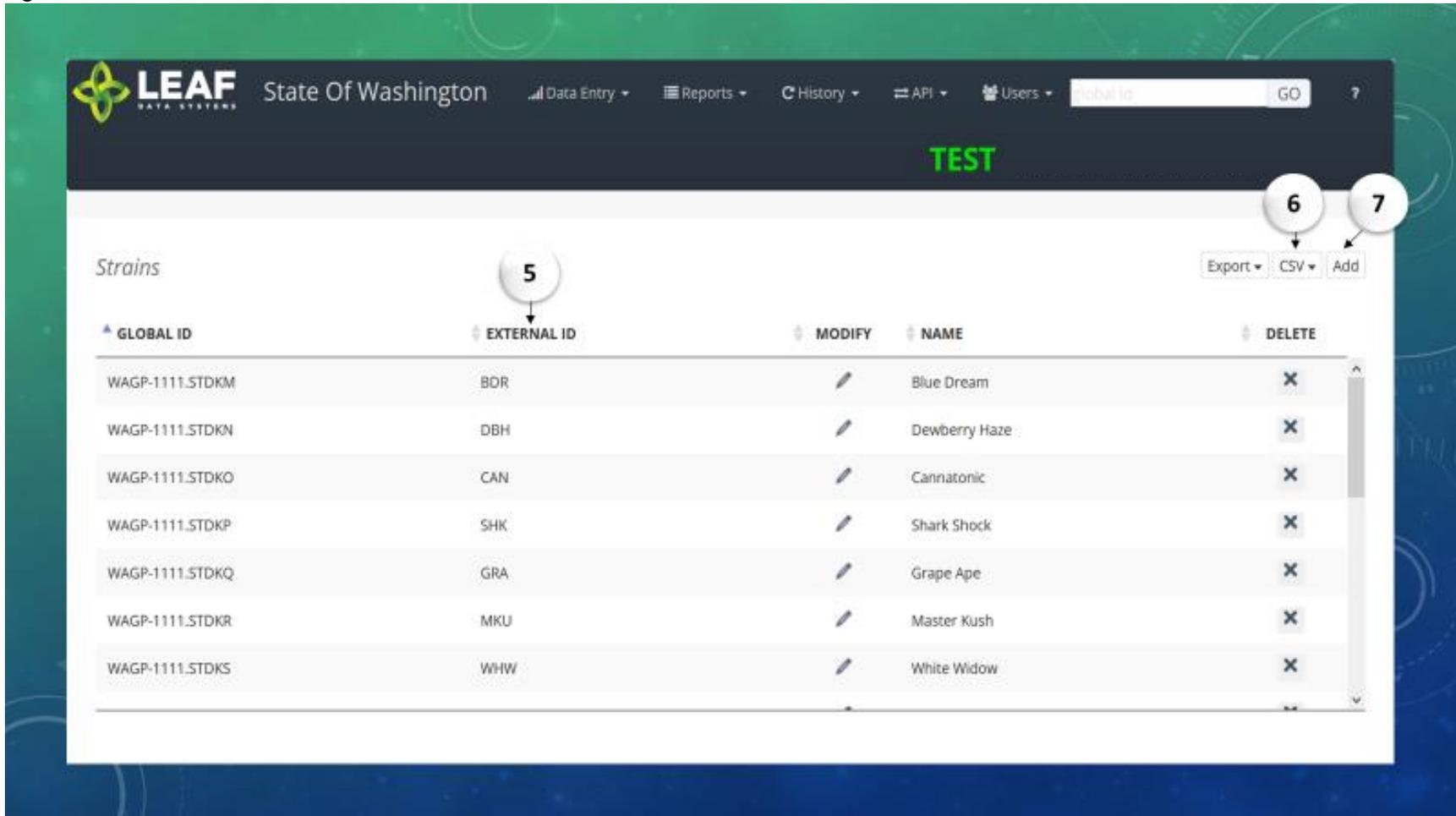
3

Exporting – data can be exported into various file types, including Excel, PDF, CSV, TXT, and HTML

4

Information Links – certain line item data has links embedded which will navigate you to a page corresponding to more detailed information about the data

Figure 1.6



5

External ID – additional data field available for all data points in order to allow correspondence of external naming conventions for data.

Adding Data – data can be imported by manually adding each line item, or by uploading a .csv file with the appropriate information.

6

CSV – used for uploading an appropriately formatted .csv file in order to import data into Leaf in order to create, update, or delete a record.

7

Add – used for manual data upload; produces a form where data point details can be entered field by field.

Global ID

The system assigns a globally-unique, non-repeating identification number for every line item recorded across all LICENSEEs in the State. The composition of each unique or “Global” ID is as follows:

- ◆ Positions 1-2 represent the State. Each Global ID will start with WA.
- ◆ Position 3 will be a letter representing the type of LICENSEE:
 - ◆ G for Producers
 - ◆ R for Retailers
 - ◆ L for Labs
 - ◆ M for Processors
 - ◆ J for Producer/Processors
 - ◆ T for Tribes
 - ◆ E for Coops
 - ◆ Z for Transporters
- ◆ Positions 4-9 represent the licensee ID number (the six-digit code assigned by the State).
- ◆ Position 10 is a period used as a separator.
- ◆ Positions 11-12 identify the type of “entity” the item is, for example “PL” would stand for “Plant.” Two digit identifiers used are as follows:
 - ◆ AR – areas
 - ◆ BA – batches
 - ◆ DI – disposals
 - ◆ IN – inventory lots
 - ◆ IT – inventory transfers
 - ◆ LR – lab results
 - ◆ PL – plants
 - ◆ SA – sales
 - ◆ ST – strains
 - ◆ US – users
- ◆ The remaining digits are a UNIQUE PRIMARY KEY in the database using an unsigned BIG INTeGer, converted into base-36 using the symbols 0-9, A-Z.
 - ◆ An Unsigned BIG Integer = 8 Bytes = $(2^{63})-1$
 - ◆ Max number size in Base-10 = 18,446,744,073,709,551,615 (20 digits)
 - ◆ Max number size in Base-36 = 3W5E11264SG0G (13 digits)

Manual/CSV Data Entry Workflow Outlines (by Licensee type)

Producer Data Entry Workflow Outline	Processor Data Entry Workflow Outline	Retailer Data Entry Workflow Outline
<ul style="list-style-type: none"> ◆ Admin Setup <ul style="list-style-type: none"> ◆ Assign User Authorization levels ◆ Create Areas ◆ Create Strains ◆ Create Inventory Items ◆ Import of Initial Inventory ◆ Adding Plants (all possessing the same attributes) ◆ Living Plant Processes <ul style="list-style-type: none"> ◆ Propagation Material ◆ Advancing Stages ◆ Changing Areas ◆ Destroying Plants ◆ Harvest Process <ul style="list-style-type: none"> ◆ Wet Weight(s) ◆ Dry Weight(s) ◆ Waste Weight(s) ◆ Creating Lots ◆ Inventory Functions <ul style="list-style-type: none"> ◆ Splitting Lots ◆ Moving Lots ◆ Disposals ◆ Inventory Adjustments ◆ Inventory Conversions ◆ Transferring Samples to Testing Lab ◆ Transferring Inventory to Other licensees 	<ul style="list-style-type: none"> ◆ Admin Setup <ul style="list-style-type: none"> ◆ Assign User Authorization levels ◆ Create Areas ◆ Create Strains ◆ Create Inventory Items ◆ Import of Initial Inventory ◆ Receiving Inventory Transfers (from licensees) ◆ Inventory Functions <ul style="list-style-type: none"> ◆ Splitting Lots ◆ Moving Lots ◆ Disposals ◆ Inventory Adjustments ◆ Inventory Conversions ◆ Transferring Samples to Testing Lab ◆ Transferring Inventory to Other licensees 	<ul style="list-style-type: none"> ◆ Admin Setup <ul style="list-style-type: none"> ◆ Assign User Authorization levels ◆ Create Areas ◆ Create Strains ◆ Create Inventory Items ◆ Import of Initial Inventory ◆ Receiving Inventory Transfers (from licensees) ◆ Inventory Functions <ul style="list-style-type: none"> ◆ Splitting Lots ◆ Moving Lots ◆ Disposals ◆ Inventory Adjustments ◆ Inventory Conversions ◆ Transferring Inventory to Other licensees ◆ Sales