



# 2025 DYNAMICS CON

The background features a colorful, pixelated city skyline silhouette against a gradient sky transitioning from pink to yellow. In the foreground, two figures in superhero costumes (one blue and one pink) sit on a golden pedestal with a water fountain, with a large, grey, swirling ribbon graphic behind the text.

[dynamicscon.com](https://dynamicscon.com)

# Business Central Performance Management



2025  
**DYNAMICS CON**



## Marcel Chabot

Development Practice Manager

A life-long software developer and “maker”, Marcel brings experience and a unique approach to complex problems and solutions in D365



# Session Goals

- Identify tools and technology to analyze Business Central Performance
- Understand the limitations of each tool set
- Breakdown the common barriers to good Business Central Performance
- Have a good time and learn something



# Session Agenda

- **Tools and Technology**
  - In Business Central Performance Profiler
  - Application Insights
  - Visual Studio Code
- **Reporting and Analysis**
  - KQL Reporting
  - Power BI Dashboards
- **Case Study Analysis**
- **Q&A**





A large billboard stands in the foreground on a grey pole, advertising 'Tool 1 Performance Profiler'. The billboard has a white background with a black border. In the background, a city skyline of various blue buildings rises above white clouds. In the upper right corner of the image, two dark blue silhouettes of a superhero flying through the air are visible against a light blue sky.

# Tool 1 Performance Profiler

# Business Central Performance Profiler

- Built-in to Business Central
  - Also called the In-Client Performance Profiler
- Useful to isolate a repeatable problem
- Can be used to benchmark a process
- Limited to 10 minutes or 100mb whichever comes first.



CRONUS USA, Inc.

Customers Vendors

X This is a sandbox env.

Get started

Hi, meet B

You're all set to try  
Cronus. Go explore  
quick tour first.

Tell me what you want to do



Performance Profiler

Go to Pages and Tasks

> Performance Profiler

Administration

Search for 'Performance Profiler'

Search company data

Search Help

Didn't find what you were looking for? Try [exploring pages](#) or [exploring reports](#)

Reports



# Performance Profiler

✓ Saved

Start Stop Clear Download Upload Settings

**Troubleshoot slow operations**

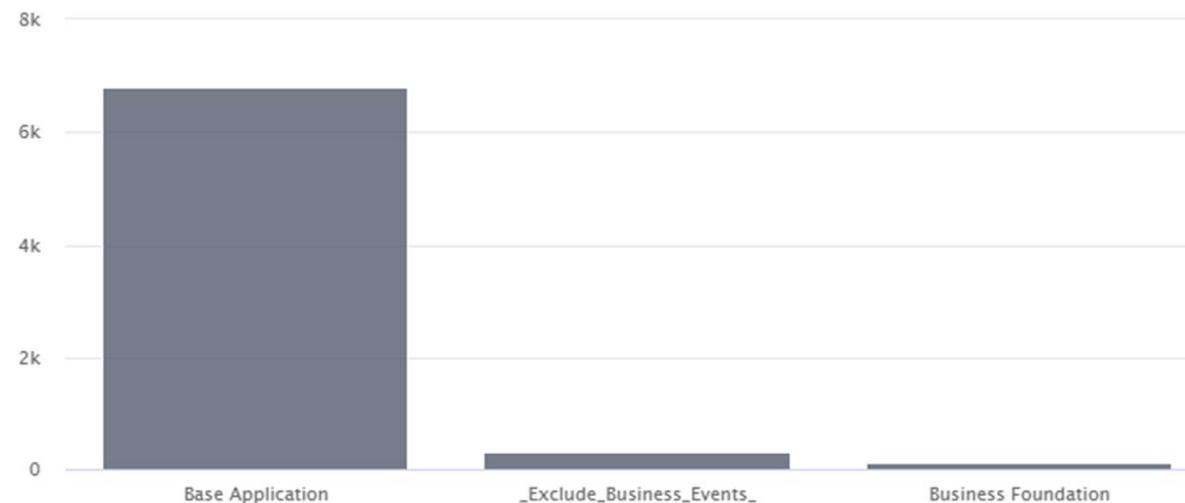
Use the Start and Stop buttons to record a process that you think is slow. The charts will show how much time each app used.



## Performance Profiler

▶ Start ■ Stop ✎ Clear ⬇ Download ⬆ Upload ⚙ Settings

Active Apps Actions

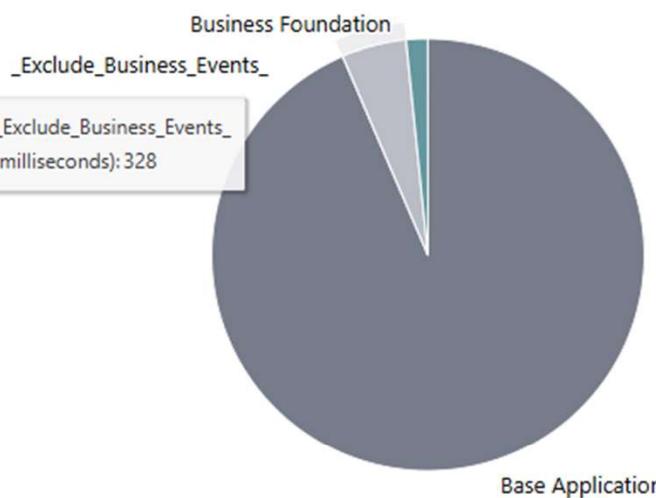


Shows the apps that were active during the recording. They were either running or called other apps. The duration represents the time you might save by removing an app.



Show technical information

Time Spent | Actions



App Name: \_Exclude\_Business\_Events\_  
Duration (milliseconds): 328

Shows which apps were running during the recording. Durations are self-time. They show the length of activity but do not include time spent calling other apps.



## Time Spent by Application Object

Object Type	Object Name	Time Spent ↓	App Name
→ Codeunit	Sales Invoice Aggregator	2 seconds 101 milliseconds	Base Application
Table	Sales Line	438 milliseconds	Base Application
Codeunit	Sales-Post	427 milliseconds	Base Application
Codeunit	External Events Helper	328 milliseconds	_Exclude_Business_Events_
Codeunit	Sales Tax Calculate	328 milliseconds	Base Application
Codeunit	Gen. Jnl.-Post Line	327 milliseconds	Base Application
Codeunit	Inventory Adjustment	219 milliseconds	Base Application
Table	Sales Header	218 milliseconds	Base Application
Table	General Posting Setup	113 milliseconds	Base Application
Codeunit	Find Record Management	112 milliseconds	Base Application
Codeunit	Sales - Calc Discount By Type	112 milliseconds	Base Application



## Call Tree

Method Name	Object Type	Object Name	Self Time	Total Time	App Name
Post - OnAction	Page	Sales Invoice		4 seconds 602 mi...	Base Application
PostDocument	Page	Sales Invoice		4 seconds 602 mi...	Base Application
SendToPosting	Table	Sales Header		4 seconds 602 mi...	Base Application
OnRun	Codeunit	Sales-Post (Yes/No)		4 seconds 602 mi...	Base Application
Code	Codeunit	Sales-Post (Yes/No)		4 seconds 602 mi...	Base Application
ConfirmPost	Codeunit	Sales-Post (Yes/No)	110 milliseconds	110 milliseconds	Base Application
RunSalesPost	Codeunit	Sales-Post (Yes/No)		4 seconds 492 mi...	Base Application
OnRun	Codeunit	Sales-Post		4 seconds 492 mi...	Base Application
RunWithCheck	Codeunit	Sales-Post	112 milliseconds	4 seconds 492 mi...	Base Application
CheckAndUpdate	Codeunit	Sales-Post		2 seconds 741 mi...	Base Application
CheckSalesDocument	Codeunit	Sales-Doc	100 milliseconds	210 milliseconds	Base Application





Choose the sampling interval of the performance profiler. Smaller intervals will result in more precise timings, but it might result in higher load of the system.

- 50 ms
- 100 ms
- 150 ms

OK

Cancel

# Sneaky Issues

- Schedule to capture performance issues
  - Time
  - User
  - Duration

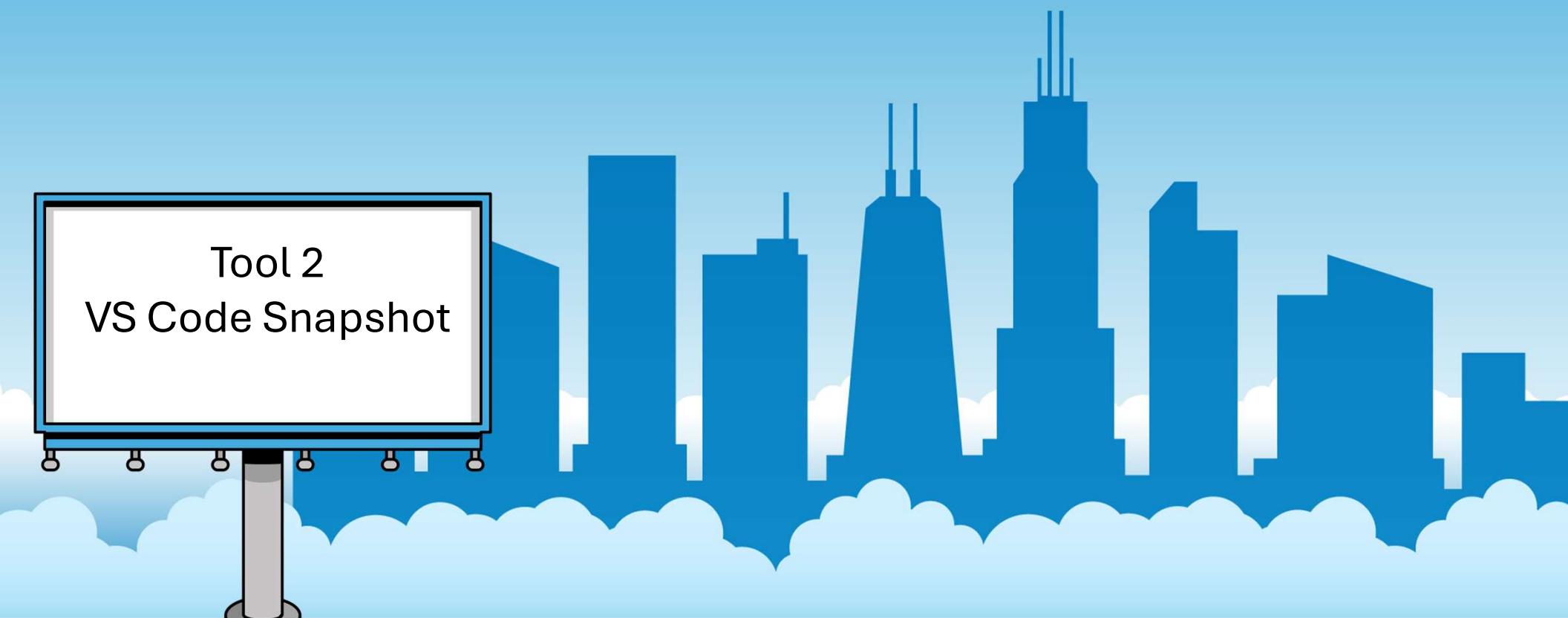
The screenshot shows the 'Profiler Schedule' page with the following details:

- General**:
  - Enabled: On
  - Start Time: 10/1/2024 8:13 PM
  - End Time: 10/1/2024 9:13 PM
  - Description: (empty)
- Filtering Criteria**:
  - User ID: 9c055e36-38bd-4df6-b02a-0
  - Activity Type: Activity in the browser
- Advanced Settings**:
  - Sampling Frequency: 100 milliseconds
  - Activity Duration Thre...: 500
  - Retention Period: 1 WEEK





Tool 2  
VS Code Snapshot



# Visual Studio Code

- Attaches to a running Business Central
- Can replay the issue over and over again
- Deep and detailed analysis
- 10 Minute or 100mb limit
- Can have a large performance impact!





## User Card

Effective Permissions

Send Email

Sent Emails

More options



## General

[Show more](#)

User Name

ADMIN

Full Name

Status

Active

Contact Email

Microsoft 365

Authentication Email

Authentication Status

Disabled

Web Service

Web Service Access Key



User Permission Sets

New Line

Delete Line

Permissions



## Permission Set ↑

## Description

## Company ↑

## Extension Name

## Permission Scope

SUPER	This role has all per...			System
→ D365 SNAPSHOT DEBUG	...	Snapshot Debug	System Application	System





Information

# Help & Support

The demonstration and setup data in CRONUS evaluation companies and My Company, including the predefined configuration packages, are not designed to satisfy local requirements in any country or region.

## Give feedback

Do you have a great idea that you would like to see in Business Central?

Register your idea and get others in the community to vote for it at [aka.ms/BusinessCentralIdeas](https://aka.ms/BusinessCentralIdeas)

## Troubleshooting

Version: US Business Central 25.0 (Platform 25.0.24850.0 + Application 25.0.23364.24925)

[View the last known error](#)

[Inspect pages and data](#)

[Analyze performance](#)

[Analyze performance with scheduled profiler](#)

[Enable additional logging](#)

[Attach debugger to this session](#)

## Report a problem

[Copy the text below](#) and add it to your support request:

Microsoft Entra tenant ID: (blank), Environment: Sandbox (Sandbox)

Session ID (client): 378f883c-b473-4ef1-aa00-9cee9b4d456f

Session ID (server): 158

User telemetry ID: 88049e18-72a8-45d7-9c13-2e6fab7663d7

## Help

Search here...

### About this task or page

Learn more about your current task or page information

[Go to Microsoft Learn](#)

### Related resources from Microsoft Learn

[Resources for help and support](#)

### Other resources

[Help & Support](#)

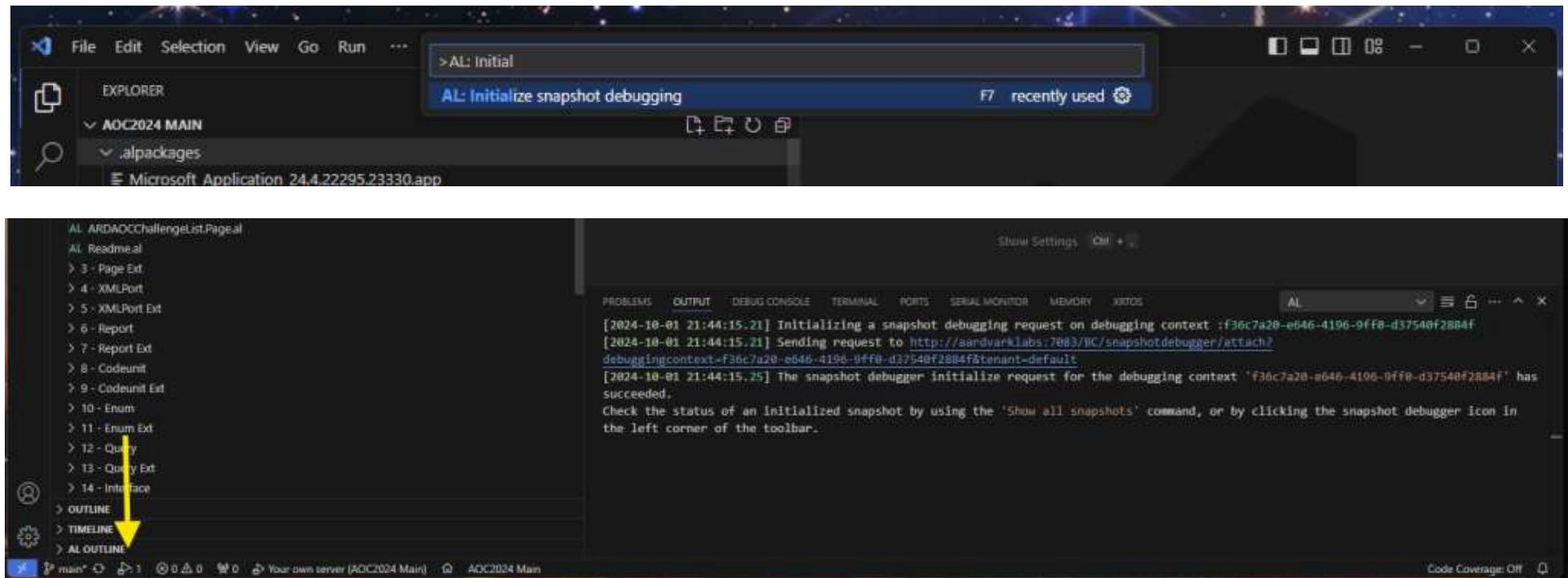
[Keyboard Shortcuts](#)

[Community](#)



```
1  {
2      "version": "0.2.0",
3      "configurations": [
4          {
5              "name": "snapshotInitialize: Your own server",
6              "type": "al",
7              "request": "snapshotInitialize",
8              "sessionId": 158,
9              "environmentType": "OnPrem",
10             "server": "http://aardvarklabs",
11             "tenant": "default",
12             "serverInstance": "BC",
13             "authentication": "UserPassword",
14             "breakOnNext": "WebClient",
15             "executionContext": "DebugAndProfile",
16             "profilingType": "Instrumentation"
17         }
18     ]
19 }
```







Customer Card



✓ Saved



## 10000 · Adatum Corporation

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Adatum Corporation

## Address &amp; Contact

[Show less](#)

Address

Address .....

Address 2 .....

Country/Region Code .....

City .....

State .....

ZIP Code .....

[Show on Map](#)

Mobile Phone No.

es@contoso.com



You cannot send the email.  
Verify that the email settings are correct.

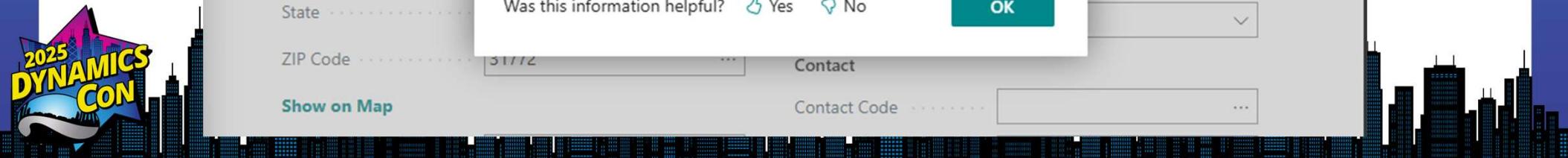
[Share details](#) ▾

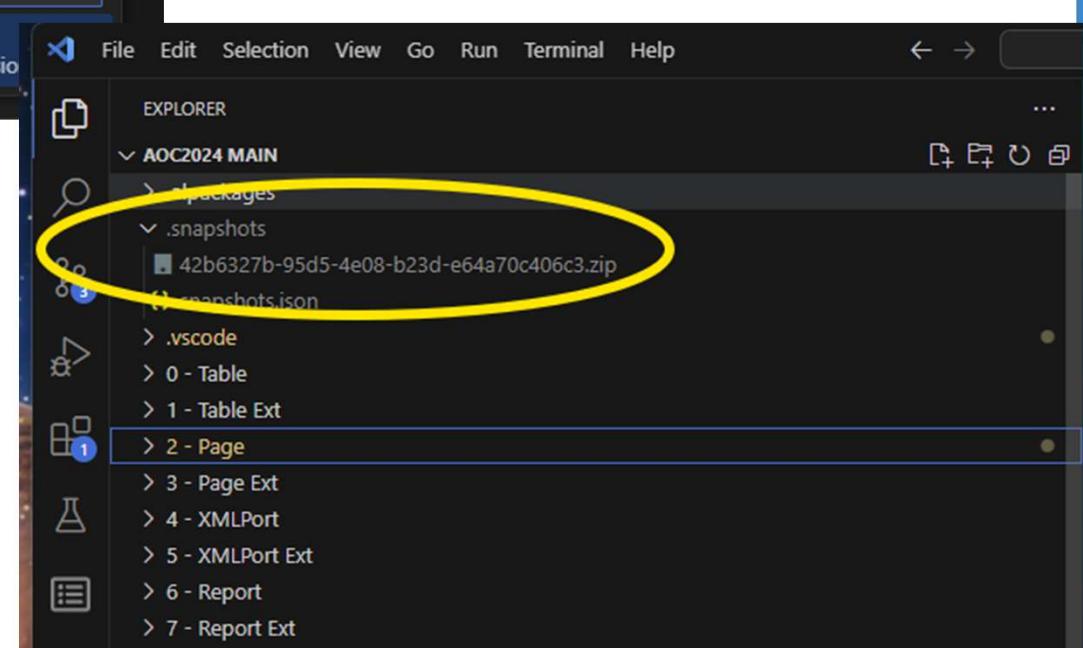
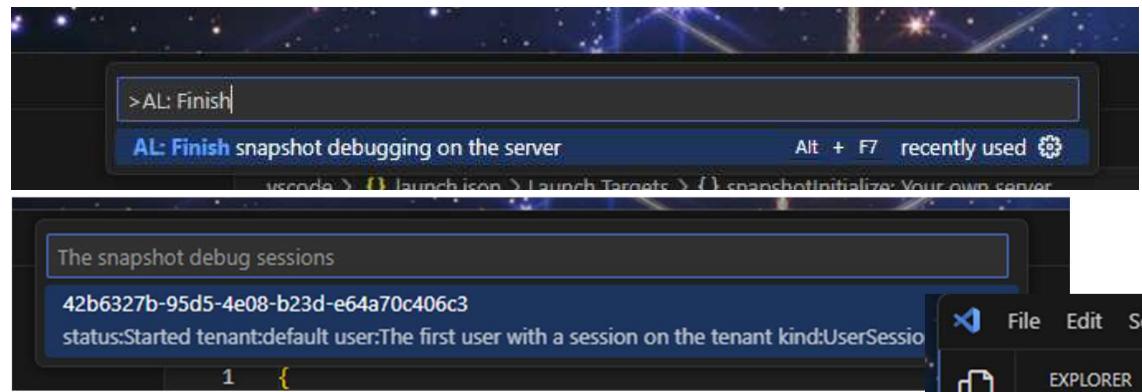
Was this information helpful? Yes No

[OK](#)

Contact

Contact Code .....







The screenshot shows the Dynamics 365 Development Environment (Dynamics Studio) interface. A yellow arrow points from the bottom of the left sidebar up towards the top center of the screen, highlighting the 'AL OUTLINE' item in the navigation bar.

The main window displays the 'The snapshot debug sessions' dialog, which lists a single session: '42b6327b-95d5-4e08-b23d-e64a70c406c3.zip'. The status message indicates it was 'Downloaded created: Oct 1, 2024, 09:47:02 PM'. A yellow exclamation mark icon is present in the center of the dialog, and a tooltip below it states: 'The file is not displayed in the text editor because it is either binary or uses an unsupported text encoding.' A blue 'Open Anyway' button is available at the bottom right of the dialog.

The bottom of the screen shows the Dynamics Studio ribbon with tabs: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, PORTS, SERIAL MONITOR, MEMORY, XRTOS, and AL. The 'AL' tab is selected. The DEBUG CONSOLE tab is active, displaying log messages related to the snapshot debugger attach request:

```
[2024-10-01 21:51:09.31] Finishing a snapshot debugger attach request on debugging context :  
'42b6327b-95d5-4e08-b23d-e64a70c406c3'  
[2024-10-01 21:51:09.31] Sending request to http://aardvarklabs:7883/BC/snapshotdebugger/finish?  
debuggingcontext=42b6327b-95d5-4e08-b23d-e64a70c406c3&tenant=default  
[2024-10-01 21:51:09.57] The snapshot debugger attach session has finished. Snapshot successfully saved as  
'd:\AardvarkLabs\AOC2024\AOC2024 Main\.snapshots\42b6327b-95d5-4e08-b23d-e64a70c406c3.zip'.  
As the snapshot can contain customer privacy data, you should handle it according to privacy compliance and remember to delete  
it when you are done using it.  
Use the 'Show all snapshots' command, or by clicking the snapshot debugger icon in the left corner of the toolbar to view the  
downloaded snapshots ready for debugging.
```

The bottom status bar shows the current file 'main\*' and the server connection 'Your own server (AOC2024 Main)'. It also displays memory usage '816.80KB' and code coverage 'Code Coverage: Off'.



A screenshot of the Microsoft Dynamics 365 AL Page Designer interface. The window title is "AL CodeUnit%9520.al X". The code editor shows a snippet of AL (Action Language) code:

```
11 0% Coverage
procedure SendMailOrDownload(var TempEmailItem: Record "Email Item" temporary; HideMailDialog: Boolean)
var
    MailManagement: Codeunit "Mail Management";
    OfficeMgt: Codeunit "Office Management";
begin
    MailManagement.InitializeFrom(HideMailDialog, not IsBackground());
    if MailManagement.IsEnabled() then
        if MailManagement.Send(TempEmailItem, EmailScenario, Enqueue) then begin
            OnSendMailOrDownloadOnBeforeMailManagementIsSent(MailManagement, TempEmailItem);
            MailSent := MailManagement.IsSent();
            exit;
        end;
    if IsBackground() then
        exit;

    if not TempEmailItem.HasAttachments() or not GuiAllowed or (OfficeMgt.IsAvailable() and not OfficeMgt.CanSendEmail()) then
        Error(CannotSendMailThenDownloadErr);
    if not Confirm(StrSubstNo('%1\\%2', CannotSendMailThenDownloadErr, CannotSendMailThenDownloadQst))
        exit;

    DownloadPdfAttachment(TempEmailItem);
```

The code editor has a status bar at the bottom showing: [2024-10-01 21:51:09.31] Finishing a snapshot debugger attach request on debugging context : '42b6327b-95d5-4e08-b23d-e64a70c406c3'. The status bar also includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, PORTS, SERIAL MONITOR, MEMORY, XRTOS, and AL.

## • AL: Generate Profile File

Self Time in ms	Total Time in ms	Hit count	Function Name	
3.23	89%	3.62	11% 2	▼ █ OnAfterGetRecord
25.76	86%	29.70	14% 12	▼ █ GetAmountFormat
1.01	20%	4.96	80% 2	▼ █ OnAfterGetCurrRecord
2.64	100%	2.64	0% 8	█ OnAfterGetRecord
6.46	93%	6.89	7% 6	▼ █ GetStatusText
0.12	100%	0.12	0% 2	█ OnAfterGetCurrRecord
9.75	44%	21.71	56% 2	▼ █ OnAfterGetCurrRecord
47.91	9%	512.49	91% 1	▼ █ CalculateResult1 - OnAction
22.76	72%	31.33	28% 1	▼ █ OnInit
2.74	30%	8.99	70% 1	▼ █ OnOpenPage
16.04	100%	16.04	0% 1	█ OnOpenPage
2.09	13%	15.48	87% 1	▼ █ OnCustomerListOpen
4.05	18%	21.98	82% 1	▼ █ OnAfterGetCurrRecord
0.71	51%	1.38	49% 1	▼ █ OnCustomerListGetCurrRec
15.66	100%	15.66	0% 1	█ OnAfterGetCurrRecord
11.49	97%	11.77	3% 1	▼ █ OnAfterGetCurrRecord
3.08	47%	6.46	53% 1	▼ █ OnAfterGetCurrRecord
0.64	68%	0.94	32% 1	▼ █ OnPageBackgroundTaskCompleted
0.00	0%	3.03	100% 1	▼ █ OnInit
18.73	50%	37.22	50% 1	▼ █ OnAfterGetCurrRecord
3.80	90%	4.18	10% 1	▼ █ OnInit
3.99	30%	12.94	70% 1	▼ █ OnOpenPage
0.20	60%	0.33	40% 1	▼ █ OnOpenPage
0.24	100%	0.24	0% 3	█ HasCustomBaseCalendar
0.31	100%	0.31	0% 3	█ CalcCreditLimitLCYExpendedPct
5.67	95%	5.97	5% 3	▼ █ GetCurrentYearFilter
1.87	73%	2.53	27% 1	▼ █ OnAfterGetCurrRecord
0.17	21%	0.79	79% 1	▼ █ OnCustomerCardGetCurrRec
0.22	76%	0.28	24% 1	▼ █ OnAfterGetCurrRecord
2.10	61%	3.43	39% 1	▼ █ OnPageBackgroundTaskCompleted
13.35	80%	16.59	20% 1	▼ █ Email - OnAction



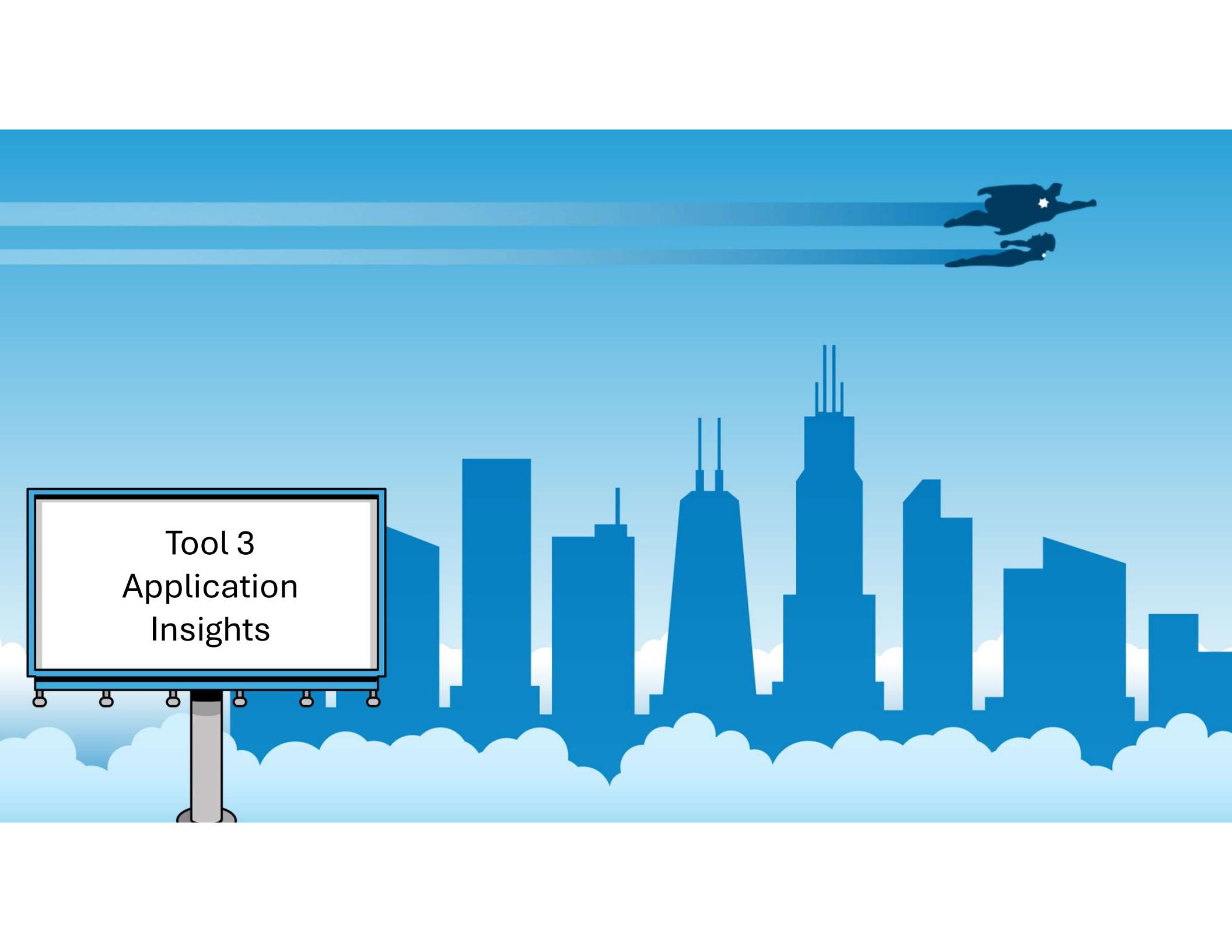
@t > 500

Self Time in ms Total Time in ms Hit count Function Name					
47.91	9%	512.49	91%	1	▼ █ CalculateResult1 - OnAction Aardvark Labs Advent of Code 2024::Page::ARD_AOCChallengeCard ARDAOCCallengeCard.Page.al:149
464.59	91%	510.41	9%	1	> █ CalculateResult1 Aardvark Labs Advent of Code 2024::CodeUnit::ARD_ResultsCalculator ARDResultsCalculator.CodeUnit.al:7

@da ~ = Aardv\*

Self Time in ms Total Time in ms Hit count Function Name					
9.75	44%	21.71	56%	2	▼ █ OnAfterGetCurrRecord Aardvark Labs Advent of Code 2024::Page::ARD_AOCChallengeCard ARDAOCCallengeCard.Page.al:178
6.61	70%	9.35	30%	2	> █ RetrieveChallenge1Text Aardvark Labs Advent of Code 2024::Table::ARD_AOCChallenge ARDAOCCChallenge.Table.al:79
0.20	32%	0.62	68%	2	> █ RetrieveChallenge2Text Aardvark Labs Advent of Code 2024::Table::ARD_AOCChallenge ARDAOCCChallenge.Table.al:96
0.22	34%	0.63	66%	2	> █ RetrieveChallengeExample Aardvark Labs Advent of Code 2024::Table::ARD_AOCChallenge ARDAOCCChallenge.Table.al:113
4.92	87%	5.62	13%	2	> █ RetrieveChallengeData Aardvark Labs Advent of Code 2024::Table::ARD_AOCChallenge ARDAOCCChallenge.Table.al:130
47.91	9%	512.49	91%	1	▼ █ CalculateResult1 - OnAction Aardvark Labs Advent of Code 2024::Page::ARD_AOCChallengeCard ARDAOCCChallengeCard.Page.al:149
464.59	91%	510.41	9%	1	> █ CalculateResult1 Aardvark Labs Advent of Code 2024::CodeUnit::ARD_ResultsCalculator ARDResultsCalculator.CodeUnit.al:7





## Tool 3 Application Insights

# Application Insights

- Azure Service
- Long term performance tracking
- Defaults to monitoring 30 days of data
- Can cost money, typically less than a Starbucks run.



# Step 1: Application Insights

- [Portal.Azure.com](https://portal.azure.com)

The screenshot shows the Azure portal's main dashboard. At the top left, there's a large yellow circle highlighting the "Create a resource" button, which features a blue plus sign icon. Below this, under the heading "Azure services", there are several service icons: Subscriptions (key), Quickstart Center (rocket), Virtual machines (monitor), App Services (globe), Storage accounts (bar chart), SQL databases (SQL logo), Azure Cosmos DB (globe with network lines), Kubernetes services (purple hexagon grid), and a "More services" link with a right-pointing arrow. Further down, there's a section titled "Resources" with tabs for "Recent" (which is selected) and "Favorite". The "Recent" tab displays columns for "Name", "Type", and "Last Viewed". At the bottom of the page, there's a decorative footer featuring a city skyline silhouette and the text "2025 DYNAMICS CON".

Home >

## Create a resource

X

Get Started

Recently created

### Categories

AI + Machine Learning

Analytics

Blockchain

Compute

Containers

Databases

Developer Tools

DevOps

Application Insights

X

Getting started? Try our Quickstart Center

application insights

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[Create](#) | [Docs](#) | [MS Learn](#)

 Web App  
[Create](#) | [Docs](#) | [MS Learn](#)

 SQL Database  
[Create](#) | [Docs](#) | [MS Learn](#)

 Function App  
[Create](#) | [Docs](#)

 Key Vault

Popular Marketplace products [See more in Marketplace](#)

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[Create](#) | [Learn more](#)

 Ubuntu Server 20.04 LTS  
[Create](#) | [Learn more](#)

 Ubuntu Server 22.04 LTS  
[Create](#) | [Learn more](#)

 Red Hat Enterprise Linux 7.4  
[Create](#) | [Learn more](#)

Essentials 50K



Home >

## Marketplace

X

Get Started

Service Providers

Management

Private Marketplace

Private Offer Management

My Marketplace

Favorites

My solutions

Recently created

Private plans

Categories

Analytics (230)

IT & Management Tools (165)

AI + Machine Learning (87)



New! Get AI-generated suggestions for your search.

[View suggestions](#)

Ask AI to suggest products, articles, and solutions for what you need.

Application Insights

Pricing : All X

Operating System : All X

Publisher Type : All X

Product Type : All X

Azure services only

Publisher name : All X

Showing 1 to 20 of 611 results for 'Application Insights'. [Clear search](#)

[Tile view](#) ▾



Application Insights

Microsoft

Azure Service

Application performance, availability and usage information at your fingertips.

[Create](#) ▾



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managed application

Celebal Technologies Private Li...

Azure Application

"Converto" is a managed application designed to streamline and enhance managed application.

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AppDynamics

cisco

AppDynamics Application Performance Monitoring

AppDynamics

SaaS

Connect your Azure application performance and end-user experience to your business outcomes

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2025 DYNAMICS CON

Home >

## Application Insights

Microsoft



### Application Insights

Add to Favorites

Microsoft | Azure Service

★ 4.3 (525 ratings)

Plan

Create



Overview

Plans

Usage Information + Support

Ratings + Reviews

#### Application performance, availability and usage information at your fingertips

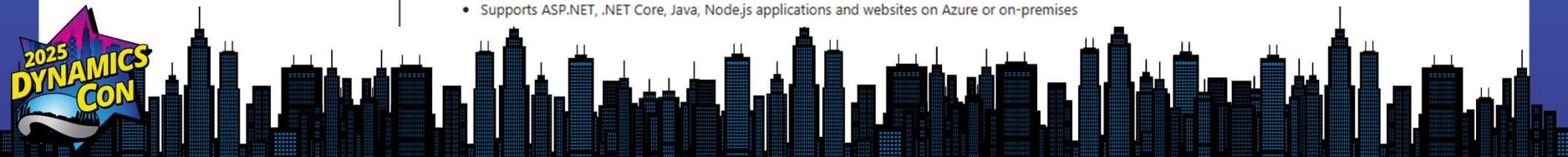
Is my website available at all times?

Is the user experience responsive and usable?

How are customers using my app/website?

Application Insights answers these questions and many more. With Application Insights, you have full observability into your application across all components and dependencies of your complex distributed architecture, as well as:

- Availability and performance monitoring
- Deep code diagnostics with profiler and debugger
- Users and usage insights
- Out of the box performance and failures triage with end-to-end transaction diagnostics
- Seamless integration with Microsoft Azure and Visual Studio
- Supports ASP.NET, .NET Core, Java, Node.js applications and websites on Azure or on-premises



# Application Insights

Monitor web app performance and usage

Basics Tags Review + create

Create an Application Insights resource to monitor your live web application. With Application Insights, you have full observability into your application across all components and dependencies of your complex distributed architecture. It includes powerful analytics tools to help you diagnose issues and to understand what users actually do with your app. It's designed to help you continuously improve performance and usability. It works for apps on a wide variety of platforms including .NET, Node.js and Java EE, hosted on-premises, hybrid, or any public cloud. [Learn More](#)

## PROJECT DETAILS

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ

Azure subscription 1

Resource Group \* ⓘ

(New) AppInsights

[Create new](#)

## INSTANCE DETAILS

Name \* ⓘ

BCMonitoring

Region \* ⓘ

(US) East US

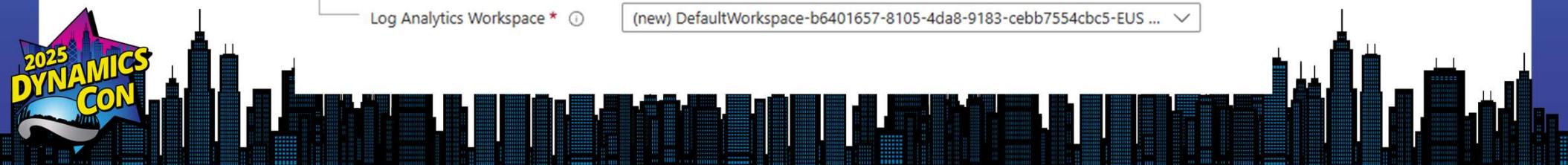
## WORKSPACE DETAILS

Subscription \* ⓘ

Azure subscription 1

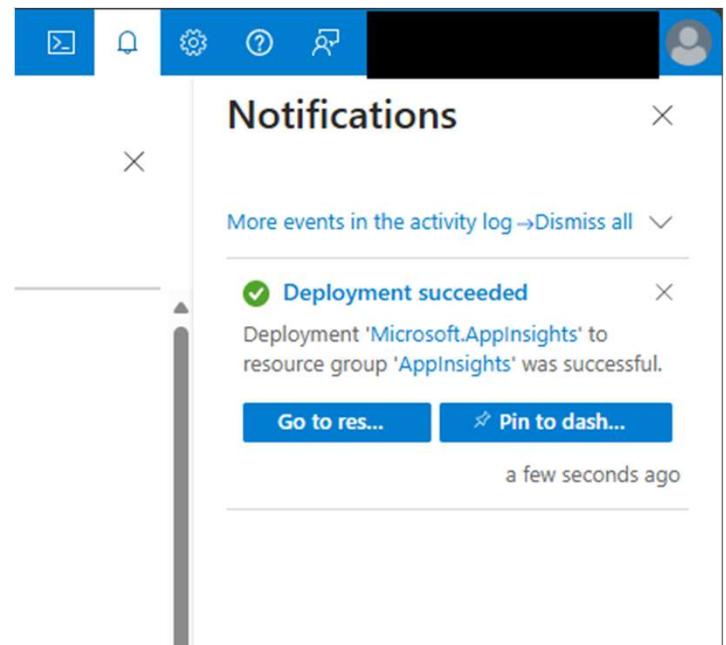
Log Analytics Workspace \* ⓘ

(new) DefaultWorkspace-b6401657-8105-4da8-9183-cebb7554cbc5-EUS ...



# Finalize Application Insights

- Review + Create



Home >

## BCMonitoring

Application Insights

Search



...

[Application Dashboard](#)

Getting started

Search

Logs

Monitor resource group

Feedback

Favorites

Rename

...

### Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

> Investigate

> Monitoring

> Usage

> Configure

> Settings

> Automation

> Help

### Essentials

Resource group ([move](#))

[AppInsights](#)

Location

East US

Subscription ([move](#))

Subscription ID

Instrumentation Key

Connection String

InstrumentationKey= [REDACTED] IngestionE...

Workspace

[DefaultWorkspace](#)

[JSON View](#)

Tags ([edit](#))

[Add tags](#)

Show data for last:

30 minutes

1 hour

6 hours

12 hours

1 day

3 days

7 days

30 days

#### Failed requests

100  
80

#### Server response time

100ms  
80ms



# Back to Business Central

Dynamics 365 Business Central admin center

?

Environments

Notification Recipients

Microsoft Entra Apps

Telemetry

Reported Outages

Operations

Capacity

Apps Sessions Database Support Update Settings Copy Restore Rename Delete Refresh

Environments > [REDACTED]

Details		Active ⓘ	
Name:	[REDACTED]	Application Family:	Business Central
Type:	Production	Country/region:	US
	Telemetry ⓘ Not Set ( Define )	Security Group:	Not Set ( Define )
URL:	[REDACTED]	Access with Microsoft 365 Licenses:	Off ( Modify )



# Configure BC

- Paste in Connection String
- BC will reboot!!!

## Logging telemetry

Enter the connection string for the Azure Application Insights resource where you want telemetry to be stored for the environment.

[Learn more](#)

**Caution:** Applying this connection string requires a restart to the environment. We recommend doing this when no users are active in Business Central.

Enable telemetry



Azure Application Insights Connection String \*

InstrumentationKey= [REDACTED];IngestionEndp...

Save

Cancel



Microsoft Azure

Search resources, services, and docs (G+)

Home > All resources > BC\_Production\_App\_Insights

## BC\_Production\_App\_Insights | Logs

Application Insights

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Investigate

Monitoring

Alerts

Metrics

Diagnostic settings

Logs

Workbooks

Usage

Configure

Settings

Automation

Help

New Query 1

BC\_Production\_Ap... Select scope

Run

Last 24 hours

Save

Tables

Queries

Functions

Search

Filter

Group by: Solution

Collapse all

### Favorites

You can add favorites by clicking on the icon

### Application Insights

- ▶ availabilityResults
- ▶ browserTimings
- ▶ customEvents
- ▶ customMetrics
- ▶ dependencies
- ▶ exceptions
- ▶ pageViews
- ▶ performanceCounters
- ▶ requests
- ▶ traces

### Query history



# Tracked Metrics

- Browser Timings
- Page Views
- Traces



# The Kusto Query aka KQL

- The query language used to parse Telemetry files
- Useful to filter through the scads of data
- Very useful when exporting the query to Power BI



Run Time range : Set in query Show : Max. KQL mode

```

1 traces
2 | where timestamp > ago(30d)
3 | where customDimensions.alObjectName != ''
4 | project
5   timestamp,
6   session_Id,
7   customDimensions.sessionId,
8   user_Id,
9   message,
10  customDimensions.companyName,    customDimensions.clientType,    customDimensions.alObjectName,    customDimensions.alObjectId,
11  customDimensions.alObjectType,    customDimensions.executionTime,    customDimensions.totalTime,    customDimensions.extensionVersion,
12  customDimensions.extensionId,    customDimensions.extensionName,    customDimensions.extensionPublisher,    customDimensions.environmentName,
13  customDimensions.environmentType,    customDimensions.aadTenantId,    customDimensions.alStackTrace,    customDimensions.sqlStatement,
14  customDimensions.failureReason,    customDimensions.alErrorMessage
15 | sort by timestamp desc
16

```

Results Chart

timestamp [UTC]	session_Id	user_Id	message	customDimensions_compan...	customDimensions_clientTy...	customDimensions_alObjec...	customDimensions_alOk...
> 3/21/2025, 3:54:37.054 AM	68050U/ad-8319-48/d-ada1-50...	N/A	Upgrade tag searched for: MS-...	CRONUS USA, Inc.	Background	Upgrade Tag Impl.	999b
> 3/21/2025, 3:54:37.052 AM	680507ad-8319-487d-ada1-50...	N/A	Upgrade tag searched for: MS-...	CRONUS USA, Inc.	Background	Upgrade Tag Impl.	9996
> 3/20/2025, 4:05:50.857 AM	a7d2f823-115c-423e-8647-b2d...	N/A	Upgrade tag searched for: MS-...	My Company	Background	Upgrade Tag Impl.	9996
> 3/20/2025, 4:05:50.271 AM	a7d2f823-115c-423e-8647-b2d...	N/A	Upgrade tag searched for: MS-...	CRONUS USA, Inc.	Background	Upgrade Tag Impl.	9996
> 3/20/2025, 4:00:12.734 AM	7f239aa4-3f20-4596-8163-b86...	37c6de19-fa1e-4b1b-ace2-0ba...	Job queue entry finished: B6DB...	CRONUS USA, Inc.	Background	System Telemetry Logger	8713
> 3/20/2025, 4:00:12.734 AM	7f239aa4-3f20-4596-8163-b86...	37c6de19-fa1e-4b1b-ace2-0ba...	Job queue entry enqueued: B6...	CRONUS USA, Inc.	Background	System Telemetry Logger	8713



# Analyze and monitor telemetry with KQL

<https://learn.microsoft.com/en-us/dynamics365/business-central/dev-itpro/administration/telemetry-analyze-with-kql#how-can-i-query-telemetry-from-log-analytics>

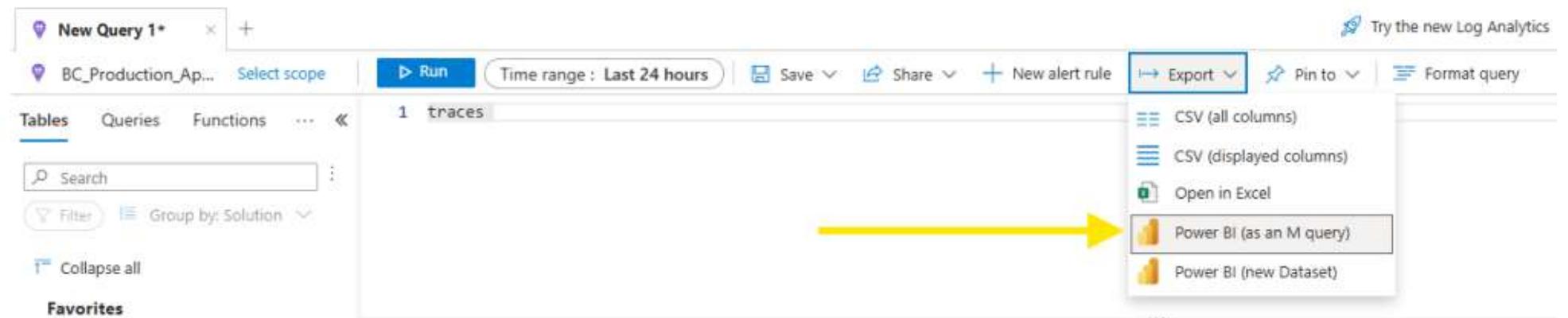




Tool 4  
Power BI  
Dashboard

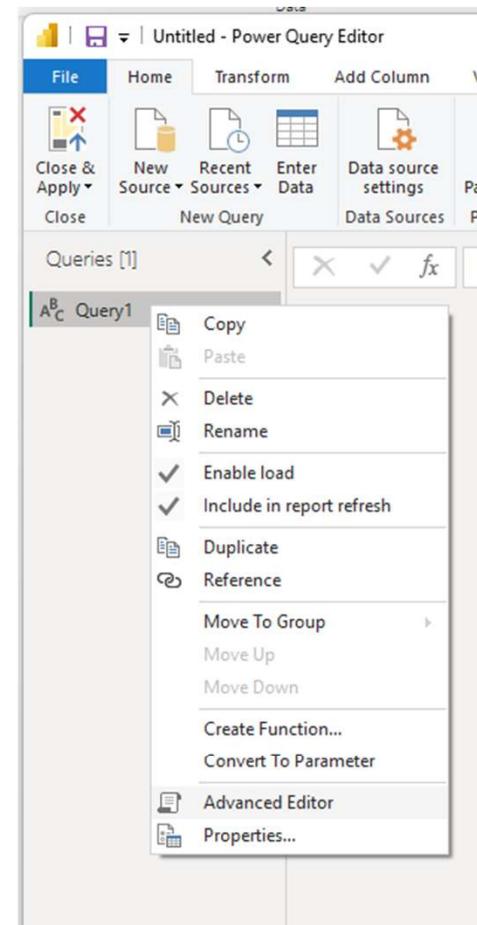
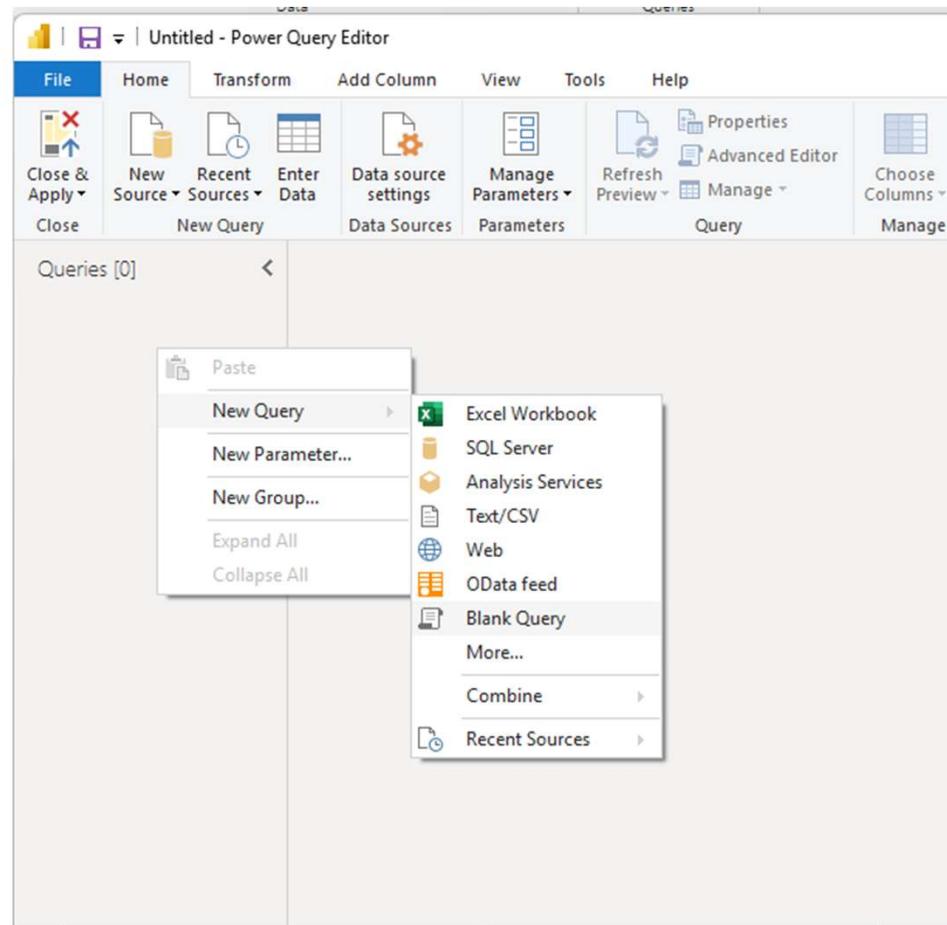


# Power BI Reporting



A screenshot of the Azure Log Analytics workspace interface. At the top, there's a header bar with tabs for 'New Query 1\*', 'BC\_Production\_App...', 'Run', 'Time range : Last 24 hours', 'Save', 'Share', 'New alert rule', and 'Export'. A yellow arrow points from the 'Export' button to a dropdown menu. The dropdown menu contains several options: 'CSV (all columns)', 'CSV (displayed columns)', 'Open in Excel', 'Power BI (as an M query)' (which is highlighted with a blue border), and 'Power BI (new Dataset)'. Below these options is a small ellipsis (...). On the left side of the main area, there are sections for 'Tables', 'Queries', 'Functions', and a search bar. The 'Tables' section shows a single table named 'traces' with 1 row.





Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Recent Sources Er Advanced Editor Data Type: Any Use First Row as Headers Text Analytics Vision Machine Learning Insights

Advanced Editor

Queries [1] **Query1**

```
let AnalyticsQuery =
let Source = Json.Document(Web.Contents("https://api.applicationinsights.io/v1/apps/<your connection guid here>/query",
[Query=[#"query"="traces
","#"x-ms-app"="AAPBI","#timespan"="P1D","#prefer"="ai.response-thinning=true"],Timeout=#duration(0,0,4,0)])),
TypeMap = #table(
{ "AnalyticsTypes", "Type" },
{
{ "string", Text.Type },
{ "int", Int32.Type },
{ "long", Int64.Type },
{ "real", Double.Type },
{ "timespan", Duration.Type },
{ "datetime", DateTimeZone.Type },
{ "bool", Logical.Type },
{ "guid", Text.Type },
{ "dynamic", Text.Type }
}),
DataTable = Source[tables]{0},
Columns = Table.FromRecords(DataTable[columns]),
ColumnsWithType = Table.Join(Columns, {"type"}, TypeMap , {"AnalyticsTypes"}),
Rows = Table.FromRows(DataTable[rows], Columns[name]),
Table = Table.TransformColumnTypes(Rows, Table.ToList(ColumnsWithType, (c) => { c{0}, c{1}}))
in
Table
```

Display Options ?

✓ No syntax errors have been detected.

Done Cancel



Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Manage Properties Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Any Use First Row as Headers Combine Text Analytics Vision Azure Machine Learning All Insights

Close New Query Data Sources Parameters Query Manage Columns Reduce Rows Sort Replace Values Transform

Queries [1]    - let Source = Json.Document(Web.Contents("https://api.applicationinsights.io/v1/apps/"))

Please specify how to connect.

Anonymous

Windows

Basic

Web API

Organizational account

Access Web content  
https://api.applicationinsights.io/v1/apps/de7c1681-...  
You aren't signed in.  
  
Select which level to apply these settings to

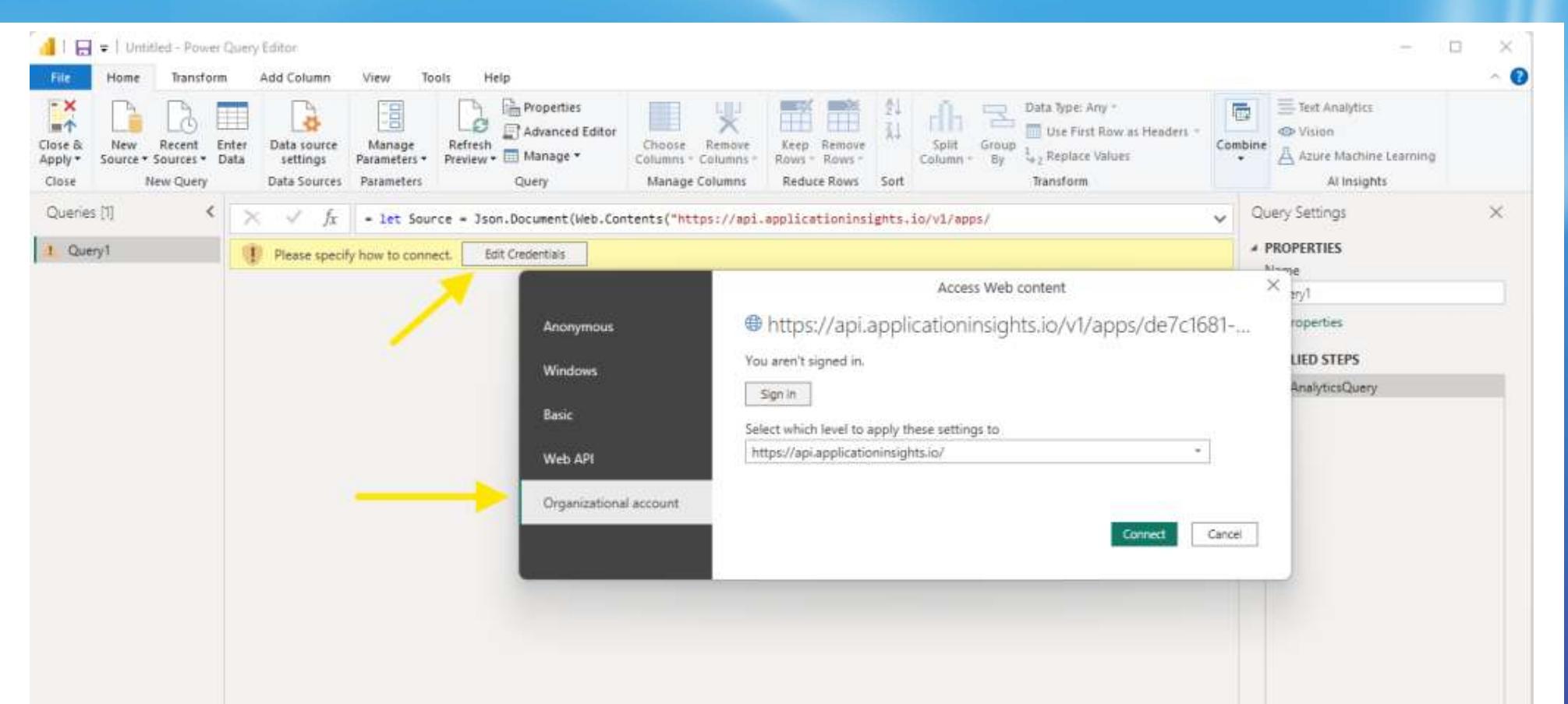
Query Settings

PROPERTIES

Name: Query1

STEPS

AnalyticsQuery



Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Advanced Editor Properties Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Text Use First Row as Headers Combine Text Analytics Vision Azure Machine Learning AI Insights

Close & Apply Close New Query Queries [1] Traces

let Source = Json.Document(Web.Contents("https://api.applicationinsights.io/v1/apps/"))

itemType customDimensions customMeasurements operation

1 trace {"component": "Dynam..."} null Success re...  
2 trace {"component": "Dynam..."} null Authoriza...  
3 trace {"component": "Dynam..."} null Web Serv...  
4 trace {"component": "Dynam..."} null Authoriza...  
5 trace {"component": "Dynam..."} null Authoriza...  
6 trace {"component": "Dynam..."} null Authoriza...  
7 trace {"component": "Dynam..."} null Web Serv...  
8 trace {"component": "Dynam..."} null Authoriza...  
9 trace {"component": "Dynam..."} null Web Serv...  
10 trace {"component": "Dynam..."} null Web Serv...  
11 trace {"component": "Dynam..."} null Web Serv...  
12 trace {"component": "Dynam..."} null Authoriza...  
13 trace {"component": "Dynam..."} null Web Serv...  
14 trace {"component": "Dynam..."} null Authoriza...  
15 trace {"component": "Dynam..."} null Authoriza...  
16 trace {"component": "Dynam..."} null Authoriza...  
17 trace {"component": "Dynam..."} null Web Serv...  
18 trace {"component": "Dynam..."} null Web Serv...  
19 trace {"component": "Dynam..."} null Web Serv...  
20 trace {"component": "Dynam..."} null Authoriza...  
21 trace {"component": "Dynam..."} null Web Serv...  
22 trace {"component": "Dynam..."} null Authoriza...  
23 trace {"component": "Dynam..."} null Authoriza...  
24 trace {"component": "Dynamics 365 Business Central Server", "Objectid": "23044900", "sqlRowsRead": "1", "eventid": "RT0004", "operation": "Success", "customDimensions": "1", "customMeasurements": "1", "itemType": "trace"} null Web Serv...  
25 trace {"component": "Dynamics 365 Business Central Server", "sqlRowsRead": "3", "eventid": "RT0004", "operation": "Success", "customDimensions": "1", "customMeasurements": "1", "itemType": "trace"} null Authoriza...  
26 trace {"component": "Dynamics 365 Business Central Server", "sqlRowsRead": "3", "eventid": "RT0004", "operation": "Success", "customDimensions": "1", "customMeasurements": "1", "itemType": "trace"} null Authoriza...

Copy Remove Remove Other Columns Duplicate Column Add Column From Examples... Remove Duplicates Remove Errors Change type Transform lowercase UPPERCASE Capitalize Each Word Trim Clean longer JSON XML

Properties Name: Traces All Properties Applied Steps AnalyticsQuery

32 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 8:24 PM



Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Properties Manage Columns Group By Data Type: Any

Close New Query Data Sources Parameters Query Manage Columns Keep Rows Remove Rows Sort Split Column Combine Text Analytics Vision Azure Machine Learning AI Insights

Queries Traces

Table.TransformColumns(AnalyticsQuery,{{"customDimensions", Json.Document}})

Search Columns to Expand

(Select All Columns) component alObjectId extensionPublisher sqlRowsRead numberOfRows documentFormat alObjectType eventid telemetrySchemaVersion extensionName totalTime sqlExecutes companyName layoutType alStackTrace reportAction

Use original column name as prefix

Limit of 1000 scanned rows reached.

OK Cancel

32 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

A yellow arrow points to the "Transform" button in the ribbon bar.





### Highest Execution by Object





# Report Load Performance

TimeStamp EST	Object Name	Reporting Engine	SQL Executes	Rows Read	Server Execution Time	Execution Time	Performance Bucket	Extension Name	Extension Publisher	Extension Version
2/18/2025 2:04:22 PM	WHI Item Barcode Label	Rdlc	1	1	0.50	0.00	250ms-500ms	Warehouse Insight Advanced WMS	Insight Works	2.13.9109.1
2/18/2025 2:05:02 PM	WHI Item Barcode Label	Rdlc	1	1	0.58	0.00	500ms-1sec	Warehouse Insight Advanced WMS	Insight Works	2.13.9109.1
2/18/2025 2:05:17 PM	Calc. Consumption	ProcessingOnly	41	27	0.26	0.00	250ms-500ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:05:28 PM	WHI Item Barcode Label	Rdlc	1	1	0.42	0.00	250ms-500ms	Warehouse Insight Advanced WMS	Insight Works	2.13.9109.1
2/18/2025 2:07:34 PM	Purchase Order	Word	31	46	0.18	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:07:35 PM	Purchase Order	Rdlc	9	29	1.08	0.00	1sec-3sec	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:07:54 PM	Get Source Documents	ProcessingOnly	27	20	0.20	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:08:20 PM	WHI Item Barcode Label	Rdlc	1	1	0.48	0.00	250ms-500ms	Warehouse Insight Advanced WMS	Insight Works	2.13.9109.1
2/18/2025 2:08:23 PM	TMG_CreatePick_BOMRoutLink	ProcessingOnly	191	139	2.80	0.00	1sec-3sec	TMG HME Customizations	The TM Group, Inc.	1.0.0.86
2/18/2025 2:09:06 PM	Whse.-Shipment - Create Pick	ProcessingOnly	36	18	0.77	0.00	500ms-1sec	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:10:39 PM	Whse.-Shipment - Create Pick	ProcessingOnly	45	29	0.18	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:11:05 PM	Whse.-Shipment - Create Pick	ProcessingOnly	24	14	0.10	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:11:24 PM	Whse.-Shipment - Create Pick	ProcessingOnly	23	19	0.04	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:11:53 PM	Whse.-Shipment - Create Pick	ProcessingOnly	23	17	0.05	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:12:22 PM	Get Source Documents	ProcessingOnly	24	19	0.10	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:12:50 PM	Whse.-Shipment - Create Pick	ProcessingOnly	35	27	0.11	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:13:03 PM	TMG_CreatePick_BOMRoutLink	ProcessingOnly	34	23	0.14	0.00	<250ms	TMG HME Customizations	The TM Group, Inc.	1.0.0.86
2/18/2025 2:13:05 PM	Whse.-Shipment - Create Pick	ProcessingOnly	13	11	0.03	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849
2/18/2025 2:13:28 PM	Get Source Documents	ProcessingOnly	41	26	0.16	0.00	<250ms	Base Application	Microsoft	25.2.27733.29849

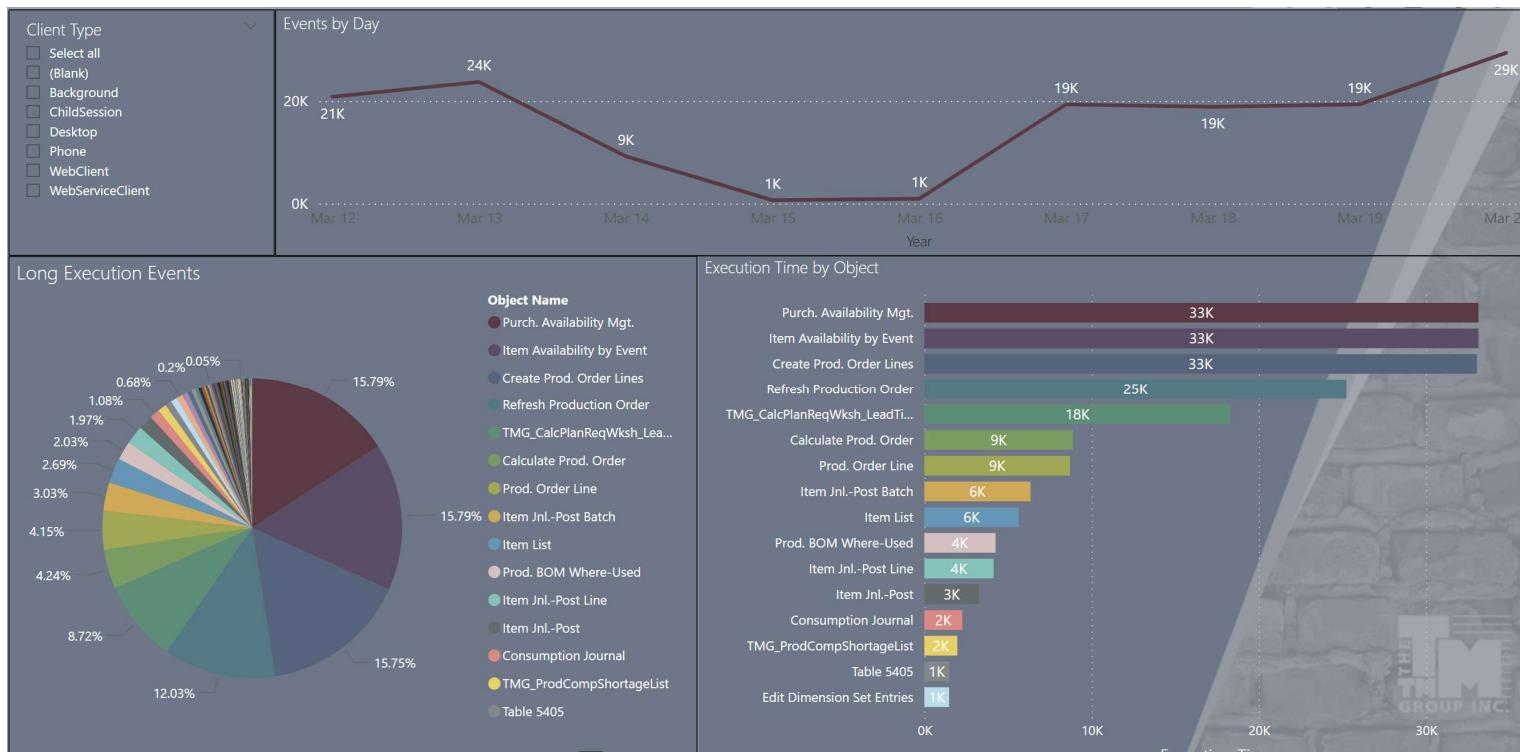


# Web Service Performance

Time Stamp EST	Object Name	Object Type	End Point	HTTP Method	HTTP Status Code	Total Time
3/20/2025 2:56:27 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.08
3/20/2025 2:56:27 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.07
3/20/2025 2:56:10 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.33
3/20/2025 2:56:09 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.13
3/20/2025 2:55:50 PM	Email - Outlook API Client	Codeunit	https://graph.microsoft.com	POST	202	0.23
3/20/2025 2:55:48 PM	Email - Outlook API Client	Codeunit	https://graph.microsoft.com	POST	202	0.19
3/20/2025 2:55:20 PM	Email - Outlook API Client	Codeunit	https://graph.microsoft.com	POST	202	0.94
3/20/2025 2:41:53 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.32
3/20/2025 2:41:52 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.03
3/20/2025 2:41:52 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.09
3/20/2025 2:40:28 PM	Email - Outlook API Client	Codeunit	https://graph.microsoft.com	POST	202	0.83
3/20/2025 2:40:28 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.08
3/20/2025 2:40:27 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.07
3/20/2025 2:40:13 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.24
3/20/2025 2:40:13 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.12
3/20/2025 2:39:57 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.08
3/20/2025 2:39:57 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.04
3/20/2025 2:39:41 PM	IWX PrintNode Management	Codeunit	https://api.printnode.com	POST	201	0.08
3/20/2025 2:39:41 PM	IWX Barcode Generation	Codeunit	https://iw-barcodegen-v02.azurewebsites.net	GET	200	0.13



# BC Object Performance



# SQL Performance

Time Stamp EST	Execution Time	Object Name	SQL Statement
			ASC,"Reservation Status" ASC,"Shipment Date" ASC,"Expected Receipt Date" ASC,"Entry No_" ASC,"Positive" ASC OPTION(OPTIMIZE FOR UNKNOWN, FAST 50)
2/28/2025 3:44:31 PM	0.76	Item List	<pre> SELECT "Item"."timestamp" AS "timestamp","Item"."No_" AS "No_","Item"."No_2" AS "No_2","Item"."Description" AS "Description","Item"."Search Description" AS "Search Description","Item"."SQLDATABASE".dbo."CURRENTCOMPANY\$Item\$437dbf0e-84ff-417a-965d-ed2bb9650972" AS "Item" WITH(READUNCOMMITTED) JOIN "SQLDATABASE".dbo."CURRENTCOMPANY\$Item\$4 WITH(READUNCOMMITTED) ON ("Item"."No_" = "Item_ext"."No_") OUTER APPLY (SELECT TOP (1) MAX("TMG_LastDateConsumed\$Item Ledger Entry"."Posting Date") AS "TMG_LastDateCon "SQLDATABASE".dbo."CURRENTCOMPANY\$Item Ledger Entry\$437dbf0e-84ff-417a-965d-ed2bb9650972" AS "TMG_LastDateConsumed\$Item Ledger Entry" WITH(READUNCOMMITTED) W- No_="Item"."No_" AND "TMG_LastDateConsumed\$Item Ledger Entry"."Entry Type"=@6) AS "SUB\$TMG_LastDateConsumed" OUTER APPLY (SELECT TOP (1) SUM("Inventory\$Item Ledger E Entry\$SUM\$Quantity" FROM "SQLDATABASE".dbo."CURRENTCOMPANY\$Item Ledger Entry\$437dbf0e-84ff-417a-965d-ed2bb9650972\$VSIFT\$key2" AS "Inventory\$Item Ledger Entry" WITH( Entry"."Item No_="Item"."No_") AS "SUB\$Inventory" OUTER APPLY (SELECT TOP (1) CAST (1 AS TINYINT) AS "Substitutes Exist\$Item Substitution\$EXISTS" FROM "SQLDATABASE".dbo."CURF ed2bb9650972" AS "Substitutes Exist\$Item Substitution" WITH(READUNCOMMITTED) WHERE ("Substitutes Exist\$Item Substitution"."Type"=@7 AND "Substitutes Exist\$Item Substitution"."N TOP (1) CAST (1 AS TINYINT) AS "Stockkeeping Unit Exists\$Stockkeeping Unit\$EXISTS" FROM "SQLDATABASE".dbo."CURRENTCOMPANY\$Stockkeeping Unit\$437dbf0e-84ff-417a-965d-ed2b WITH(READUNCOMMITTED) WHERE ("Stockkeeping Unit Exists\$Stockkeeping Unit"."Item No_="Item"."No_") AS "SUB\$Stockkeeping Unit Exists" OUTER APPLY (SELECT TOP (1) CAST (1 AS "SQLDATABASE".dbo."CURRENTCOMPANY\$BOM Component\$437dbf0e-84ff-417a-965d-ed2bb9650972" AS "Assembly BOM\$BOM Component" WITH(READUNCOMMITTED) WHERE ("Ass "SUB\$Assembly BOM" OUTER APPLY (SELECT TOP (1) CAST (1 AS TINYINT) AS "Coupled to Dataverse\$CRM Integration Record\$EXISTS" FROM "SQLDATABASE".dbo."CURRENTCOMPANY\$CF "Coupled to Dataverse\$CRM Integration Record" WITH(READUNCOMMITTED) WHERE ("Coupled to Dataverse\$CRM Integration Record"."Integration ID"="Item"."\$systemId" AND "Coupled "SUB\$Coupled to Dataverse" WHERE ("Item"."No_" COLLATE Latin1_General_100_CI_AI LIKE @0 OR "Item"."Description" COLLATE Latin1_General_100_CI_AI LIKE @1 OR "Item_ext"."TMG_Tr Latin1_General_100_CI_AI LIKE @2 OR "Item"."Description 2" COLLATE Latin1_General_100_CI_AI LIKE @3 OR "Item"."Vendor No_" COLLATE Latin1_General_100_CI_AI LIKE @4 OR "Item"."Ro ("Item"."No_"&gt;@9) ORDER BY "No_" ASC OPTION(OPTIMIZE FOR UNKNOWN, FAST 50) </pre>
2/28/2025 3:44:30 PM	1.39	Item List	<pre> SELECT TOP (50) "Item"."timestamp" AS "timestamp","Item"."No_" AS "No_","Item"."No_2" AS "No_2","Item"."Description" AS "Description","Item"."Search Description" AS "Search Description","Item"."SQLDATABASE".dbo."CURRENTCOMPANY\$Item\$437dbf0e-84ff-417a-965d-ed2bb9650972" AS "Item" WITH(READUNCOMMITTED) JOIN "SQLDATABASE".dbo."CURRENTCOMPANY\$Item\$4 WITH(READUNCOMMITTED) ON ("Item"."No_" = "Item_ext"."No_") OUTER APPLY (SELECT TOP (1) MAX("TMG_LastDateConsumed\$Item Ledger Entry"."Posting Date") AS "TMG_LastDateCon "SQLDATABASE".dbo."CURRENTCOMPANY\$Item Ledger Entry\$437dbf0e-84ff-417a-965d-ed2bb9650972" AS "TMG_LastDateConsumed\$Item Ledger Entry" WITH(READUNCOMMITTED) W- No_="Item"."No_" AND "TMG_LastDateConsumed\$Item Ledger Entry"."Entry Type"=@6) AS "SUB\$TMG_LastDateConsumed" OUTER APPLY (SELECT TOP (1) SUM("Inventory\$Item Ledger E Entry\$SUM\$Quantity" FROM "SQLDATABASE".dbo."CURRENTCOMPANY\$Item Ledger Entry\$437dbf0e-84ff-417a-965d-ed2bb9650972\$VSIFT\$key2" AS "Inventory\$Item Ledger Entry" WITH( Entry"."Item No_="Item"."No_") AS "SUB\$Inventory" OUTER APPLY (SELECT TOP (1) CAST (1 AS TINYINT) AS "Substitutes Exist\$Item Substitution\$EXISTS" FROM "SQLDATABASE".dbo."CURF ed2bb9650972" AS "Substitutes Exist\$Item Substitution" WITH(READUNCOMMITTED) WHERE ("Substitutes Exist\$Item Substitution"."Type"=@7 AND "Substitutes Exist\$Item Substitution"."N TOP (1) CAST (1 AS TINYINT) AS "Stockkeeping Unit Exists\$Stockkeeping Unit\$EXISTS" FROM "SQLDATABASE".dbo."CURRENTCOMPANY\$Stockkeeping Unit\$437dbf0e-84ff-417a-965d-ed2b WITH(READUNCOMMITTED) WHERE ("Stockkeeping Unit Exists\$Stockkeeping Unit"."Item No_="Item"."No_") AS "SUB\$Stockkeeping Unit Exists" OUTER APPLY (SELECT TOP (1) CAST (1 AS "SQLDATABASE".dbo."CURRENTCOMPANY\$BOM Component\$437dbf0e-84ff-417a-965d-ed2bb9650972" AS "Assembly BOM\$BOM Component" WITH(READUNCOMMITTED) WHERE ("Ass "SUB\$Assembly BOM" OUTER APPLY (SELECT TOP (1) CAST (1 AS TINYINT) AS "Coupled to Dataverse\$CRM Integration Record\$EXISTS" FROM "SQLDATABASE".dbo."CURRENTCOMPANY\$CF "Coupled to Dataverse\$CRM Integration Record" WITH(READUNCOMMITTED) WHERE ("Coupled to Dataverse\$CRM Integration Record"."Integration ID"="Item"."\$systemId" AND "Coupled "SUB\$Coupled to Dataverse" WHERE ("Item"."No_" COLLATE Latin1_General_100_CI_AI LIKE @0 OR "Item"."Description" COLLATE Latin1_General_100_CI_AI LIKE @1 OR "Item_ext"."TMG_Tr Latin1_General_100_CI_AI LIKE @2 OR "Item"."Description 2" COLLATE Latin1_General_100_CI_AI LIKE @3 OR "Item"."Vendor No_" COLLATE Latin1_General_100_CI_AI LIKE @4 OR "Item"."Ro ("Item"."No_"&gt;@9) ORDER BY "No_" ASC OPTION(OPTIMIZE FOR UNKNOWN, FAST 50) </pre>



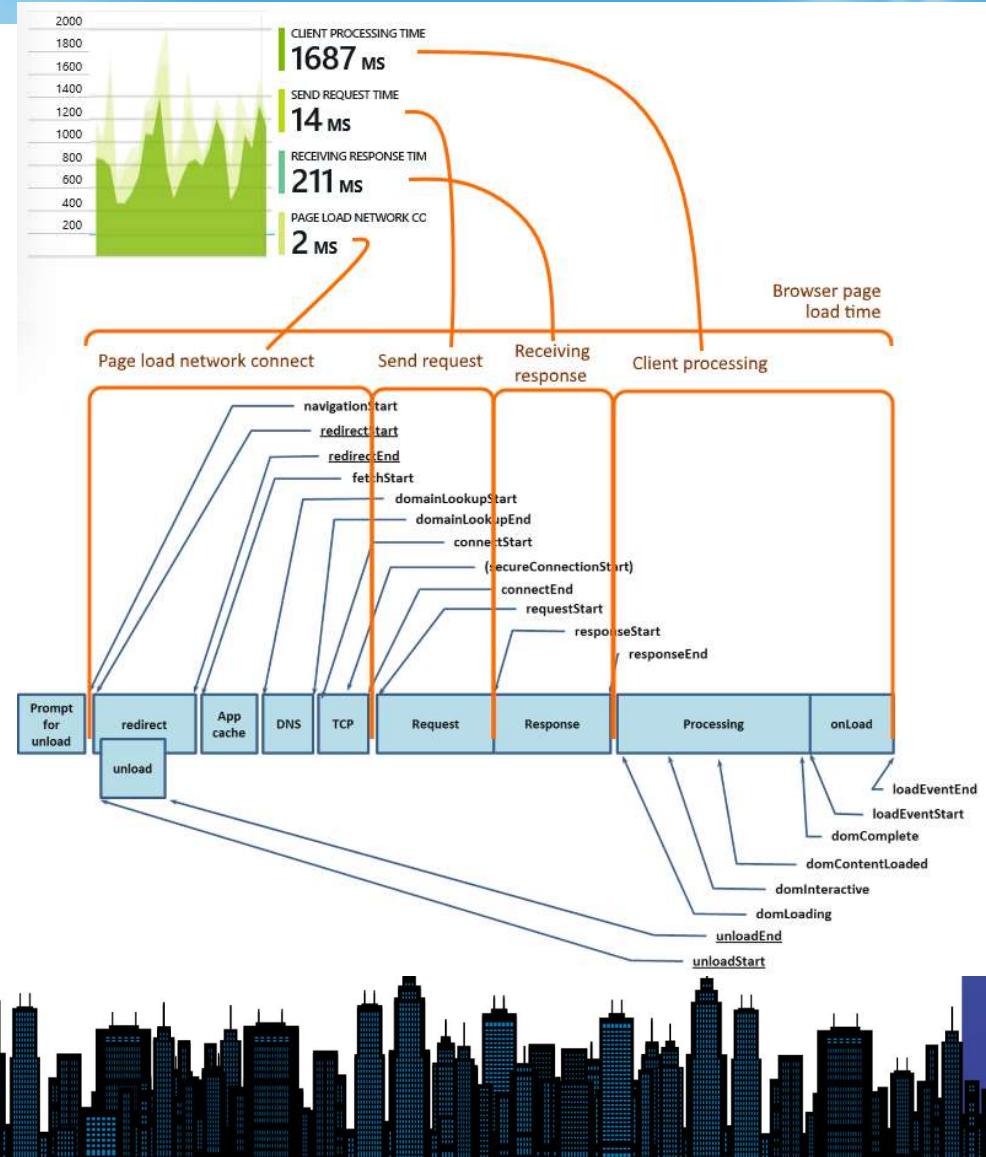
# Common Issues

and how to address them.



# Network Analysis

- Network Duration
- Send Duration
- Receive Duration
- Processing Duration



# Slow Data Retrieval

- Too many rollups
- Too many OnAfterGetRecord calculations
- Insufficient Database Indexing



# Database Table Locks

Tell me what you want to do



database locks

Go to Pages and Tasks

> Database Locks

Administration

Seal Database Locks



This page shows a snapshot of all database locks. Where possible, it displays details on the AL session that is causing the SQL lock.

Didnt

SQL Session  
ID

Session ID

Table name

SQL Lock Resource Type

SQL Lock  
Request  
Mode

SQL Lock  
Request  
Status

User Name

Executing AL  
Object Type

Executing AL  
Object ID

Executing AL C

(There is nothing to show in this view)



# Database Missing Index

The screenshot shows the Dynamics 365 search interface. The search bar at the top contains the text "missing index". Below the search bar, the left sidebar has a "Go to Pages and Tasks" section with a link to "Database Missing Indexes". The main content area is titled "Database Missing Indexes" and displays a table of missing indexes. The table has columns for "Table Name", "Extension Id", "Index Equality Columns", and "Index Inequality Column". Two rows are visible: one for "G\_L Entry" with columns "[Posting Date], [Document No\_]" and another for "G\_L Entry" with columns "[Bal\_Account No\_], [Bal\_Account Type]".

Table Name	Extension Id	Index Equality Columns	Index Inequality Column
G_L Entry	{437dbf0e-84ff-417a-965d-ed2...}	[Posting Date], [Document No_]	
G_L Entry	{437dbf0e-84ff-417a-965d-ed2...}	[Bal_Account No_], [Bal_Account Type]	



# Adding Indexes to Business Central

- Added to the Tables in BC
- Needs to be an Extension
- Indexes improve Load Time
- Indexes cost Save Time

```
namespace BCJourney;
using Microsoft.Finance.GeneralLedger.Ledger;

tableextension 50003 ARD_GLEntry extends "G/L Entry"
{
    keys
    {
        key(ARD_Index1; "Posting Date", "Document No.")
        {

        }

        key(ARD_Index2; "Bal. Account No.", "Bal. Account Type")
        {

        }
    }
}
```



# Flow Field Tax

- Flow Fields perform aggregation over a data set
  - Min, Max, Sum, Lookup...
- Performs a large data query and should be properly indexed
- SIFT Keys are important for Min/Max/Sum calculations
- Can have a high impact when used on a List
- Best on a limited list, card, or fact box



# Inefficient OnGetRecord

- Can be used to perform calculation not possible with a Flow Field
- Could be even more costly than a Flow Field
- Runs on Lists in the background, adding data costs
- Use on Cards, sparingly on Lists



# Database Locked Tables

- Many processes in BC require exclusive access to a table.
- These should be designed to complete quickly, but...
- Poor indexing could drive these processes to take too long
  - Under indexing OR over indexing
- Moving to scheduled jobs or delegated responsibility



# Reporting APIs

- A special designation in the design of an API
- Uses a Read Only version of the tables to avoid locks
- Not an option when exposing a Page as a Web Service



# Auto Tuning

- Use the system!
- Microsoft adjusts server resource allocations based on usage
- Don't back off due to slowness during go-live



# Questions?

War Stories?



# Walkthrough Blog Posts



- Performance Profiler
  - <https://aardvarklabs.blog/2024/10/11/monitor-business-central-performance-with-performance-profiling/>
- VS Code Snapshot
  - <https://aardvarklabs.blog/2024/10/25/development-of-responsive-ai-code-with-the-ai-performance-tools/>
- Application Insights
  - <https://aardvarklabs.blog/2024/10/04/monitor-business-central-performance-with-application-insights/>



# Thank you

Find me at [AardvarkLabs.blog](http://AardvarkLabs.blog)



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