



Data Platform Components Monitoring

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Data Platform Components Monitoring

Estimated time to read: 3 minutes

Overview

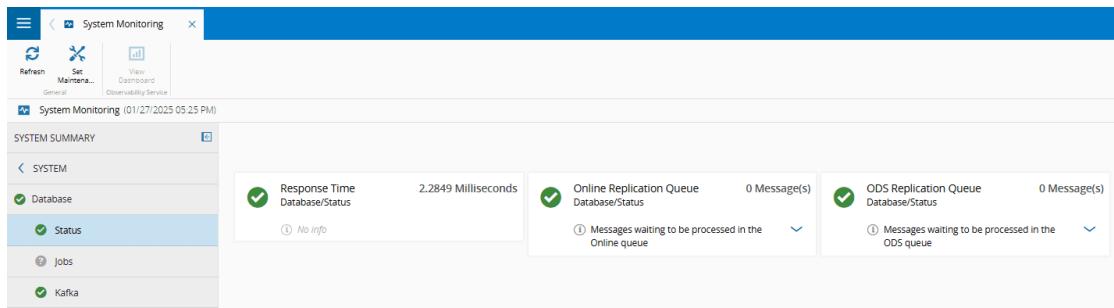
In this tutorial we describe ways to monitor **Data Platforms** components that handle data ingestion, processing, aggregation and replication.

System Monitoring

System Monitoring, in the **Administration** section, contains 6 probes that can be used to monitor **Data Platforms** components.

In the **Status** tab there are two probes:

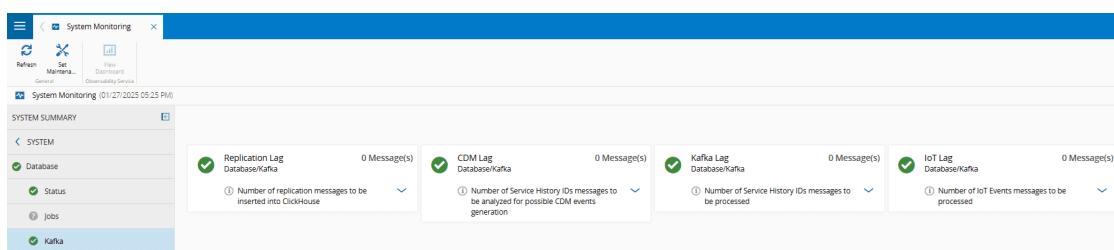
1. **Online Replication Queue** tells us how many messages are waiting to be published to Kafka, with information regarding what needs to be done for replicating data and building the Canonical Data Model (CDM) events; these messages are produced whenever a transaction is closed in CM MES.
2. **ODS Replication Queue** provides the same information, only for messages created in ODS by the Initial Sync mechanism (which is used to run replication/CDM building for historical data).



The screenshot shows the System Monitoring interface with the Status tab selected. There are two probes displayed: "Online Replication Queue" and "ODS Replication Queue", both showing 0 Message(s) and a green checkmark. The interface includes a sidebar with Database, Status, Jobs, and Kafka tabs, and a main area with a System Summary and a list of probes.

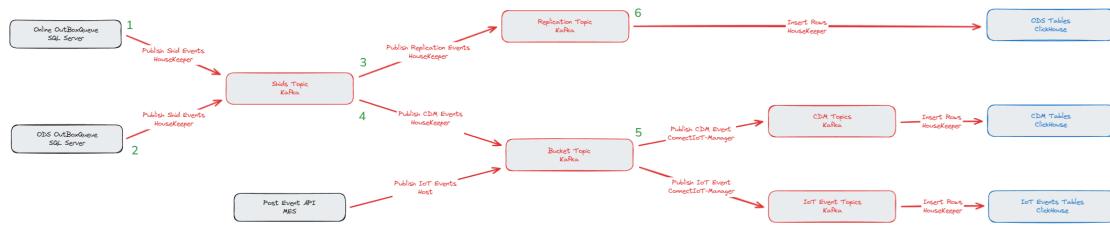
In the **Database -> Kafka** tab there are four more probes:

1. **Kafka Lag** tells us the lag building the replication documents.
2. **CDM Lag** tells us the lag building the CDM documents.
3. **IoT Lag** tells us the lag forwarding IoT events to the destination topics.
4. **Replication Lag** tells us the lag materializing replication documents in the destination database.



The screenshot shows the System Monitoring interface with the Database -> Kafka tab selected. There are four probes displayed: "Replication Lag", "CDM Lag", "Kafka Lag", and "IoT Lag", all showing 0 Message(s) and a green checkmark. The interface includes a sidebar with Database, Status, Jobs, and Kafka tabs, and a main area with a System Summary and a list of probes.

The location of the probes is represented in this simplified flow chart, which can be used to help diagnose potential issues with **Data Platform** components:



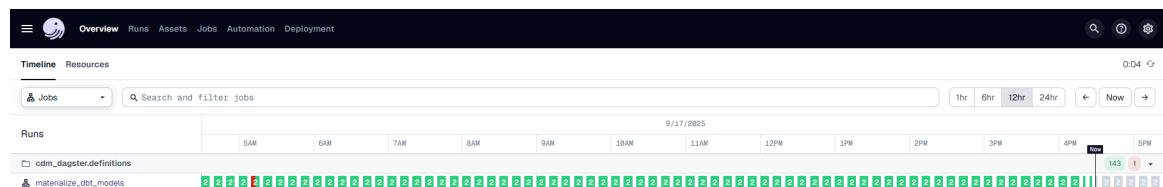
A quick way to look at it:

1. If **Online Replication Queue** shows a lot of messages waiting to be published, then it is possible that there is an issue with either **Kafka** or Data Platform component **HouseKeeper**.
2. If **ODS Replication Queue** shows a lot of messages waiting to be published, then the diagnosis is the same, i.e., a potential issue with either **Kafka** or **HouseKeeper**.
3. If **Kafka Lag** is too high, then there might be an issue with **HouseKeeper**, but it is more likely that either the **MES SQL Server** database is too slow, or more **HouseKeeper** instances are needed to keep up with the workload being generated by CM **MES**.
4. If **CDM Lag** is too high, then the diagnosis is similar, i.e., an issue with **HouseKeeper**, a slow **SQL Server**, or the need for more **HouseKeeper** instances.
5. If **IoT Lag** is too high, then there might be an issue with the component **ConnectIoT-Manager**.
6. If **Replication Lag** is too high, then the mostly likely diagnosis is an issue with **ClickHouse** or **HouseKeeper**.

By looking at the status of these probes it should be easy to determine if the CDM building and the **ODS** replication are working as expected and without issues.

Data Orchestrator

Another **Data Platform** process that can be monitored in CM **MES** is the aggregation of the Data Warehouse data sets. This can be done by navigating to the **Data Orchestrator**, in the **Administration** section:



The **Data Orchestrator** is **Data Platforms** job runner. If you navigate to the **Runs** tab you can see the status of the job that aggregates the data in the Data Warehouse data sets, which goes by the name `materialize_dbt_models` and runs every 5 minutes:

All	Backfills	Queued (0)	In progress (0)	Failed	Scheduled	Filter	Show runs within backfills	← Newer	Older →	Actions
ID	Target	Launched by	Status	Created at	Duration					
889fd1b8 resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:20 PM	0:00:30	View	▼			
5843b0d9 resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:15 PM	0:00:30	View	▼			
68366e65 resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:10 PM	0:00:28	View	▼			
4fdacc54 resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:05 PM	0:00:30	View	▼			
c1ae8139 resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:00 PM	0:00:31	View	▼			
49959782 resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:55 PM	0:00:26	View	▼			
822cc6ba resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:50 PM	0:00:29	View	▼			
f0427efc resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:45 PM	0:00:26	View	▼			
a3b004cd resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:40 PM	0:00:29	View	▼			
e99db74d resource_group: exclusive_group	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:35 PM	0:01:06	View	▼			

If you select **View** for a specific run, you can get details on the aggregations that were performed:

The screenshot shows the dbt Cloud interface for a run ID 866e096db8. The top navigation bar includes 'Overview', 'Runs', 'Assets', 'Jobs', 'Automation', and 'Deployment'. The main area displays a progress bar for the 'materialize_dbt_models' run, which is currently in the 'Preparing' state. The progress bar shows the step 'cdm_dbt_assets' is in progress. Below the progress bar is a search bar and a 'Levels (5/6)' dropdown. The event log table shows the following entries:

TIMESTAMP	OP	EVENT TYPE	DETAILS
4:58:40.949 PM	cdm_dbt_assets	STEP_OUTPUT	INFO Yielded output "cube_resourcetimes_non_working_times" of type "Nothing". (Type check passed). Execution Duration: 0.095569 unique_id: model.dwh.cube_resourcetimes_non_working_times invocation_id: 97981886-588c-4928-a210-32edfffa539f
4:58:42.988 PM	cdm_dbt_assets	ASSET_MATERIALIZE	Materialized value cube_resourcetimes_non_working_times. asset_key: cube_resourcetimes_non_working_times [View Asset] Execution Duration: 0.095569 unique_id: model.dwh.cube_resourcetimes_non_working_times invocation_id: 97981886-588c-4928-a210-32edfffa539f
4:58:44.289 PM	cdm_dbt_assets	INFO	Finished dbt command: "dbt build --select fqn..."
4:58:44.289 PM	cdm_dbt_assets	STEP_SUCCESS	Finished execution of step "cdm_dbt_assets" in 15.64s.
4:58:47.008 PM	-	ENGINE_EVENT	Multiprocess executor: parent process exiting after 30.61s (pid: 2819103) pid: 2819103
4:58:47.018 PM	-	RUN_SUCCESS	Finished execution of run for "materialize_dbt_models".
4:58:47.085 PM	-	ENGINE_EVENT	Process for run exited (pid: 2819103).



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