

# Profilers in Compute Cluster Enabled Environments

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## Cloudera Data Catalog Profilers

Profilers create metadata annotations that summarize the content and shape characteristics of the data assets (such as distribution of values in a box plot or histogram).



### Note:

The VM-based architecture (using the Cluster) is deprecated from the 3.0.0 release but remains available until 7.2.18 is supported (Sept 2025). Therefore, based profilers will also not be available in versions after 7.2.18. Only Compute Cluster enabled environment will be able to run profilers after version 7.2.18.

For more information, see [Cloudera Support lifecycle policy](#).

Cloudera Data Catalog supports different environments:

- When using the VM-based environment, you can create a Cloudera Data Hub cluster for a profiler engine to run data profiling operations as a pipeline on data located in one of your data lakes. You can install the profiler agent in a data lake and set up a specific schedule to generate various types of data profiles.
- When using the Compute Cluster enabled environment, after launching a profiler cluster, an internal service provisions new Kubernetes pods, scheduling and running profiler jobs on-demand.

Profiler Name	Description
Data Compliance Profiler	The profiler automatically classifies your data with preconfigured tags, such as, PII, PCI, HIPAA and others.
Activity Profiler Profiler	A Ranger audit log summarizer.
Statistics Collector Profiler	Provides summary statistics like Maximum, Minimum, Mean, Unique, and Null values at the Hive column level.

### Limitations

- In Compute Cluster enabled environments, profilers only support tables which are stored on AWS S3 storage.
- Supported file formats:
  - Compute Cluster enabled environments:
    - Statistics Collector profilers and Data Compliance profilers
      - CSV
      - Parquet
      - Iceberg tables
      - ORC
      - Avro



**Note:** When trying to profile any unsupported assets, the status SKIPPED is shown in Profiler Details Job History Job Summary Profiled Assets .

- Compute Cluster based profilers may hang if the underlying AWS cloud provider environment cannot provide the necessary memory for the executor instances. In this case, reconfigure your executors with 4-5 GB memory in Profiler Details Configuration .

## The Data Compliance Profiler

The Data Compliance automatically performs context and content inspection to detect various types of sensitive data and suggest suitable classifications or tags based on the type of sensitive content detected or discovered.

## Auto-detected data types

### Type of data

- Bank account
- Credit card
- Driver number (UK)
- Email
- IBAN number
  - Austria (AUT)
  - Belgium (BEL)
  - Bulgaria (BGR)
  - Switzerland (CHE)
  - Cyprus (CYP)
  - Czech Republic (CZE)
  - Germany (DEU)
  - Denmark (DNK)
  - Spain (ESP)
  - Estonia (EST)
  - Finland (FIN)
  - France (FRA)
  - United Kingdom (GBR)
  - Greece (GRC)
  - Croatia (HRV)
  - Hungary (HUN)
  - Ireland (IRL)
  - Iceland (ISL)
  - Italy (ITA)
  - Liechtenstein (LIE)
  - Lithuania (LTU)
  - Latvia (LVA)
  - Luxembourg (LUX)
  - Malta (MLT)
  - Netherlands (NLD)
  - Norway (NOR)
  - Poland (POL)
  - Portugal (PRT)
  - Romania (ROU)
  - Slovakia (SVK)
  - Slovenia (SVN)
  - Sweden (SWE)
- IP address
- NPI
- Name

- National ID number
  - Bulgaria (BGR)
  - Switzerland (CHE)
  - Czech Republic (CZE)
  - Denmark (DNK)
  - Spain (ESP)
  - Estonia (EST)
  - Finland (FIN)
  - Greece (GRC)
  - Ireland (IRL)
  - Iceland (ISL)
  - Italy (ITA)
  - Lithuania (LTU)
  - Latvia (LVA)
  - Norway (NOR)
  - Poland (POL)
  - Portugal (PRT)
  - Romania (ROU)
  - Slovakia (SVK)
  - Sweden (SWE)
- National insurance number (UK)
- Passport number
  - Austria (AUT)
  - Belgium (BEL)
  - Switzerland (CHE)
  - Germany (DEU)
  - Spain (ESP)
  - Finland (FIN)
  - France (FRA)
  - Greece (GRC)
  - Ireland (IRL)
  - Italy (ITA)
  - Poland (POL)
  - United Kingdom (UK)
- Bank Routing Number
- US Social Security Number
- Society for Worldwide Interbank Financial Telecommunication (SWIFT)
- Telephone

## The Statistics Collector Profiler

You can view the shape or distribution characteristics of the columnar data within a Hive table based on the Statistics Collector.

There are different charts available to help visualize the shape and distribution of the data within the column as well as summary statistics for a column with numerical data. These include the following:

- Unique Values
- Null Values
- Max

- Min
- Mean

OverviewSchemaMetadata AuditsPolicyAccess Audits

Q Search column

Edit

Chart Type	Name	Type	Unique Values *	Null Values	Max	Min	Mean	Comment	Classifications	Terms
▼	<a href="#">flight_id_raw</a>	string	15	0						
▼	<a href="#">passenger_name_raw</a>	string	22	0						
▼	<a href="#">seat_assignment_raw</a>	string	21	0						
▼	<a href="#">aircraft_model_raw</a>	string	7	0						
▼	<a href="#">origin_airport_raw</a>	string	7	0						
▼	<a href="#">destination_airport_raw</a>	string	12	0						
▼	<a href="#">age_raw</a>	int	20	1	62	25	38.55	Passenger age. PII data subject to ...	GDPR... + 1	Personally Identifiabl... + 1
▼	<a href="#">ticket_price_usd_raw</a>	decimal(10,2)	17	0	1,500	85.5	667.35	Total ticket fare in USD. Confident ...	Confide... + 2	Passenger Fare@Airline O...

\* Approximate values as being computed using HLL algorithm.

The profiler computes column univariate statistics that are displayed using an appropriate chart in the **Schema** tab.

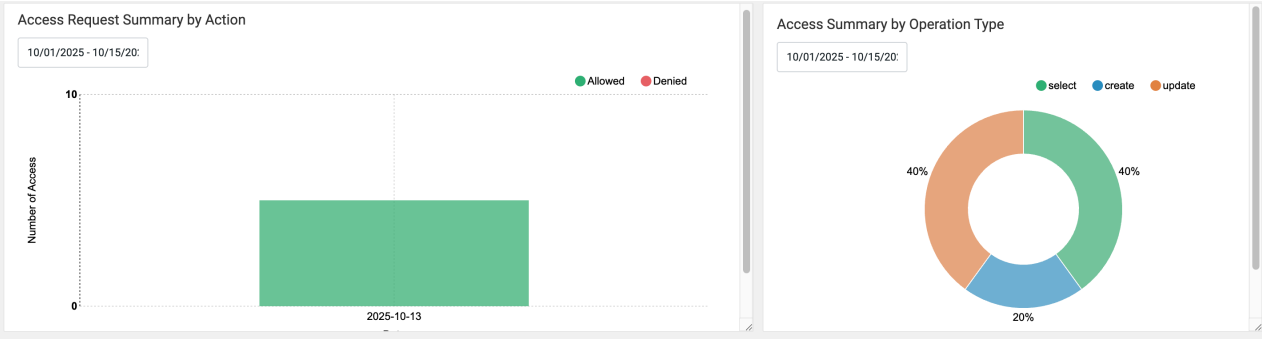
Pie charts are presented for categorical data with limited number of categories or classes. Examples include data such as eye colors that only have a fixed list of values (categories or labels).

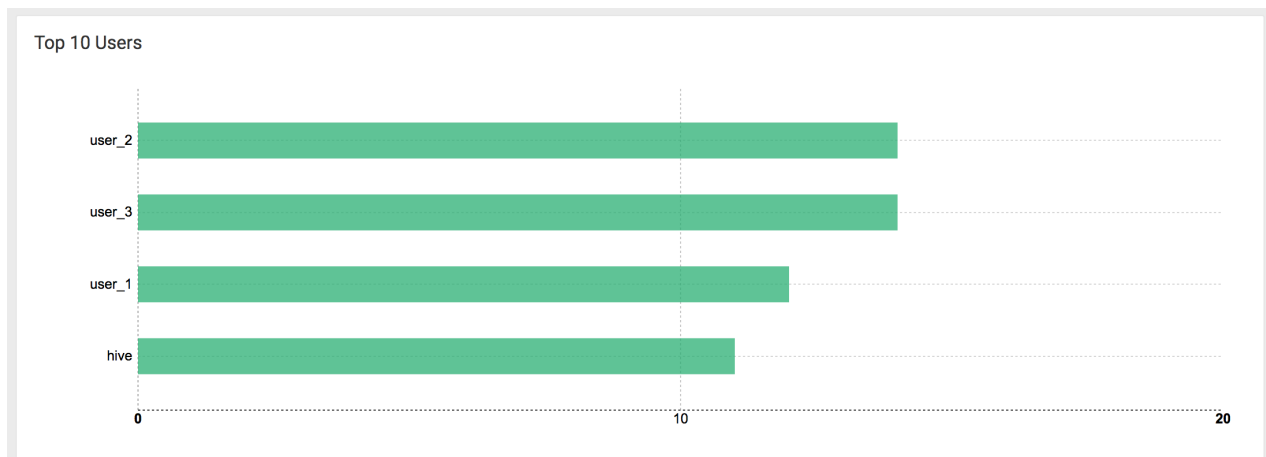
When the data within columns is numeric, a histogram of the distribution of values organized into 10 groups (decile frequency histogram) and a box plot with a five-number summary (mean, median, quartiles, maximum, and minimum values) are shown for the column.

The Activity Profiler

You can view who has accessed which data from a forensic audit or compliance perspective, visualize access patterns, and identify anomalies in access patterns using the Activity Profiler.

The Activity Profiler uses the Apache Ranger logs to show the most recent raw event data as well as summarized views of event by type of access and access outcomes (allowed/denied). These views are obtained by profiling the records in the data lake.





## Profiler data testing

You must note the important information about profiler services.



**Note:** The Cloudera Data Catalog profilers are not tested at par with the Hive scale.

### Test data for Compute Cluster enabled environments

The following dataset has been validated and works as expected for Compute Cluster enabled environments.

- Supported asset types:

#### External Tables:

- CSV
- Parquet
- Iceberg
- Avro
- ORC

#### Managed Tables:

- CSV
- Parquet
- Iceberg
- Avro
- ORC



- Scheduled profiling results:

- Total data tested:

- Total of 5 TB of data



**Note:** Testing the total 5 TB data took approximately three days.

- Total table count: 7700

- Tested tables:

- 600 Parquet tables
    - 6500 CSV tables
    - 300 Iceberg tables
    - 150 Avro tables
    - 150 ORC tables



**Note:** When trying to profile any unsupported assets, the status SKIPPED is shown in Profiler Details Job History Job Summary Profiled Assets .

- On-demand profiling results:

- Parquet table: 250 GB, sample (17 GB)

- Statistics Collector profiler:

- 30 Executors / 9 mins
      - 20 executors / 14 mins
      - 10 executors / 30 mins

- Data Compliance profiler:

- 30 Executors / 13 mins
      - 20 executors / 18 mins
      - 10 executors / 35 mins

- CSV table: 430 GB, sample (28 GB)

- Statistics Collector profiler:

- 30 Executors / 23 mins
      - 20 executors / 40 mins
      - 10 executors / 86 mins

- Data Compliance profiler:

- 30 Executors / 42 mins
      - 20 executors / 63 mins
      - 10 executors / 70 mins