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Data Platform Components Monitoring

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Data Platform Components Monitoring

Estimated time to read: 3 minutes

Overview

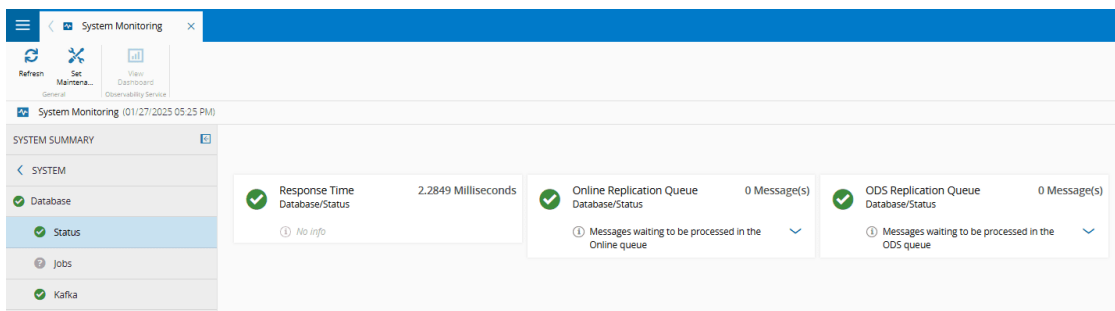
In this tutorial we describe ways to monitor **Data Platforms** components that handle data ingestion, processing, aggregation and replication.

System Monitoring

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

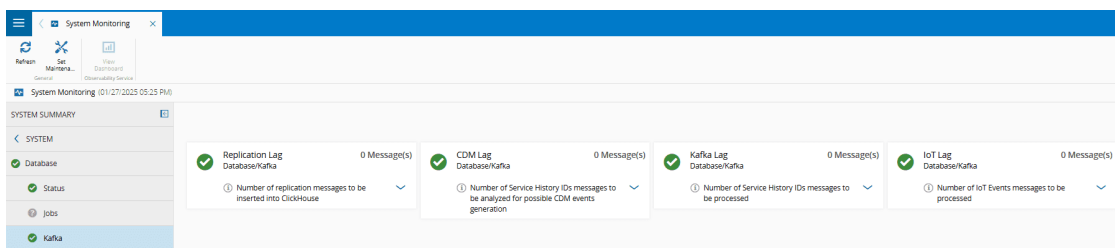
In the **Status** tab there are two probes:

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).

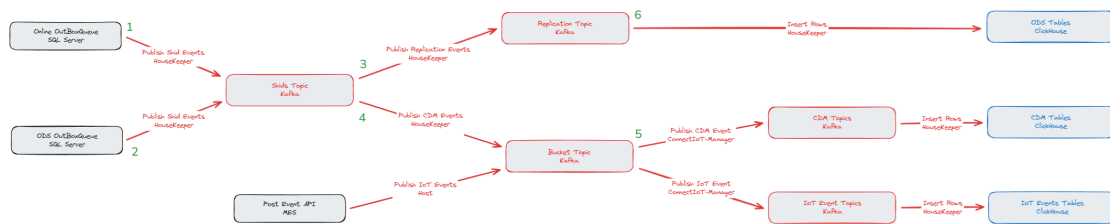


In the **Database -> Kafka** tab there are four more probes:

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



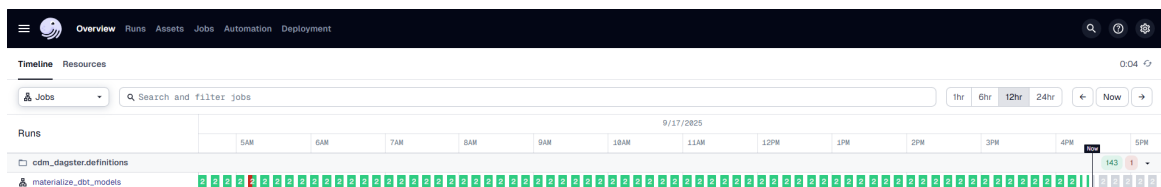
A quick way to look at it:

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:

ID	Target	Launched by	Status	Created at	Duration	Actions
889f1b8 <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:20 PM	0:00:30	View
5843b0d9 <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:15 PM	0:00:30	View
688366e5 <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:10 PM	0:00:28	View
4fdacc54 <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:05 PM	0:00:30	View
c1ae8139 <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 4:00 PM	0:00:31	View
49959782 <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:55 PM	0:00:26	View
822cc6ba <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:50 PM	0:00:29	View
f8427efc <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:45 PM	0:00:26	View
a8a004cd <small>resource_group: exclusive_group</small>	materialize_dbt_models	materialize_dbt_models_schedule	Success	Sep 17, 3:40 PM	0:00:29	View
e99db74d <small>resource_group: exclusive_group</small>	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:

Runs / 86e096d8 Success Run of materialize_dbt_models @ f223b123 Launched by materialize_dbt_models_schedule 29 assets Sep 17, 4:50:16 PM 0:00:30 Open in Launchpad View tags and config

Hide not started steps

Timeline: 0s, 15s, 30s

cdm_dbt_assets

Search and filter steps Hide unselected steps

Preparing (0)
No steps are waiting to execute

Executing (0)
No steps are executing

Errored (0)
No steps have errored

Succeeded (1)

Timestamp	OP	Event Type	Info
4:50:42.917 PM	cdm_dbt_assets	STEP_OUTPUT	Yielded output "cube_resourcstates_non_working_times" of type "Nothing". (Type check passed). Execution Duration 0.095589 unique_id model.dwh.cube_resourcstates_non_working_times invocation_id 97981886-588c-4928-8218-32e2f1a53f9
4:50:42.986 PM	cdm_dbt_assets	ASSET_MATERIALI...	Materialized value cube_resourcstates_non_working_times. asset_key cube_resourcstates_non_working_times [View Asset] Execution Duration 0.095589 unique_id model.dwh.cube_resourcstates_non_working_times invocation_id 97981886-588c-4928-8218-32e2f1a53f9
4:50:44.288 PM	cdm_dbt_assets	INFO	Finished dbt command: "dbt build --select fqn:"
4:50:44.286 PM	cdm_dbt_assets	STEP_SUCCESS	Finished execution of step "cdm_dbt_assets" in 15.84s.
4:50:47.806 PM	-	ENGINE_EVENT	Multiprocess executor: parent process exiting after 38.61s (pid: 2819183) pid 2819183
4:50:47.818 PM	-	RUN_SUCCESS	Finished execution of run for "materialize_dbt_models".
4:50:47.855 PM	-	ENGINE_EVENT	Process for run exited (pid: 2819183).



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