

# System Monitoring

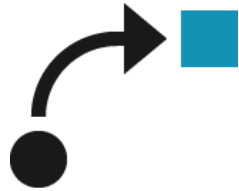
Dynamics 365 FastTrack  
Architecture Insights Series

Edison Lai



---

# Agenda



- 
- 1. Introduction**
  - 2. Monitoring solutions**
    1. LCS
    2. Azure Data Explorer
    3. Optimization advisor
  - 3. Closing**

# Introduction

System monitoring

What is System Monitoring?

What should you monitor?

- Slow queries
- Slow running processes
- Integrations
- Deadlock/blocking
- Errors

What is the result?

- Improved system performance
- Enhanced system reliability
- Better resource utilization



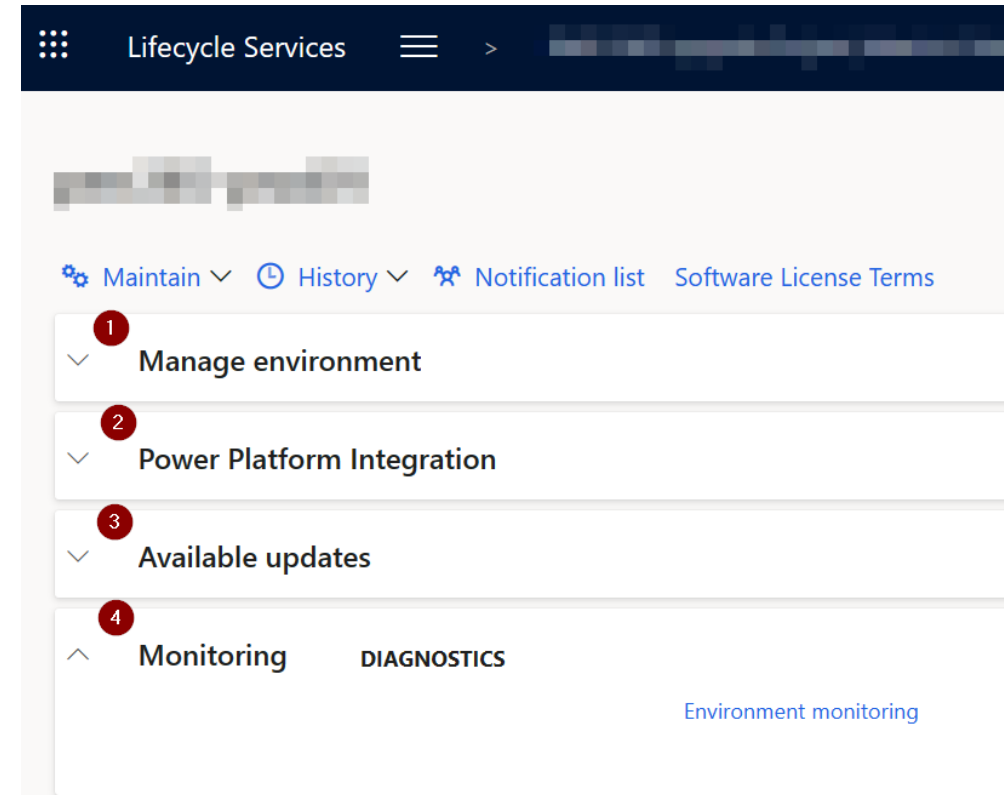
# Lifecycle Services (LCS)



# LCS

## System monitoring

1. Manage environment
2. Power Platform Integration
3. Available updates
4. Monitoring
  - Overview
    - Quick Idea
  - Activity
    - Raw logs
  - Health metric
    - performance and health
  - SQL Insight
    - Advanced SQL troubleshooting

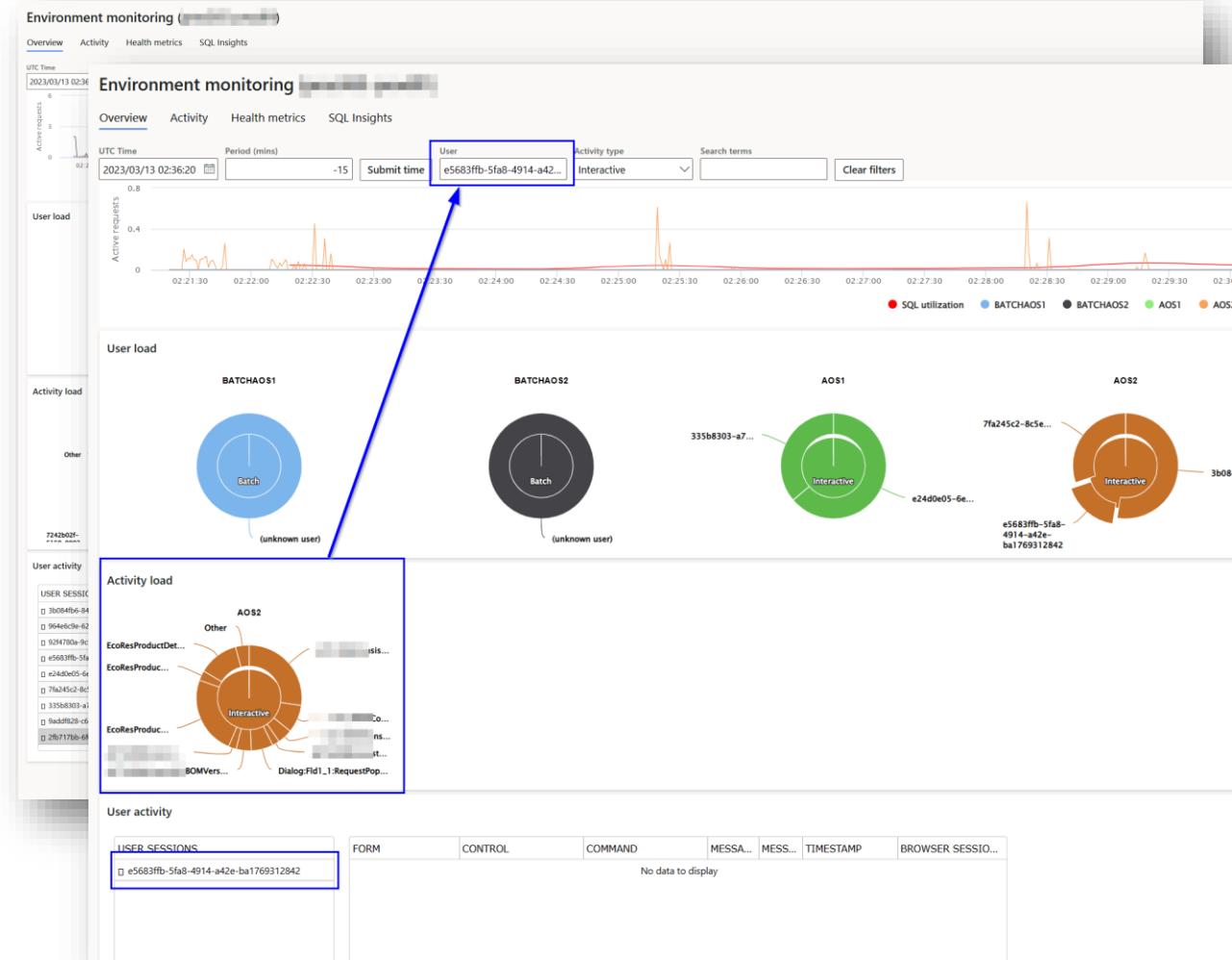


\* The Activity monitoring tool retains data for only 30 days.

# LCS - Overview

## System monitoring

- Overview in period time
  - MAX in 60 minutes
  - high-level summary of the health and status
  - SQL \ Batch \ AOS utilization
- User load in each in both Batch server and AOS
- Activity load in AOS
- User activity



# LCS - Activity

System monitoring

- Most of common useful Query name
  - All logs
  - User login events
  - Long queries
  - Slow interactions
  - All events for activity
- Export the grid into CSV format
- Option to set row limit, max 5000
- Extra columns shown

Overview Activity Health metrics SQL Insights

Raw logs

Query name

All logs

All error events

User login events

Error events for a specific form

Long queries

Retail Channel events

SQL Azure connection outages

Slow Interactions

Is batch throttled

All events for activity

All crashes

All deadlocks in the system

Events corresponding to a failed batch job

Error events for activity

Distinct user sessions

All events for user

All events for browser session

Requests throttled

Request using weak ciphers

API requests by application and user

Summarized API requests by application and user

TIMESTAMP	Tenant	Role	RoleInstance	Level	ProviderGuid	ProviderName	EventId	Pid
2023-03-13T02:21:59.9821164Z	19-494b-bca5-1c	Interactive	AOS3-6194b-bca5-32	5	e302eae-788b-4f73-a738-13c86f720deb	Microsoft-Dynamics-AX-IntegrationCommon	0	3356
-03-13T02:30:18.976191Z	19-494b-bca5-1c	Interactive	AOS3-6194b-bca5-32	4	ecc77f12-d54e-497c-8779-5e36abe42215	Microsoft-Dynamics-AX-DocumentManagement	28	4032
-03-2:31:50.5293445Z	19-494b-bca5-1c	Interactive	AOS3-6194b-bca5-32	4	4010e669-de2b-41a2-981c-9e96bab02558	Microsoft-Dynamics-AX-ApplicationServices	26	4032
-03-13T02:35:33.590429Z	19-494b-bca5-1c	Interactive	AOS3-6194b-bca5-32	4	4dadda2f-6ec7-4021-be4d-67df14965dec	Microsoft-Dynamics-AX-DataCache	7	4032
-03-2:21:21.2487275Z	19-494b-bca5-1c	Batch	BATCHA-494b-bca5-1919-cc	4	b518fd3f-6d6f-46d3-bc51-f765226a4fe2	Microsoft-Dynamics-AX-SystemRuntime	996	4060
-03-2:22:09.4438232Z	19-494b-bca5-1c	Interactive	AOS3-6194b-bca5-32	4	ecc77f12-d54e-497c-8779-5e36abe42215	Microsoft-Dynamics-AX-DocumentManagement	29	4032
-03-2:25:05.4451648Z	19-494b-bca5-1c	Batch	BATCHA-494b-bca5-1919-cc	4	56ff7baa-cb5a-470e-bfbb-6161ca6248aa	Microsoft-Dynamics-AX-SecurityManagement	233	3488
-03-2:21:29.2378215Z	19-494b-bca5-1c	Batch	BATCHA-494b-bca5-1919-cc	3	b518fd3f-6d6f-46d3-bc51-f765226a4fe2	Microsoft-Dynamics-AX-SystemRuntime	366	4060



# LCS - Health metric

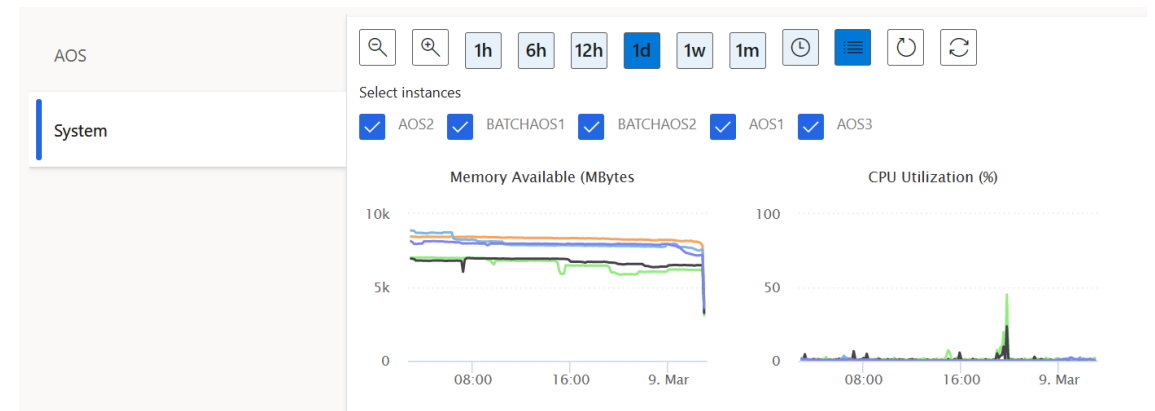
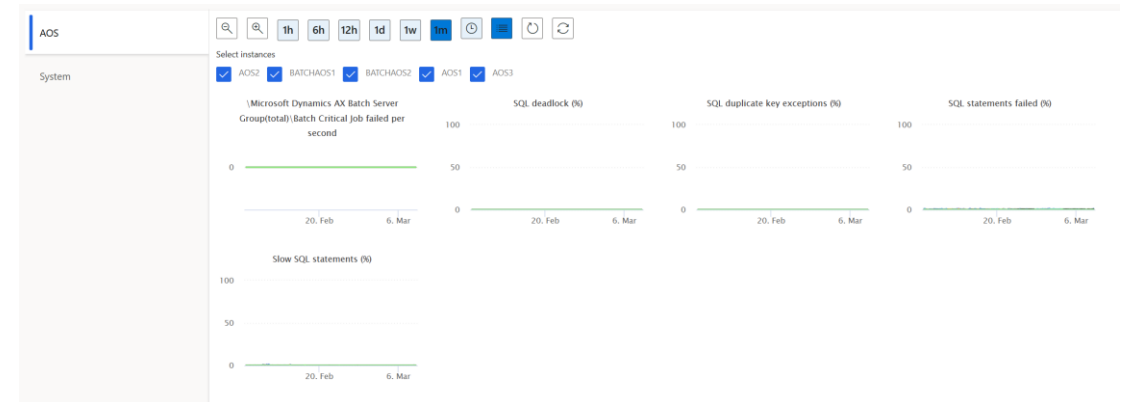
System monitoring

## AOS

- Batch job failed
- Deadlock %
- Duplicate key exception %
- SQL statement failed %
- Slow SQL statement %

## System

- Memory Available (MB)
- CPU Utilization (%)





# LCS – SQL Insight

System monitoring

## Queries

- Current Blocking Tree
- Currently Running Queries
- Get Current Blocking Statement

## Actions

- End SQL Process

## Live View

- Currently Executing Statements
- Blocking Statements

OverviewActivityHealth metricsSQL Insights

QueriesActionsLive View

List Of Queries:

Current Blocking Tree

Current Blocking Tree

Currently Running

Get Current Blocking Statement

Parameters:

Use Fast Query

Yes

Execute

For more details see our [document](#)

QueriesActionsLive View

List of Actions:

End SQL Process

End SQL Process

Time Retrieved (UTC)

2023/03/09 05:28:39

Refresh

Currently Executing Statements

SESSION_ID	BATCH_INFO	status	Blocking_Session	program_name	login_name	host_name	host_process_id	SQL	CPI
854	178DF59-DF21-4862-8850-3129F67CE5E	running	0	Core Microsoft SqlClient Data Provider	axdbadmin		1864	with blockinfo1 as ( select spid, '' as parentspid, program_name as spidprogramname,hostname from sys.sysprocesses (NOLOCK) a where blocked = 0 and dbid = DB_ID() and spid in ( select blocked from sys.sysprocesses a where blocked <> 0) and dbid = DB_ID() and program_name not like '%DAMS%' union select spid, blocked as parentspid, program_name as spidprogramname, hostname from sys.sysprocesses (NOLOCK) where blocked <> 0 and dbid = DB_ID() and program_name not like '%DAMS%' ), blockinfo2 as (select *, cast(sp as nvarchar(30)) AS hierarchy from blockinfo1 where parentspid = 0 union all select m.spid, cast(hierarchy+'-'+cast(m.spid as nvarchar(30))) as NVARCHAR(30)) AS hierarchy from blockinfo1 m join blockinfo2 on m.parentspid = blockinfo2.spid) SELECT *, ISNULL(BLOCKED.wait_time, 0) AS wait_time, CASE WHEN BLOCKED.wait_resource like 'object%' THEN 'Object' WHEN BLOCKED.wait_resource like 'page%' THEN 'Page' WHEN BLOCKED.wait_resource like 'key%' THEN 'Key' WHEN BLOCKED.wait_resource like 'latch%' THEN 'Latch' ELSE 'N/A' END AS wait_resource, BLOCKEDSQL_text AS SQLText, ISNULL(BLOCKED.wait_time, 0) AS DurationInMinutesSeconds INTO #WhatsRunning FROM blockinfo2 r left outer join sys.dm_exec_requests blocked on blocked.session_id = r.rapid_outer APPLY sys.dm_exec_sql_text(blocked.sql_handle) AS BLOCKEDSQL WHERE blocked.database_id = db_id() Order by hierarchy	216

Blocking Statements

No data available

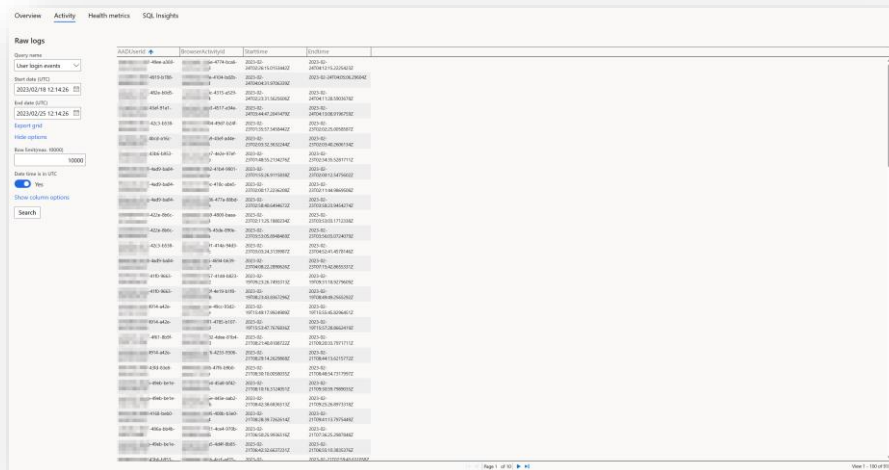
# Azure Data Explorer (ADE)



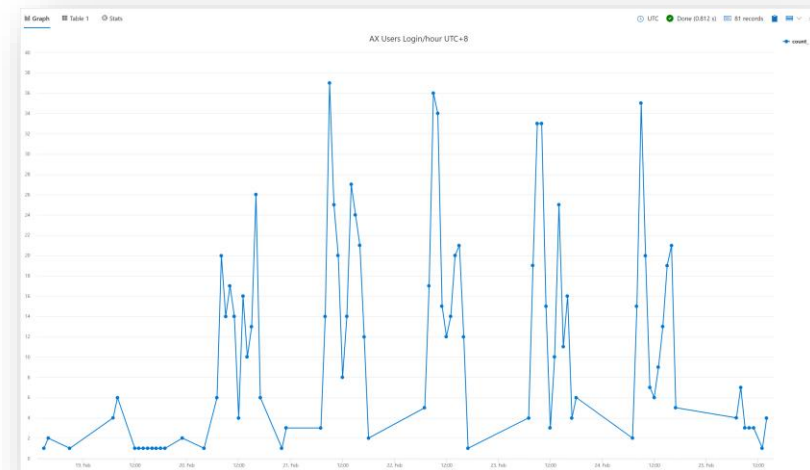
# Azure Data Explorer

## System monitoring

- Great tool for analysis with LCS raw log
  - Store and process log data at scale
  - Quick insights with KQL
  - Interactive visualizations
- Prepare Azure Data Explorer
- Export raw log from LCS to ADE (*Monitoring > Activity > User login events*)
- Perform KOL for analysis purpose

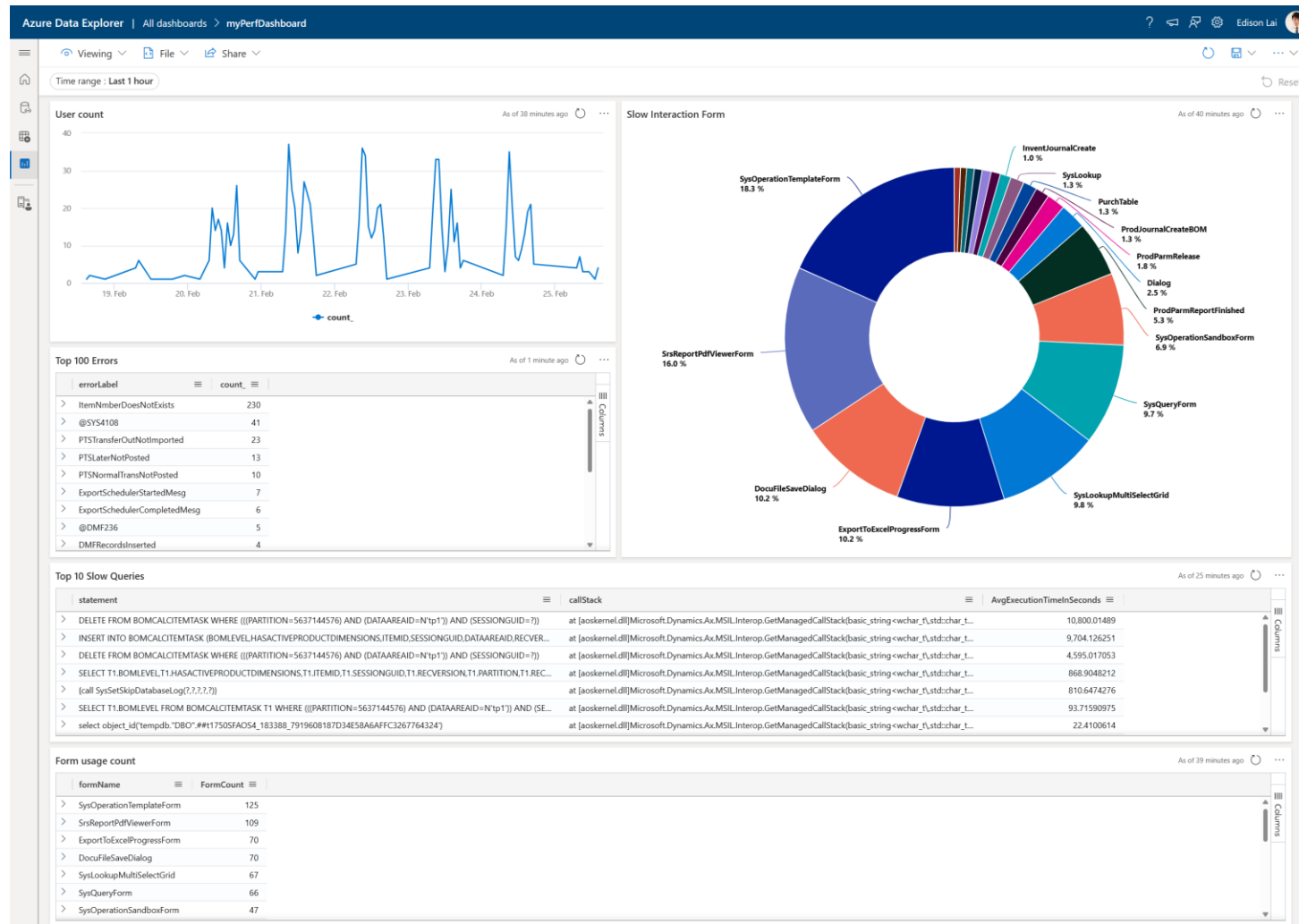


The screenshot shows the 'Raw logs' table in Azure Data Explorer. The table has columns for 'Time', 'User', and 'Status'. The data is filtered for the date range '2023/02/18 12:14:26' to '2023/02/18 12:14:26'. The table contains multiple rows of log entries, each representing a user login event.



# Azure Data Explorer

## System monitoring



Optimization  
advisor

# Optimization advisor

System monitoring

The Optimization Advisor focus on below categories:

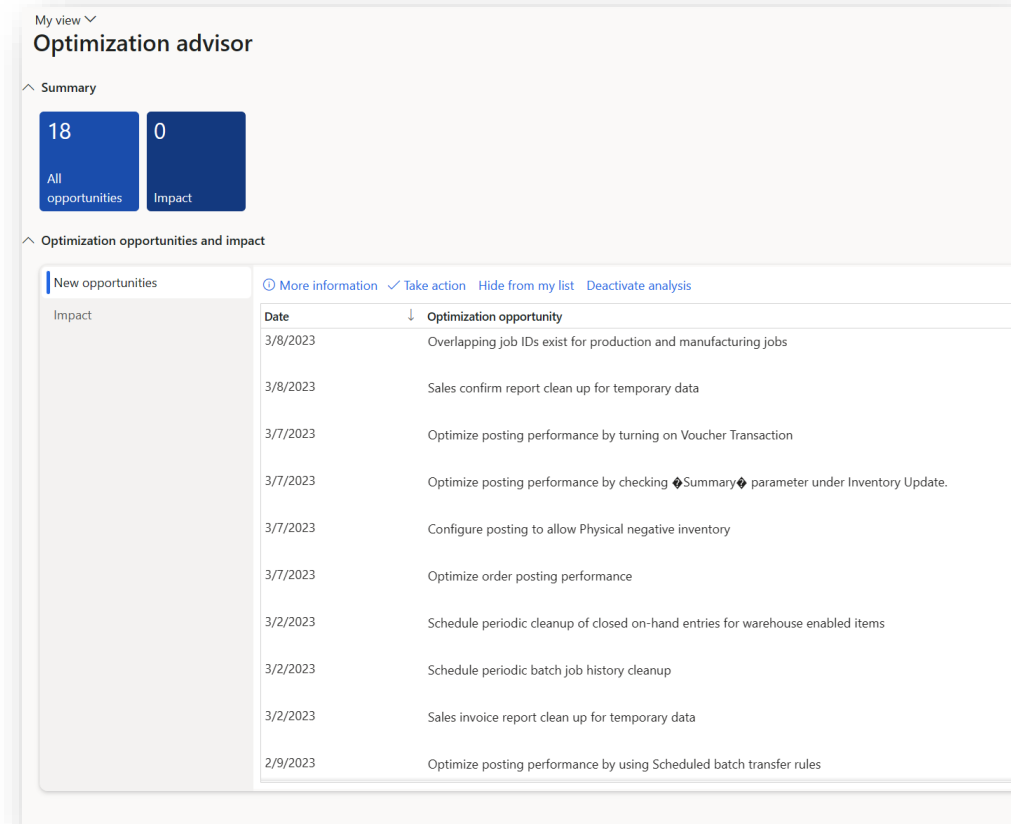
1. Module configuration and Setup
2. System configuration
3. Business data consistency and clean up.
4. Best Practices

There are 88 standard validation rules in 10.0.33(PU57)

- System Administrator > Periodic Task > Maintain diagnostic rule
- System administration > Periodic tasks > Schedule diagnostics validation rule

Custom rule

- e.g. Empty title in RFQ



My view ▾  
Optimization advisor

Summary

18 All opportunities    0 Impact

Optimization opportunities and impact

New opportunities    [More information](#)   [Take action](#)   [Hide from my list](#)   [Deactivate analysis](#)

Impact	Date	Optimization opportunity
	3/8/2023	Overlapping job IDs exist for production and manufacturing jobs
	3/8/2023	Sales confirm report clean up for temporary data
	3/7/2023	Optimize posting performance by turning on Voucher Transaction
	3/7/2023	Optimize posting performance by checking <b>Summary</b> parameter under Inventory Update.
	3/7/2023	Configure posting to allow Physical negative inventory
	3/7/2023	Optimize order posting performance
	3/2/2023	Schedule periodic cleanup of closed on-hand entries for warehouse enabled items
	3/2/2023	Schedule periodic batch job history cleanup
	3/2/2023	Sales invoice report clean up for temporary data
	2/9/2023	Optimize posting performance by using Scheduled batch transfer rules



# Closing

System monitoring

---

- LCS is a tool to monitor the finance and operations workload and usage
- Azure Data Explorer is a tool to help to analysis data from big data
- Optimization advisor to help ensure optimal configuration of finance and operations.



Thank you