

Forcepoint DLP and AWS Security Hub

Integration Guide

Michael Nevin Mattia Maggioli 31 March 2020 Public

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Summary

This guide provides step by step instructions to configure Forcepoint DLP and AWS Security Hub to export DLP incidents, transform data across different formats, and ingest them into AWS Security Hub.

The code and instructions provided enable system administrators to:

- Export incident data from Forcepoint DLP automatically in real-time or manually for batch exports
- Transform incident data into the ASFF format required by AWS Security Hub
- Ingest the data as "Findings" into AWS Security Hub and visualize events in groups as "Insights"

This interoperability enables customers to use AWS Security Hub as SIEM tool for incident data provided by Forcepoint DLP, and to correlate incident events with other Findings from multiple sources including AWS workloads.

A description of the workflow between the components involved in this POC is depicted in this diagram:

	Forcepoint DLP	2) Incident data are pulled from Forcepoint Security Manager in real-time or manually (batch export)	Remediation Script ASFF transform	Security Hub BatchImportFindings API
	1) Forcepoint DLP rectincident data as soons DLP policy is breacher	ords as a ed	3) Incident data are transformed and posted in real-time to AWS Security Hub	4) Service is activated via CloudFormation and default Insights are created automatically CloudFormation
 	с	USTOMER PREMISES		AMAZON WEB SERVICES

Caveats

The integration described in this document is tested with the following product versions:

- Forcepoint DLP with Forcepoint Security Manager 8.5.x
- AWS Security Hub API schema 2018-10-08 with ASFF format update on 12 March 2020

Implementation

The solution described in this chapter requires the following files available at this link: <u>https://frcpnt.com/dlp-securityhub-latest</u>

fp-dlp-exporter-aws-azure-v1.1.zip

The archive **fp-dlp-exporter-aws-azure-v1.1.zip** contains all files necessary to setup and run all the services which enable the integration between Forcepoint DLP and AWS Security Hub:

- FSM DB connection: provides real-time export of DLP incidents, extracted from the database of Forcepoint Security Manager
- Incident XML transformation: provides manual and batch export capabilities via the remediation script feature available in Forcepoint Security Manager

The solution allows for customizable levels of granularity (High, Medium, and Low severity levels) and performs the transformation and upload tasks, with minimal impact on the underlying storage.

We suggest deploying the solution on the machine which hosts Forcepoint Security Manager, the instructions provided in this document are based on this scenario. The machine hosting the Forcepoint Security Manager will be referenced in the rest of this document by the name "**FSM**".

The following software will be automatically installed by the **install.bat** script provided inside **fp-dlp-exporter-aws-azure-v1.1.zip**:

Nssm 2.24

using the following command

START /WAIT powershell -command "[Net.ServicePointManager]::SecurityProtocol = [Net.SecurityProtocolType]::Tls12; Invoke-WebRequest "https://nssm.cc/release/nssm-2.24.zip" -Method Get -OutFile .\Resources\nssm.zip"

Step 1 – Unpack DLP Incident Exporter and setup AWS Security Hub

Interoperability with AWS Security Hub requires the activation of the service within AWS and the creation of credentials that will be used to send data using the **BatchImportFinding** API. If both requirements are already satisfied skip to Step 2.

Step 1.1 – Activate Security Hub using a CloudFormation template

- Login to the FSM machine and unzip fp-dlp-exporter-aws-azure-v1.1.zip into C:\fp-dlpexporter-aws-azure-v1\
- 2. Browse to AWS and from the header of the Management Console select the AWS Region

where you want to activate Security Hub, for performance we suggest picking a region close to the logs source

 Take note of the region code (e.g. eu-west-3) next to the region name since this will be necessary in Step 2 of this guide

	Δ •	DEVELOPER/ 🕶 Paris 🔺	Support 👻
		US East (N. Virginia) us-east-1 US East (Ohio) us-east-2 US West (N. California) us-west-1 US West (Oregon) us-west-2	
	Access resources on Access the Manage Console Mobile Ag	Asia Pacific (Hong Kong) ap-east-1 Asia Pacific (Mumbai) ap-south-1 Asia Pacific (Seoul) ap-northeast-2 Asia Pacific (Singapore) ap-southeast-1 Asia Pacific (Svdnev) ap-southeast-2	
	Explore AWS	Asia Pacific (Tokyo) ap-northeast-1	
Mobile AWS Amplify Mobile Hub AWS AppSync Device Farm	Amazon Redshift Fast, simple, cost-effective queries to your data lake. L Run Serverless Containe	Europe (Frankfurt) eu-central-1 Europe (Ireland) eu-west-1 Europe (London) eu-west-2 Europe (Paris) eu-west-3	

4. In the AWS Management Console, search for "cloudformation", it will suggest some options as you type: click **CloudFormation** from the drop-down list



5. In the CloudFormation console click Create stack in the top right corner

aws Services 🗸	Resource Groups 🗸 🔥	↓ v London v	Support 👻
CloudFormation \times	CloudFormation > Stacks		
<mark>Stacks</mark> StackSets Exports	Stacks (2) Q. Filter by stack name	C Delete Update Stack actions ▼ Create Active ▼ ✓ View nested < 1	e stack
Designer	Stack name Status Created t	time	
	MonitoringReadUserStack O UPDATE_COMPLETE 2018-12-	-14 15:57:41 UTC+0000 -	
Previous console			

 In the next page select Upload a template file, click Choose file and navigate to the EnableSecurityHub.json located in C:\fp-dlp-exporter-aws-azurev1\CloudFormationTemplate

aws Services - Resource	rce Groups 👻 윢	
CloudFormation > Stacks > Crea	ate stack	
Step 1 Specify template	Create stack	
Step 2 Specify stack details	Prerequisite - Prepare template	
Step 3 Configure stack options	Prepare template Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to into Template is ready O Use a sample template Create template in D	clude in the stack. Jesigner
Step 4 Review	Specify template A template is a JSON or YAML file that describes your stack's resources and properties.	
	Template source 1 Selecting a template generates an Amazon S3 URL where it will be stored. 0 Amazon S3 URL • Upload a template file	
	2 Upload a template file Choose file [A] No file chosen JSGN or WHIL formetted file	
	S3 URL: Will be generated when template file is uploaded	View in Designer
	c	ancel Next

7. Click Next once the file is uploaded, enter a name for the new stack and then click Next, Next again and in the last page Create stack

pecify stack details	
Stack name	
Stack name	
Enter a stack name	
Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).	
Parameters Parameters are defined in your template and allow you to input custom values when you create or update a stack.	
No parameters There are no parameters defined in your template	

One that is complete, return to the AWS Management Console and search for "Security Hub", it will be enabled and ready for use.

Step 1.2 – Create an IAM user that has access to Security Hub

1. From the AWS Management Console type "iam" in the search area and select it form the dropdown list

aws	Services 👻 Resource Groups 🕚	~ %			
	AWS Manag	ement Consol	e		
	AWS services				
	Find Services You can enter names, keywords or acro Q iam IAM Manage User Access and Encryption I Recently visited services	nyms. Keys			×
	 ✓ All services ii) Compute EC2 Lightsail [2] ECR 	X Developer Tools CodeStar CodeCommit CodeBuild	Machine Learning Amazon SageMaker Amazon Comprehend Amazon Forecast	Mobile AWS Amplify Mobile Hub AWS AppSync	

2. Select Users from the navigation pane on the left then click Add user

aws Services -	Resource Groups 🗸 🔭	
Identity and Access Management (IAM)	Add user Delete user	
- AWS Account (365761988620)	Q Find users by username or access key	
Dashboard		
¹ Groups	User name 👻	Groups
Users		
Roles		
Policies		
Identity providers		

3. Enter a name for the new user and make sure to select the option **Programmatic access**, then click **Next: Permissions**

Set user details	
You can add multiple users at once wit	h the same access type and permissions. Learn more
User name*	SecurityHubUser
	O Add another user
Select AWS access type	
Select how these users will access AW	S. Access keys and autogenerated passwords are provided in the last step. Learn more
Access type*	Programmatic access Enables an access key ID and secret access key for the AWS API, CLI, SDK, and other development tools.
	AWS Management Console access Enables a password that allows users to sign-in to the AWS Management Console.

 Select Attach existing policies directly, search for AWSSecurityHUBFullAccess and tick the box next to it then click Next: Tags. Since no tags are needed by our integration package click Next: Review then Create User.

- (Set p	ermiss	ions						
		dd user to	o group	Copy permissions fro existing user	m 📘	Attach exis directly	ting policies		
C	reate p	olicy							2
Fil	ter pol	icies 🗸	Q securit						Showing 5 results
		Policy	name 🔻			Туре		Used as	
	•	🚺 AW	SSecurityHubFu	IAccess		AWS	managed	None	
	•	🚺 AW	SSecurityHubRe	adOnlyAccess		AWS	managed	None	
	•	Sec	urity-Hub-Full-A	ccess		Custo	mer managed	Permissions p	olicy (1)
	•	🧊 Sec	curityAudit			Job fu	inction	Permissions p	olicy (1)
	•	SSO	D_SECURITY			Custo	mer managed	None	

5. Click **Download .csv** and store the file in a secure location: this will be needed in the next chapter of this guide.

 Success You successfully created the users shown below. You can view a instructions for signing in to the AWS Management Console. This you can create new credentials at any time. Users with AWS Management Console access can sign-in at: htt Download .csv 	ind download user security credentials. You on sis the last time these credentials will be ava	an also email users ilable to download. However, om/console								
User Access key ID Secret access key										
SocurityHublicor		********* Chow								

Step 2 – Installing the DLP Incident Exporter

- If not already done at step 1.1, login to the FSM machine and unzip fp-dlp-exporter-aws-azurev1.1.zip into C:\fp-dlp-exporter-aws-azure-v1\
- Move to C:\fp-dlp-exporter-aws-azure-v1, open config.json with a text editor and add/edit the settings that will be used by the DLP Incident Exporter: values that require changing are highlighted with red font color in the following example:

```
{
       "AwsAccountId": "0123456789",
       "aws_access_key_id": "123ABC123ABC123ABC",
       "aws_secret_access_key": " abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc123abc
       "region_name": "eu-west-1",
       "file location": "/XMLFileCopy ",
       "HIGH": true,
       "MEDIUM": false,
       "LOW": false,
       "Database_Connection":
                                     {
                                                    "Server": "sqlserver-hostname",
                                                    "Database": "wbsn-data-security",
                                                    "Trusted_Connection": "yes",
                                                    "UID": "username",
                                                    "PWD": "password"
                                       }.
        "LogName": "ForcepointDLPEvents"
}
```

Once **config.json** is edited with all necessary values, double click **install.bat** to run it: the installer will display a few messages as it progresses through the installation steps.

- 3. The installer will pause at Creating Service: DLPExporter and wait for user input:
 - **Please enter your username:** enter the username of an account with administrator access to the FSM machine. Username must be entered according to the format

DOMAIN\username	if using a domain account
.\username	if using a local account

• Please enter your administrator password: enter the password of the account with administrator access

Once both values are entered the installer will progress until a successful completion.

Creating Python Service: DLPSecurityHub
Please enter your username: .\Administrator Please enter your administrator password:ExamplePassword Service "DLPSecurityHub" installed successfully! Set parameter "AppDirectory" for service "DLPSecurityHub". Set parameter "AppStdout" for service "DLPSecurityHub". Set parameter "AppStderr" for service "DLPSecurityHub". Set parameter "AppStderr" for service "DLPSecurityHub". Set parameter "ObjectName" for service "DLPSecurityHub". DLPSecurityHub: START: The operation completed successfully.
PS C:\bd-dlp-aws-master> _

Once completed, the **DLP Incident Exporter** will run as a service on the FSM machine and DLP incidents will be exported to AWS Security Hub automatically.

Appendix A - Description of config.json settings

PARAMETER	DESCRIPTION	CHANGE REQUIRED
AwsAccountId	ID of the AWS account used to post data into AWS Security Hub using the BatchImportFinding API	YES
aws_access_key_id	Located inside the .csv file downloaded as explained in step 1.2 of this document	YES
aws_secret_access_key	Located inside the .csv file downloaded as explained in step 1.2 of this document	
region_name	The AWS Region where Security Hub was activated at step 1.1	YES
file_location	Location used by the DLP Incident Exporter to store XML files with incident data before upload to AWS. Used when log export is done using the manual method based on remediation script	NO
HIGH MEDIUM LOW	These parameters allow filtering of DLP incidents, uploading only logs whose severity matches the levels set to TRUE.	YES
Database_Connection	These parameters are needed to connect to the SQL database used by Forcepoint Security Manager to store data of DLP incidents. Server: hostname or IP address of the SQL database Database: name of the database hosting the FSM data Trusted_Connection: only "yes" or "no" are possible • yes - if it is a trusted connection • no - if username and password will be used to connect UID: username used to login to the database PWD: password used to login to the database	YES
LogName	Name of the file storing logs of the DLP Incident Exporter	NO

Appendix B - Manual export of DLP incidents

The integration package provides also a method to export DLP incidents manually, either one by one or in batches, using a **Remediation Script**.

- Login into the FSM machine, then login into the web interface of Forcepoint Security Manager
- Using the left navigation bar, go to Policy Management > Resources > Remediation Scripts



- 10. Select New... from the top left corner and from the drop-down menu select Incident Management Script
- 11. Name the remediation script you are about to import, click **Choose file** and navigate to **C:\fpdlp-exporter-aws-azure-v1\Remediation_script**, select **runScript.bat**
- 12. Click Additional Files to reveal Choose File: select the zip file CopyFiles.zip and click OK once done

Now that the script is imported, DLP incidents can be exported simply using this Remediation Script selecting one or multiple DLP incidents from the **Reporting** area of Forcepoint Security Manager.

Appendix C – Service scripts

The **DLP Incident Exporter** service is managed by the NSSM tool.

Navigate to C:\fp-dlp-exporter-aws-azure-v1\ServiceScripts. There are four scripts provided.

PARAMETER	DESCRIPTION
changePassword	This script opens the UI of NSSM to provide an easy way to change or update the password. The password is editable from the Log on tab of NSSM (see below)
removeService	This script will remove the DLPExporter service from the server and stop it from running
restart	Restarts the DLPExporter service
stopService	Stops the DLPExporter service (Note this has not removed the service only stopped it from running)

N NSSM service editor ×
Application Details Log on Dependencies Process Shutdown Exit
C Local System account Allow service to interact with desktop
This account: .Vadministrator
Password:
Confirm:
Service name: DLPSecurityHub Edit service Cancel

Appendix D – Logs of DLP Incident Exporter

Logs of **DLP Incident Exporter** operations are stored into **C:\fp-dlp-exporter-aws-azure-v1\dlpLogger**.

Example message

DLPSecurityHub - INFO - 2019-12-13 17:56:35.055756 : Database Connection established

Log structure

Г

Service Name	Message Type	Date and time	message
DLPSecurityHub	INFO DEBUG CRITICAL ERROR WARNING	2019-12-13 17:56:35.055756	Database Connection established

Troubleshooting

Follow these steps to identify issues impacting the normal operation of the integration described in this document.

Validate the prerequisites

Make sure the prerequisites described in the Summary chapter are all satisfied:

 Check the versions of Forcepoint DLP with Forcepoint Security Manager and 3rd party products/services in use are listed as compatible

Forcepoint DLP with Forcepoint Security Manager 8.5.x Amazon web services Security Hub – API schema 2018-10-08

- Verify the integration component is hosted on a Windows 10 or Windows Server machine
- User must have administrator access to the Windows machine in order to run and complete the installation successfully. Username and password will be requested at the time of install.
- > The machine running the DLPExporter must have network connectivity to the SQL server
- Check the user has permissions to Invoke-WebRequest and Expand-Archive in Powershell

Check network connectivity

Make sure firewalls or other security appliances are not impacting the network connectivity necessary for the operation of all components involved into this integration:

• Check the windows machine has network connectivity to AWS:

The user can check this from the logs created in C:\fp-dlp-exporter-aws-azure-v1\logs in the log file named ForcepointDLPEvents

and check the log file has a message similar to below:

2020-02-28 13:09:34 - DLPExporter - INFO - AWS is configured on

Check the windows machine has network connectivity to the SQL server:

The user can check this from the logs created in C:\fp-dlp-exporter-aws-azure-v1\logs in the log file named ForcepointDLPEvents

and check the log file has a message similar to below:

2020-02-28 13:06:06 - DLPExporter - INFO - Database Connection established

Check all components are configured and running properly

Make sure the products and services involved into this integration are configured as expected and they

are running:

Check SQL connectivity: If you get messages similar to below, that means you either have no SQL connectivity or are entering wrong credentials:

2020-02-28 13:04:21 - DLPExporter - ERROR - [08001] [Microsoft][ODBC SQL Server Driver][DBNETLIB]SQL Server does not exist or access denied. (17) (SQLDriverConnect); [08001] [Microsoft][ODBC SQL Server Driver][DBNETLIB]ConnectionOpen (Connect()). (53) Traceback (most recent call last):

File "DLPExporter.py", line 135, in <module> KeyboardInterrupt [18468] Failed to execute script DLPExporter 2020-02-28 13:09:35 - DLPExporter - ERROR - [28000] [Microsoft][ODBC SQL Server Driver][SQL Server]Login failed for user 'g'. (18456) (SQLDriverConnect); [28000] [Microsoft][ODBC SQL Server Driver][SQL Server]Login failed for user 'g'. (18456)

- In case the user provided wrong credentials for SQL server connection, you can follow the following steps:
 - Go to C:\fp-dlp-exporter-aws-azure-v1 and edit the configs.json file to add the correct SQL Server connection credentials
 - Go back to C:\fp-dlp-exporter-aws-azure-v1\ServiceScripts and double click on restart script. This will restart the DLPExporter
 - Check the ForcepointDLPEVents log in C:\fp-dlp-exporter-aws-azure-v1\logs and see if the database connection is established.
- The install.bat file should only be run once. If anything goes wrong, you need to go back to the Service scripts to make changes.
- If a wrong password for the administrator account was entered during the first run of the install.bat file to install DLPExporter, use the following the steps to change it:



1. Go to C:\fp-dlp-exporter-aws-azure-v1\ServiceScripts and double click on

changePassword script. A window will pop up where the user can enter the correct password

N NSSM service editor	×
Application Details Log on Dependencies Process Shutdown Exit	
C Local System account C Allow service to interact with desktop	
This account: .Vadministrator	
Password:	
Confirm:	
Service name: DLPSecurityHub Edit service Cancel	

- Go back to C:\fp-dlp-exporter-aws-azure-v1\ServiceScripts and double click on restart script. This will restart the DLPExporter.
- If the install.bat file was run multiple times, the DLPExporter service might still be running in the background (even if removeService script was run afterwards). Follow the steps below in order to remove the service completely:
 - 1. Open the cmd prompt as administrator.
 - 2. Go to the C:\fp-dlp-exporter-aws-azure-v1\Resources folder
 - 3. Execute the command: nssm

4. Execute the command: **nssm stop DLPExporter**

- 5. Execute the command: nssm remove DLPExporter confirm
- 6. Execute the command: nssm status DLPExporter

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