User Guide

Ayla Data Export Feature for Device Events

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Ayla Networks

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1. Introduction

The Ayla Data Export feature enables customers to export their device-related events data in an easily accessible manner.

1.1 About this Document

This document explains how to use the Ayla Data Export feature, and provides the formats of the expected event data files.

NOTE	Refer to the Appendix for default header values for each event type.

1.2 Intended Audience

This document is written for stakeholders who would like to use our Data Export feature to export their device-related events data for archiving or analysis.

1.3 Related Documentation

- *Ayla OEM Dashboard User Manual,* AY006UDB3-3 (available at support.aylanetworks.com)

1.4 Document Conventions

Ayla user documentation follows these conventions:

- Text that you type (such as commands) and the contents of downloaded files are shown as:

```
cd wmsdk_bundle-3.1.16.1
tar xfz ada-wmsdk-src-1.0.tgz
```

- File names, scripts, names of commands, properties in a file, code, and the like are also in `Courier New` font, for example: Use the `psm-dump` command to …
- Words or phrases that are specifically defined and could potentially be misunderstood are initially in "quotes" the first time they appear in the document.
- Names of buttons, keys on the keyboard, links on a website, and the like are written as is; for example, press the Reset button.
- The route to navigate network and file paths are separated by the back slash, "\."
- Menu options on the user interface (UI) are shown in `Courier New` font and each point that you have to click to navigate to the next is separated by the vertical bar, "|."
- Ancillary information that is important to emphasize is shown as:

NOTE The commands provided in the example assume your evaluation board is `mw300_rd` and your chip is `mw300`. If otherwise, make the appropriate substitutions.

- Information describing system failures or hazards that could damage a product, including data loss, is shown as:

Make sure that the appropriate data buffering is accounted for in deployed devices, especially where the loss of data is critical to the core functionality or the services provided by the systems.

2. Background

The Ayla Data Export feature provides OEM developers and data analysts with greater flexibility for retrieving and consuming historic device event data from the Ayla Cloud Service, beyond the capability offered currently by our OEM dashboard.

This feature can assist in the analysis and debugging of the following use cases:

- Troubleshooting inconsistent device behavior over a period of time
- Identifying usage patterns and scope for improvement
- Maintaining an archive of device events data for product lifecycle management

Customers who do not need access to real-time data or who do not wish to build external systems to maintain an active DSS subscription can use this feature to export their historic data for analysis or archiving. This feature also allows our customers to access and retrieve data beyond the current standard data retention policy on OEM Dashboard, which is 90 days from the date of capture.

The device event data files are stored on Amazon S3 under the separate event folders. There are five device event types and a folder is created for each of these on Amazon S3 for storing the data files:

- Datapoint
- Datapoint Ack
- Location
- Connection
- Registration

The event data files are posted on Amazon S3 on a daily basis under the respective event folder only if new event data is available after the most recent save. You may notice more time stamped subfolders being added under specific event types folder if the volume of data being generated for those event types is high.

NOTE Each event folder can have multiple subfolders that are timestamped based on when the data within the folder was created. Each subfolder contains only one csv event data file.

3. Getting Started

In order to use the device event data export feature, you need to follow these steps:

3.1 **Retrieve OEM Access Credentials:** Get access to the Ayla OEM Dashboard with OEM Admin privileges

3.2 **Use Amazon S3 client:** View and retrieve device event files using GUI or CLI interface to Amazon S3.

3.3 **View and Consume Records:** Use the appropriate application to read and consume the generated.csv device event data files.

3.1 Retrieve OEM Access Credentials

In order to access the device event data files on Amazon S3, you would first have to retrieve the unique access credentials for your OEM. As shown by Figure 1, click on the Data Export tab in the OEM dashboard to retrieve the below credentials:

- AWS Access Key
- AWS Secret Access Key
- S3 URL

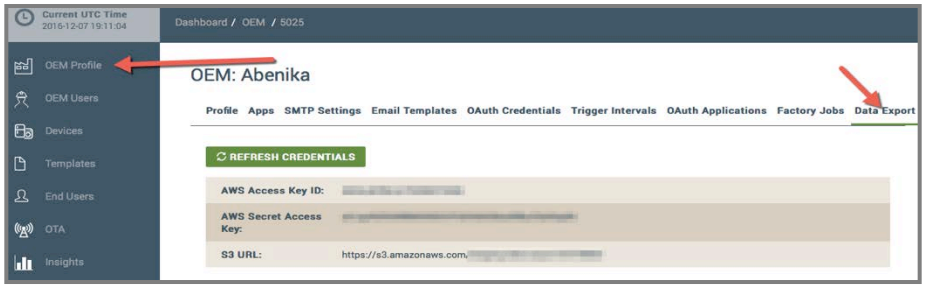


Figure 1: OEM Access Credentials

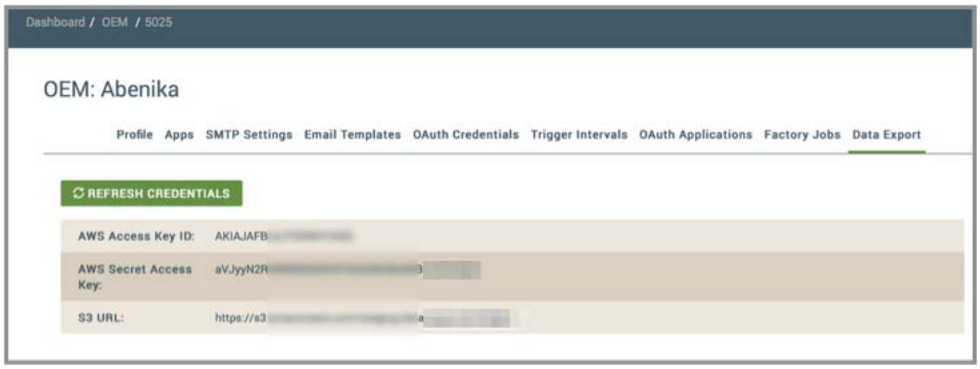


Figure 2: Refresh Credentials Button

The access credentials remain valid indefinitely unless an OEM Admin requests new credentials by pressing the Refresh Credentials button shown by Figure 2.

When new credentials are requested by pressing the Refresh Credentials button, a confirmation message displays, as shown by Figure 3.

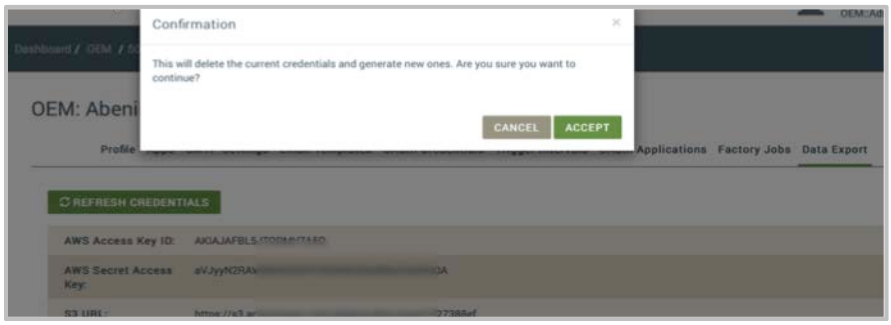


Figure 3: Confirmation Message for Refresh Credentials request

3.2 Using the Amazon S3 Client

The Ayla Cloud service implements regular processes aggregating new device events that are packaged into data files. These files are stored on Amazon S3 and organized by date, timestamp and event type. The data files may contain duplicate events or out-of-sequence events data. These files are maintained for twelve months. You may use any S3 client to access the Ayla data files stored on Amazon S3. Some examples of Amazon S3 clients are given below:

- CyberDuck
  - Mac/Windows GUI
  - http://cyberduck.io
- s3Cmd
  - http://s3tools.org/s3cmd
  - Mac/Windows CLI

We (Ayla Networks. Inc.) do not endorse any of the above clients. They are listed as examples for your information/reference only. For the purpose of this document, we are using the Cyberduck client.

Figure 4 shows an example of how credentials provided in the Ayla OEM Dashboard are mapped to the corresponding fields in the S3 Client (in this case we are using Cyberduck). The field names could differ based on the S3 client being used.

The direct credential mappings are as shown below.
AWS Access Key = Access Key ID
AWS Secret Access Key = Secret Access Key
S3 URL = Path

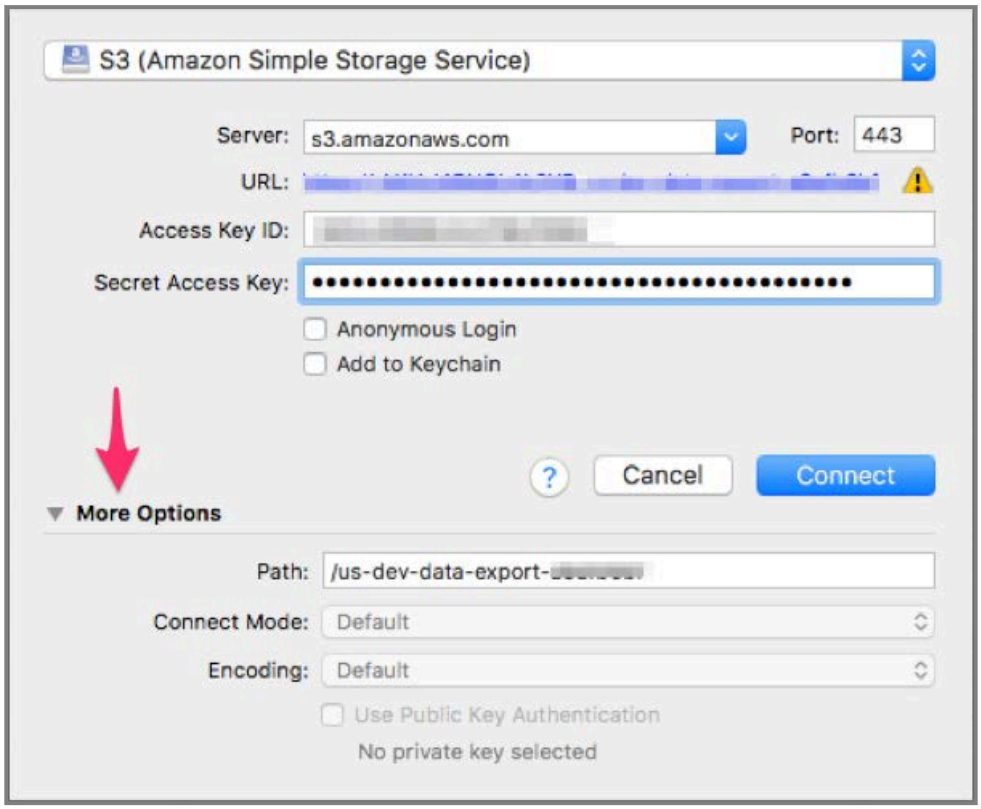


Figure 4: Credentials Mapping

Once you successfully connect to Amazon S3, you gain access to the device event data files associated with the access credentials that were plugged in.

NOTE If you are in a unique situation where you are a developer working across multiple OEMs, you should double-check to ensure that you are entering the correct OEM credentials to get access to the data files for your current OEM.

The Ayla device event data files in Amazon S3 are grouped into five event types (folders) as shown by Figure 5.

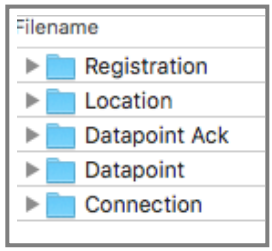


Figure 5: Event File groupings in Amazon S3

As shown by Figure 6, each event subfolder within the main event type folder is tagged with a timestamp formatted as YYYY-MM-DD-HH:MM:SS in UTC. The frequency in which the subfolders and data files are created under different event type folders is different depending on the event type. Some event types typically generate more data than others. You may therefore see some gaps between the timestamps of the subfolders depending on the type of event.

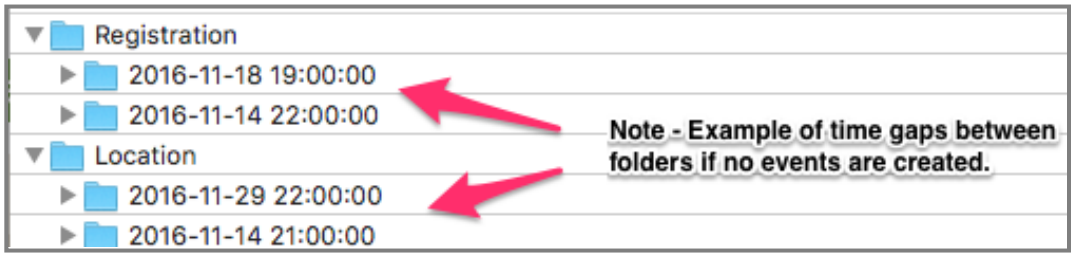
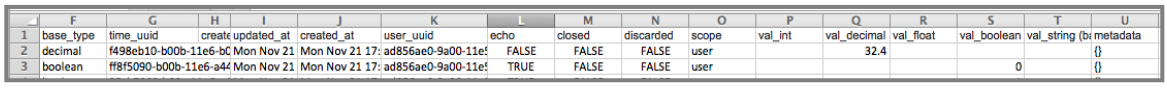


Figure 6: Timestamp for Data Export files in Amazon S3

NOTE The Datapoint or Datapoint Ack event folders typically have more subfolders and data files compared to Registration or Location event folders. It is important that you are aware of this as a developer.

3.3 Viewing and Consuming Event Data Files

Each device event type folder contains at least one subfolder that has one .csv event data file. You need an application to view the saved .csv data files. We use Microsoft Excel to open the .csv data file, as shown in Figure 7. Notice that each individual property of the Datapoint event displays as a single line entry in the .csv file. This same data entry pattern is in the .csv files across all event types.



	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	base_type	time_uuid	create	updated_at	created_at	user_uuid	echo	closed	discarded	scope	val_int	val_decimal	val_float	val_boolean	val_string (b	metadata
2	decimal	f498eb10-b00b-11e6-b0		Mon Nov 21	Mon Nov 21 17:	ad856ae0-9a00-11e5	FALSE	FALSE	FALSE	user		32.4				{}
3	boolean	ff8f5090-b00b-11e6-a44		Mon Nov 21	Mon Nov 21 17:	ad856ae0-9a00-11e5	TRUE	FALSE	FALSE	user				0		{}

Figure 7: Data Export .csv File

NOTE String values are base64 encoded.

4. Appendix

NOTE display_name, val_string,metadata) are base64 encoded values. These values are highlighted in Table 1.

Table 1: Ayla Device Event Data Export Files Header List by Event Type

Datapoint	Datapoint Ack	Connection	Location	Registration
oem_id	oem_model	oem_id	oem_id	oem_id
oem_model	dsn	oem_model	oem_model	oem_model
dsn	property_name	dsn	dsn	dsn
property_name	display_name	event_time	ip	user_uuid
display_name	base_type	user_uuid	lat	registered
base_type	time_uuid	status	long	registration_type
time_uuid	created_at_from_device		provider	registered_at
created_at_from_device	updated_at		user_uuid	unregistered_at
updated_at	created_at		created_at	
created_at	user_uuid			
user_uuid	echo			
echo	closed			
closed	discarded			
discarded	scope			
scope	val_int			
val_int	val_decimal			
val_decimal	val_float			

Datapoint	Datapoint Ack	Connection	Location	Registration
val_float	val_boolean			
val_boolean	val_string			
val_string	metadata			
metadata	ack_message			
direction (input/ouput)	ack_status			
	ack_id			
	acked_at			

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