



Business Central

A DYNAMICS CON PRESENTATION

dynamicscon.com/virtual



Telemetry Unleashed: From Basics to Brilliance in Business Central



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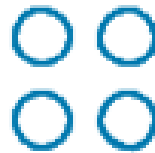
Email: stefan.sosic@bcility.com

Three simple steps to enable telemetry

Setup Azure
Application
Insights



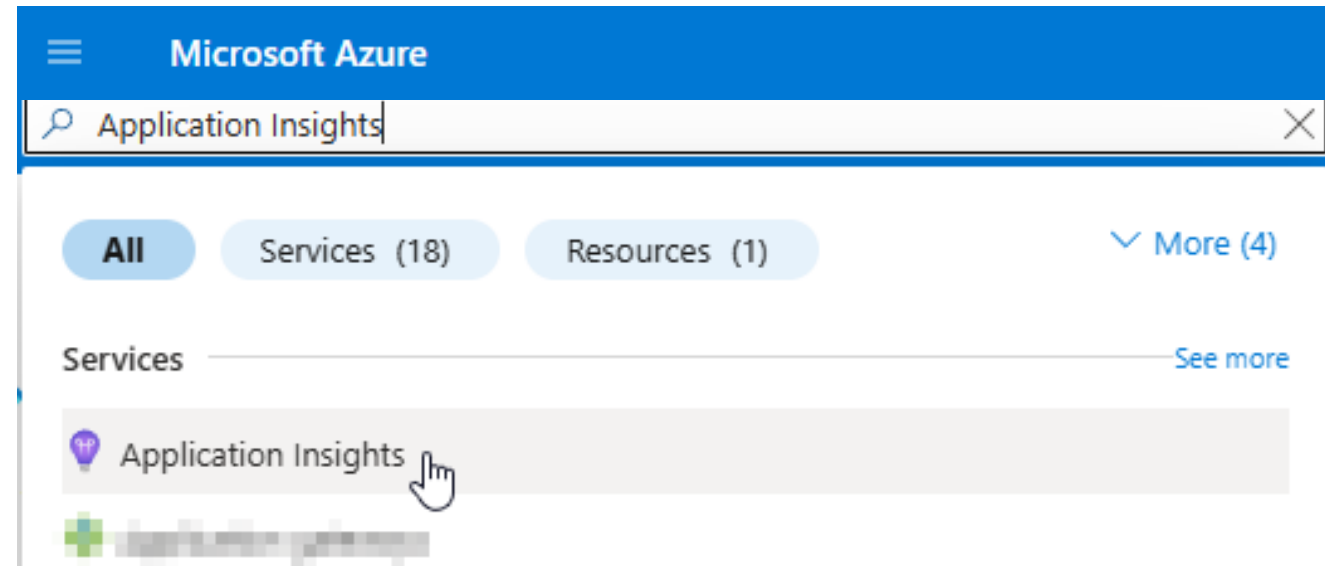
Configure
BC to use
Application
Insights



Verify the
Collection
of signals in
Application
Insights



Setup Azure Application Insights



Setup Azure Application Insights



Microsoft Azure

[Home](#) >

Application Insights

BCILITY (bcility.com)

+ Create



Manage view



Refresh



Export to CSV



Open query

Filter for any field...

Subscription equals all

Resource group equals all



Setup Azure Application Insights



Microsoft Azure

Search res

[Home](#) > [Application Insights](#) >

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 * ⓘ

Microsoft Azure Sponsorship

Resource Group * ⓘ

DynamicsConVirtual

[Create new](#)

INSTANCE DETAILS

Name * ⓘ

DynamicsConVirtual

Region * ⓘ

(Europe) West Europe

WORKSPACE DETAILS

Subscription * ⓘ

Microsoft Azure Sponsorship

Log Analytics Workspace * ⓘ

(new) e28efbf9-931e-43b3-88b3-e78df531c590-BaseCalendarHolidays-W...

[Review + create](#)

[« Previous](#)

[Next : Tags >](#)



Setup Azure Application Insights



Connection String : InstrumentationKey=b57e074b-6ce3-49e7-996d-48a264dafbde;

 **DynamicsConVirtual** ☆ ☆ ...
Application Insights



 Search



★ Application Dashboard  Getting started  Search  Logs  Monitor resource group  Feedback ☆ Favorites → Rename  Delete

 Overview

 Activity log

 Access control (IAM)

 Tags

 Diagnose and solve problems

➤ Investigate

▼ Monitoring

 Alerts

^ Essentials

[JSON View](#)

Resource group [\(move\)](#) : [DefaultResourceGroup-WEU](#)

Location : West Europe

Subscription [\(move\)](#) : [Microsoft Azure Sponsorship](#)

Subscription ID : e28efbf9-931e-43b3-88b3-e78df732c590

Tags [\(edit\)](#) : [Add tags](#)

Instrumentation Key : b57e074b-6ce3-49e7-996d-48a264dafbde

Connection String : InstrumentationKey=b57e074b-6ce3-49e7-996d-48a934dafbde;IngestionEnd...

Workspace : [e28efbf9-931e-43b3-88b3-e78df531c590-DefaultResourceGroup-WEU](#)

Show data for last:

30 minutes **1 hour** 6 hours 12 hours 1 day 3 days 7 days 30 days



Configure BC to use Application Insights



Tenant Name



<https://businesscentral.dynamics.com/bcility.com/admin>

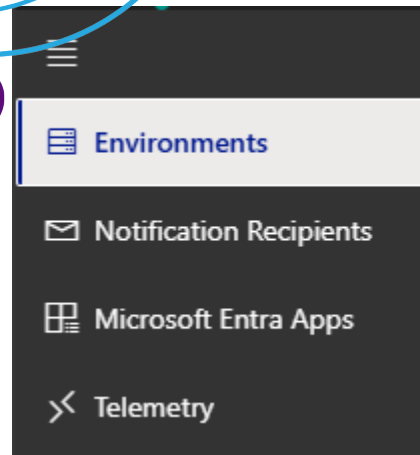
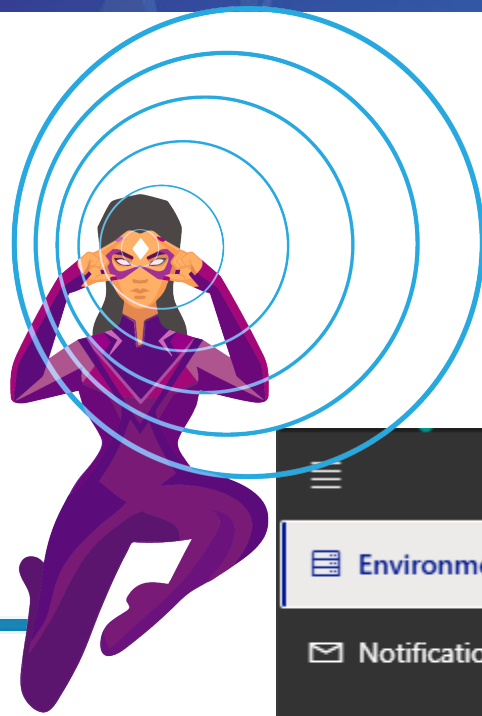
Tenant GUID



<https://businesscentral.dynamics.com/bfccab2c-5a53-41cd-b96f-1685b0e0daa7/admin>



Configure BC to use Application Insights



[+ New](#) [Refresh](#) [Environment Transfers](#) [Recently deleted environments](#)

Environments

Name	Application Family	Type	State	Country
Production	Business Central	Production	Active	RS



Configure BC to use Application Insights



Environments > **Production**

Details

Name
Production

Application Family
Business Central

Type
Production

Telemetry (?)
Not Set ([Define](#))

URL
<https://businesscentral.dynamics.com/3c64fe1c-d585-4c5c-8a54-9962302bc499/Production>



Configure BC to use Application Insights



Logging telemetry



Production

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 *



Configure BC to use Application Insights



Logging telemetry

Production

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=b57e074b-6ce3-49e7-996d-48a264dafbde;

Save

Cancel



Verify the Collection of signals in Application Insights



Microsoft Azure

Home >



DynamicsConVirtual

Application Insights



Search



Applicat



Overview



Activity log



Access control (IAM)



Tags



Diagnose and solve problems



Investigate



Monitoring



Alerts



Metrics



Diagnostic settings



Logs



Workbooks



Usage



Configure



Essentials



Resource gro



Location



Subscription



Subscription



Tags ([edit](#))

Show data

30 minu

Failed

100

80

60

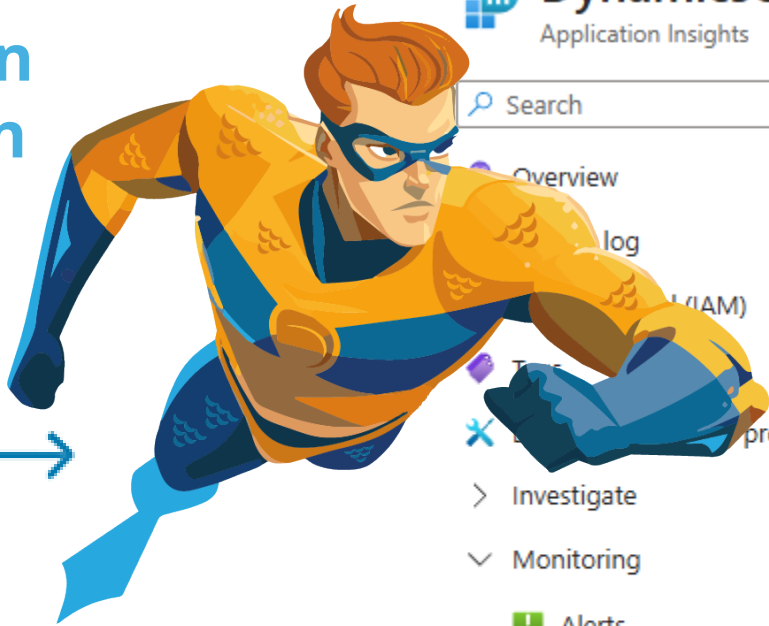
40

20

0



Verify the Collection of signals in Application Insights



DynamicsConVirtual | Logs ☆ ...
Application Insights

Search

Overview
log
(IAM)

✕ Problems

> Investigate

✓ Monitoring

- ! Alerts
- 📊 Metrics
- 🛠 Diagnostic settings
- 📄 Logs**
- 📁 Workbooks

New Query 1 ✕ +

🔗 DragAndDrop [Select scope](#) [▶ Run](#) Time range : Last 24 h

Tables Queries Functions ... <<

Search

🔍 Filter 📄 Group by: Solution ▾

🔍 Collapse all

Favorites

You can add favorites by clicking on the ☆ icon

🔍 **Application Insights**

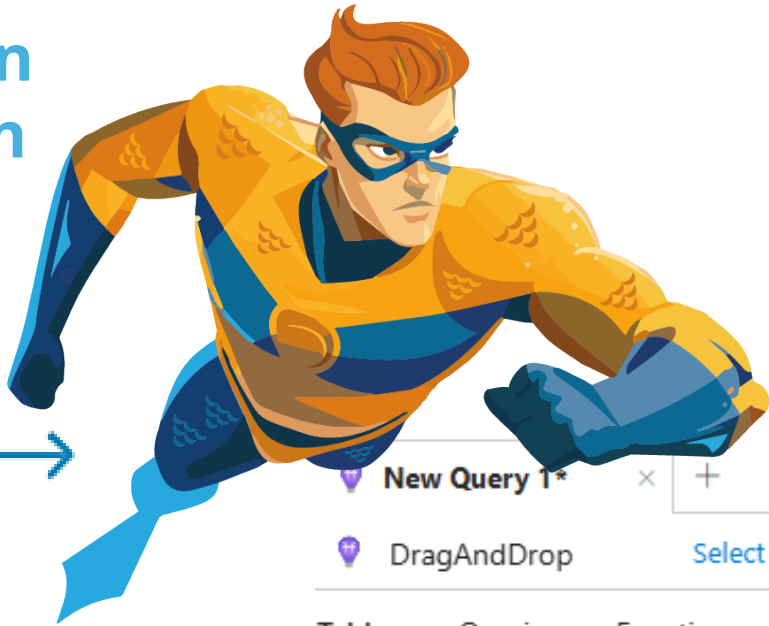
- ▶ 📄 availabilityResults
- ▶ 📄 browserTimings
- ▶ 📄 customEvents

1 Type your query here or c1

Query history



Verify the Collection of signals in Application Insights



New Query 1* x +

DragAndDrop Select scope Run Time range : Last 24 hours Save Share + New

Tables Queries Functions ... <<

1 traces

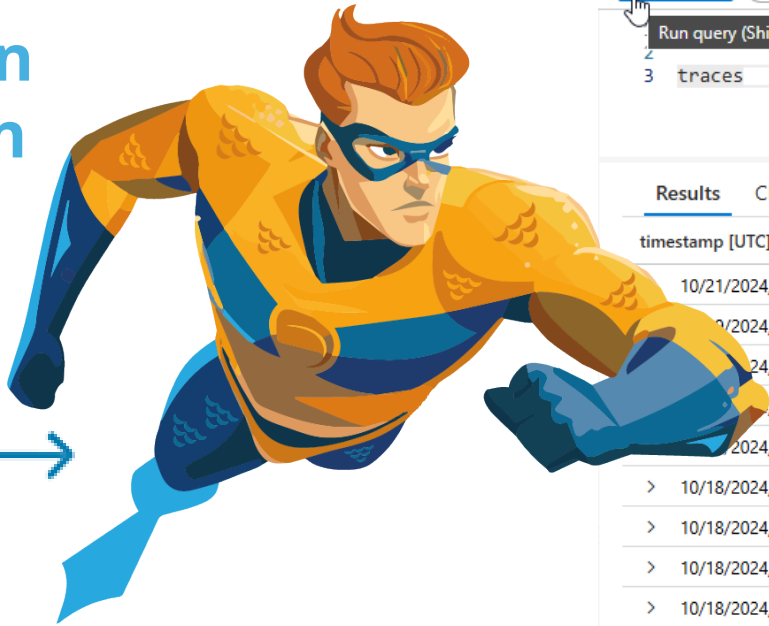
traces

Search

Filter Group by: Solution



Verify the Collection of signals in Application Insights



Run

Time range : Last 7 days

Save Share New alert rule Export Pin to Format query

Run query (Shift+Enter)

3 traces

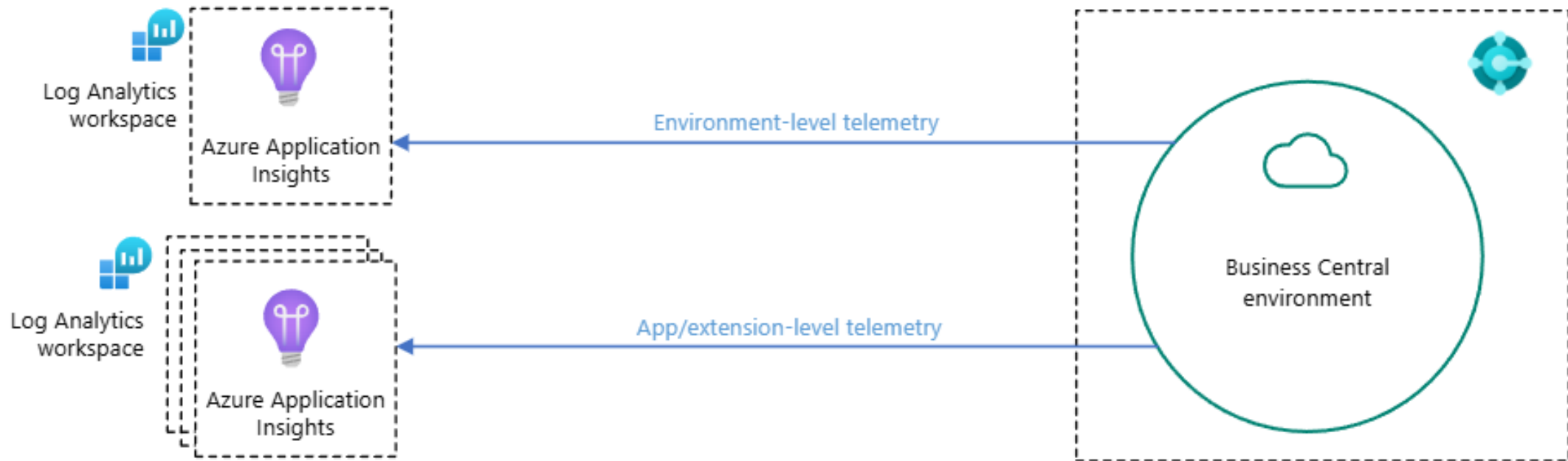
Results Chart

timestamp [UTC] ↑↓	message	severityLevel	itemType	customDimensions
10/21/2024, 10:12:42.510 AM	Operation exceeded time thres...	2	trace	{"telemetrySchemaVersion":"0.5...
10/21/2024, 8:05:40.375 AM	Extension is already synchroniz...	1	trace	{"extensionPublisher":"BCILITY",...
10/21/2024, 8:05:26.562 AM	Extension is already synchroniz...	1	trace	{"extensionPublisher":"BCILITY",...
10/21/2024, 9:06:15.434 PM	Extension is already synchroniz...	1	trace	{"extensionPublisher":"BCILITY",...
10/21/2024, 9:04:33.984 PM	Extension is already synchroniz...	1	trace	{"extensionPublisher":"BCILITY",...
> 10/18/2024, 9:02:50.040 PM	Extension published successfull...	1	trace	{"extensionPublisher":"BCILITY",...
> 10/18/2024, 9:02:48.326 PM	Extension compiled successfull...	1	trace	{"extensionPublisher":"BCILITY",...
> 10/18/2024, 1:34:26.077 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:31:42.835 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:30:54.880 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:30:40.873 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:30:28.482 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:30:01.219 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:29:27.321 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:28:52.120 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:28:27.185 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...
> 10/18/2024, 1:26:50.347 PM	Operation exceeded time thres...	2	trace	{"extensionVersion":"24.3.19.0",...

0s 555ms | Display time (UTC+00:00) ▾



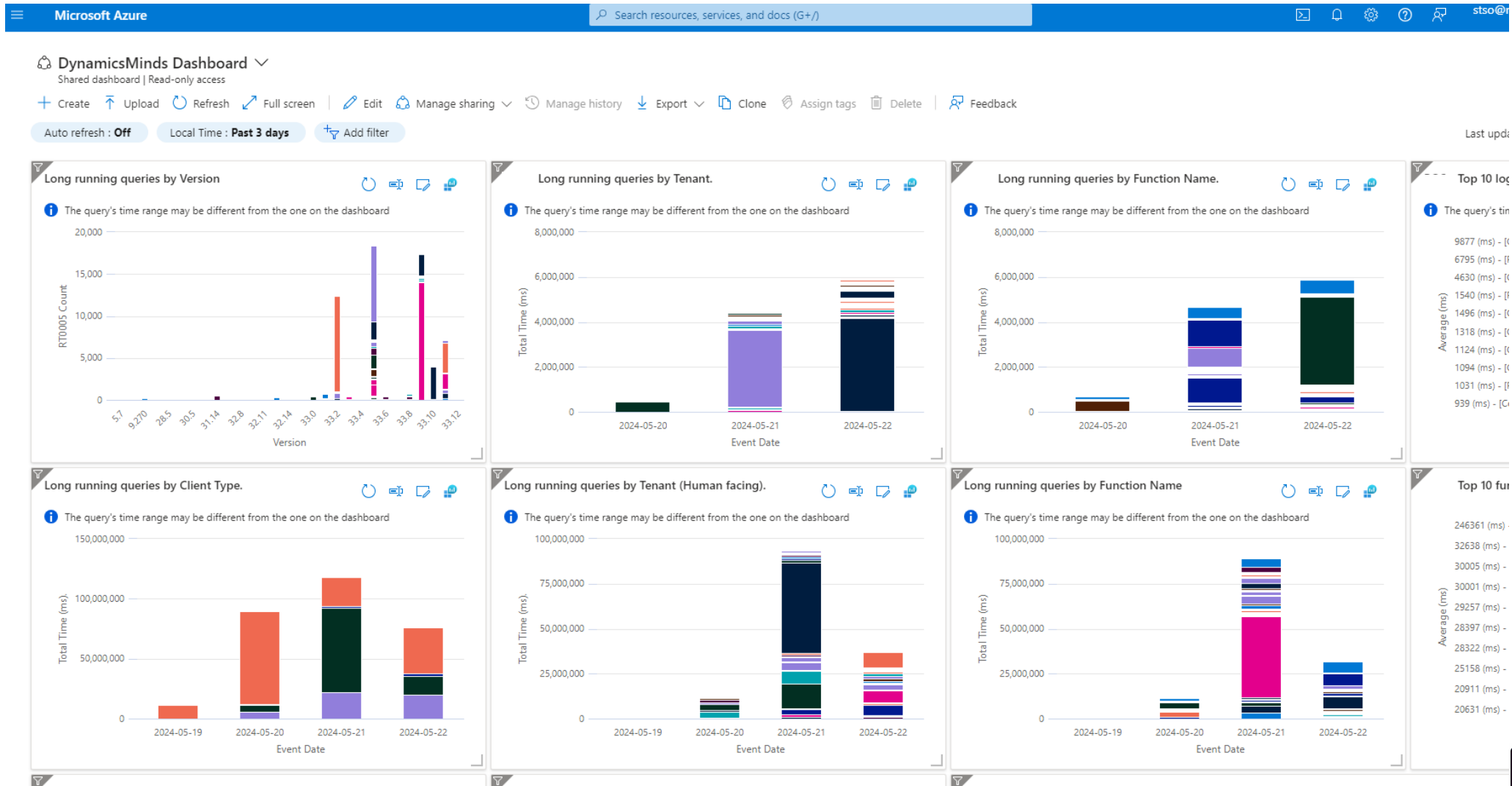
What are those showing?



What do you get?



Advanced dashboards on Azure



What about
unexpected costs?



5 GB is free!

Do you want to stay in that range?

Set a daily cap at **160 MB** per day (to avoid unexpected charges)

One event typically takes 2-10 KB.

This totals in 5,000 – 80,000 events.

32,000 events per day are possible with an average event size of 5 KB.



Search

↔ Data sampling ↔ Data retention ↔ **Daily cap** ↔ Custom metrics (Preview)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
 - Investigate
 - Monitoring
 - Usage
- Configure
 - Properties
 - Smart detection settings
 - Network Isolation
 - Usage and estimated costs** ☆
 - API Access
 - Work Items

i This Application Insights resource is sending its data to a Log Analytics workspace. You can view the data in that workspace. [Learn more about workspace-based Application Insights.](#)

Log Analytics workspace: [e28efbf9-931e-43b3-88b3-e78df531c590-DefaultResource](#)

Estimated Costs

The table below shows estimated monthly costs* for this Application Insights resource based on the current configuration. Estimated costs are available in the Log Analytics workspace.

Item type	Price	Monthly (days)
Multi-step web tests	10.00 USD	0 test
Custom metrics**	N/A	

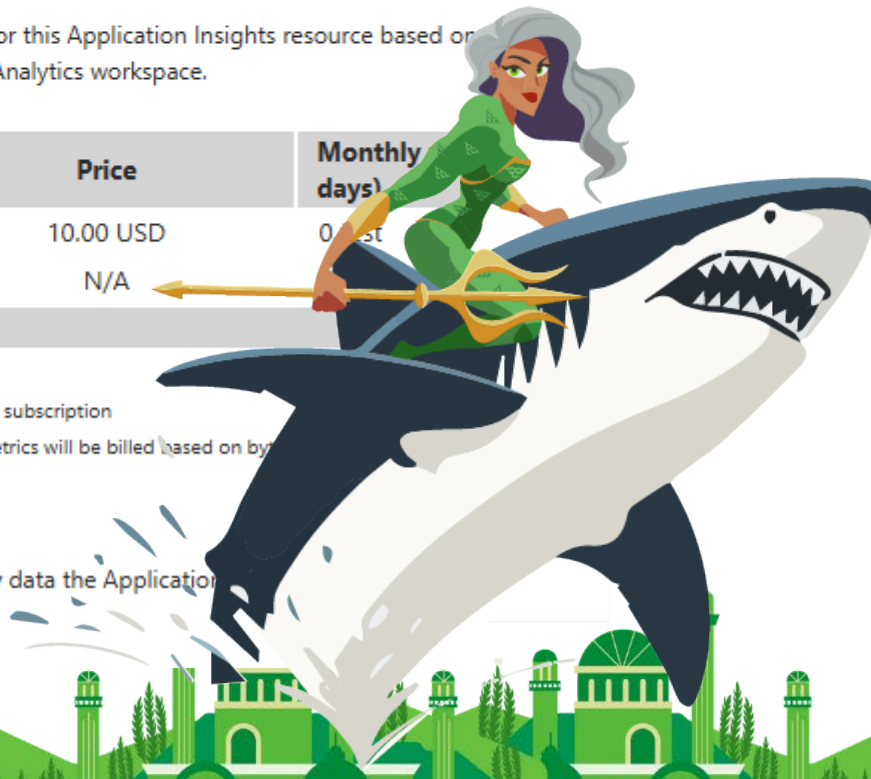
*Estimates do not include taxes which may be applied to this subscription

**Billing has not started for custom metric usage. Custom metrics will be billed based on bytes

Data Sampling

Sampling can both reduce the volume of telemetry data the Application Insights service receives and the Application Insights service.

[Learn more about Data Sampling](#)



Daily volume cap



If you need to limit your spend on data volume, you can apply a cap to the amount of data per day. [Learn more about Daily Cap](#)

The daily volume cap is:

0.16



GB/day

The daily cap reset time is 11:00 UTC. This reset time can be [configured via ARM](#).



Send an email to the subscription administrators when the daily data volume has hit the cap.

Daily cap warning level: ⓘ

90



Send an email to the subscription administrators when the daily data volume has hit this warning level.

To set an alert on daily cap and threshold Activity Log events, which gives you more control over how you're alerted, follow [these instructions](#).

Important: If this Application Insights resource is sending data to a Log Analytics workspace, this daily cap cannot be relied on to always limit data ingestion. Use the daily cap within Log Analytics to get reliable data volume and cost control. [Learn more about workspace-based Application Insights](#).

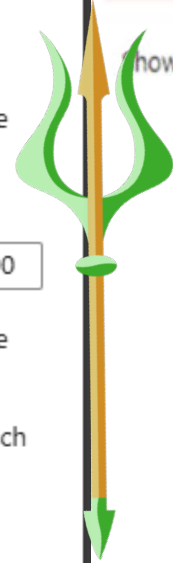
[Contact us](#) if you want your application to submit more than 1000 GB/day of data.

OK



This resource has exceeded its daily cap limit within the last two days. To avoid this issue in the future, increase the daily cap here →

Show data for last:



You want to pay?

Pricing Details:

Cost: \$2.76 per GB beyond the free 5 GB.

Monthly Volume: Allows for 100,000 events.

Daily Volume: Equivalent to about 3,300 events per day.



Considerations:

Budget Planning: Understanding costs helps budget for additional data needs.

Data Prioritization: Pay for the most valuable data to ensure meaningful insights.



What to filter out?

High-Volume Data Sources:

Web Service Calls: These can generate significant amounts of data.

Background Sessions: Often produce large volumes of telemetry data.

Other Noisy Data: Identify and exclude less critical data to stay within free limits.



Why Filter?

Cost Efficiency: Reducing unnecessary data helps in staying within the free 5 GB limit.

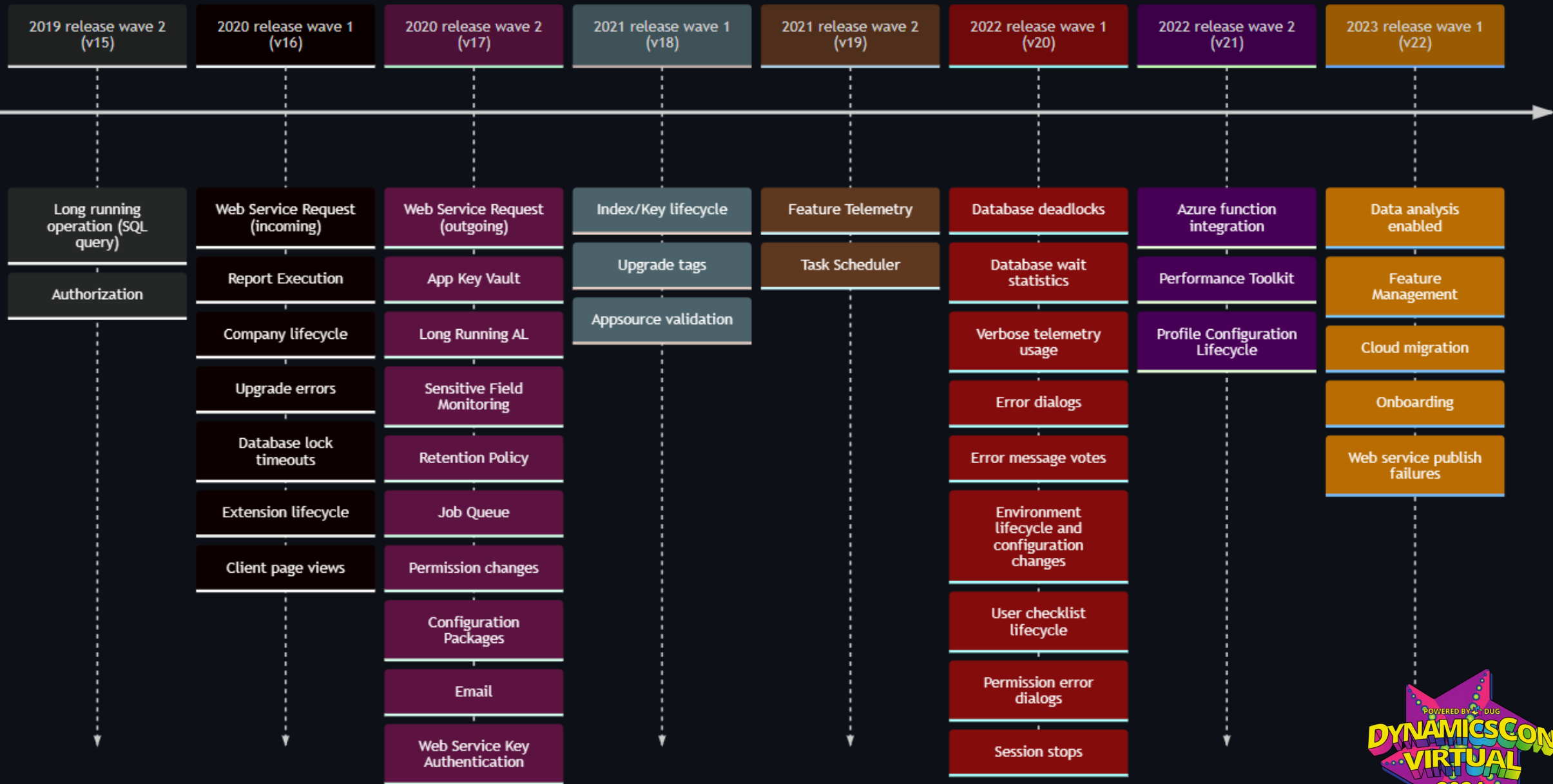
Relevant Insights: Focus on essential data for better insights and decision-making.



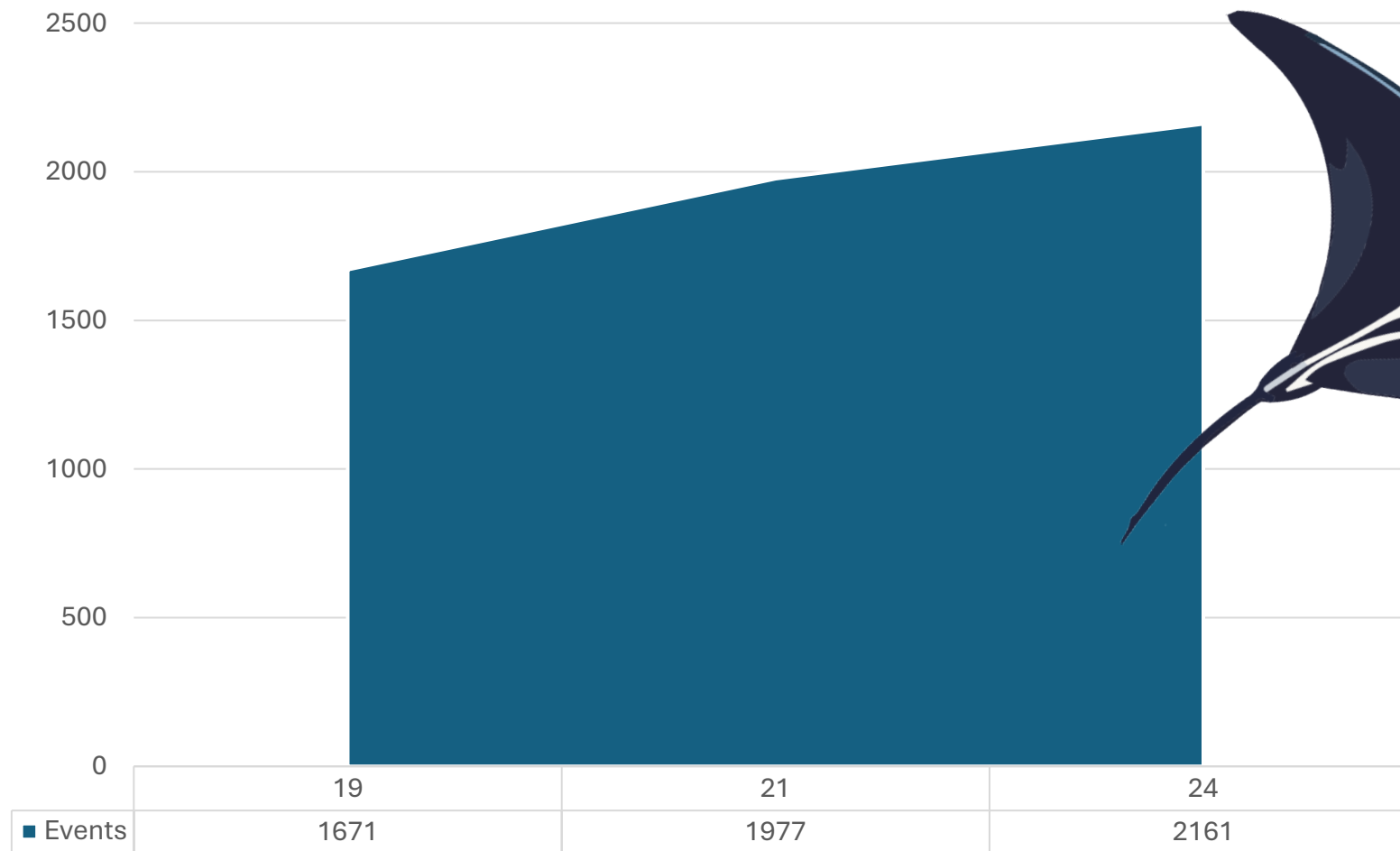
Too much signals?



History of Business Central Telemetry by Area



Events per Business Central versions

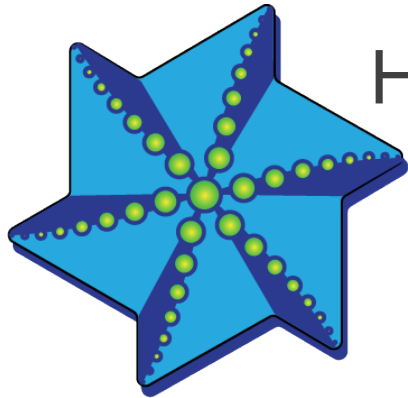


Filter out signals!



What are Data Collection Rules (DCR)?

Control **the type** of telemetry data that is collected and sent to Azure Application Insights



Helps with:

- Managing the volume of data
- Keeping relevant signals
- Controlling costs



 Search

 Application Dashboard  Getting started  Search  Logs  Monitor resource group  Feedback  Favorites  Rename  Delete

 Overview

 Activity log

 Access control (IAM)

 Tags

 Diagnose and solve problems

 Investigate

 Monitoring

 Alerts

^ Essentials

Resource group [\(move\)](#) : [DefaultResourceGroup-WEU](#)

Location : West Europe

Subscription [\(move\)](#) : [Microsoft Azure Sponsorship](#)

Subscription ID : e28efbf9-931e-43b3-88b3-e78df732c590

Tags [\(edit\)](#) : [Add tags](#)

Instrumentation Key : b57e074b-6ce3-49e7-996d-48a264dafbde

Connection String : InstrumentationKey=b57e074b-6ce3-49e7-996d-48a934dafbde;IngestionEnd...

Workspace : [e28efbf9-931e-43b3-88b3-e78df531c590-DefaultResourceGroup-WEU](#)

[JSON View](#)

Show data for last:

[30 minutes](#) [1 hour](#) [6 hours](#) [12 hours](#) [1 day](#) [3 days](#) [7 days](#) [30 days](#)





e28efbf9-931e-43b3

Log Analytics workspace



Search



Overview



Activity log



Access control (IAM)



Tags



Diagnose and solve problems



Logs



Settings



Tables



Agents



Usage and estimated costs



Data export



For the list of tables supporting ingestion-time transformations please refer to [documentation](#)



Create



Delete



Filter by name

Type : All

Plan : All

Showing 18 results

☐ Table name ↑↓	Type ↑↓	Plan ↑↓	Interactive retention ↑↓
☐ Alert	Azure table	Analytics	Workspace default (30 days)
☐ AppAvailabilityResults	Azure table	Analytics	90 days
☐ AppBrowserTimings	Azure table	Analytics	90 days
☐ AppCenterError	Azure table	Analytics	Workspace default (30 days)
☐ AppDependencies	Azure table	Analytics	90 days
☐ AppEvents	Azure table	Analytics	90 days
☐ AppExceptions	Azure table	Analytics	90 days
☐ AppMetrics	Azure table	Analytics	90 days
☐ AppPageViews	Azure table	Analytics	90 days
☐ AppPerformanceCounters	Azure table	Analytics	90 days
☐ AppRequests	Azure table	Analytics	90 days
☐ AppSystemEvents	Azure table	Analytics	90 days
☐ AppTraces	Azure table	Analytics	90 days
☐ AzureActivity	Azure table	Analytics	90 days
☐ ComputerGroup	Azure table	Analytics	Workspace default (30 days)
☐ InsightsMetrics	Azure table	Analytics	Workspace default (30 days)



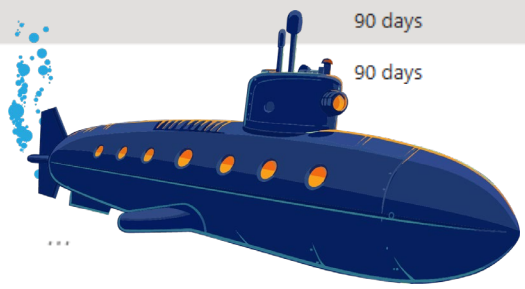
☐	AppBrowserTimings	Azure table	Analytics	90 days
☐	AppCenterError	Azure table	Analytics	Workspace default (30 days)
☐	AppDependencies	Azure table	Analytics	90 days
☐	AppEvents	Azure table	Analytics	90 days
☐	AppExceptions	Azure table	Analytics	90 days
☐	AppMetrics	Azure table	Analytics	90 days
☐	AppPageViews	Azure table	Analytics	90 days
☐	AppPerformanceCounters	Azure table	Analytics	90 days
☐	AppRequests	Azure table	Analytics	90 days
☐	AppSystemEvents	Azure table	Analytics	90 days
☐	AppTraces	Azure table	Analytics	90 days
☐	AzureActivity	Azure table	Analytics	90 days
☐	ComputerGroup	Azure table	Analytics	Workspace default (30 days)
☐	InsightsMetrics	Azure table	Analytics	Workspace default (30 days)



☐	AppPageViews	Azure table	Analytics	90 days	90 days
☐	AppPerformanceCounters	Azure table	Analytics	90 days	90 days
☐	AppRequests	Azure table	Analytics	90 days	90 days
☐	AppSystemEvents	Azure table	Analytics	90 days	90 days
☐	AppTraces	Azure table	Analytics	90 days	90 days
☐	AzureActivity	Azure table	Analytics	90 days	90 days

- Manage table
- Create transformation
- Edit schema
- Access control (IAM)

Click to open context menu



AppTraces transformation

- 1 Basics
- 2 Schema and transformation
- 3 Review

Table details

Table name AppTraces
Description Application Insights traces.

Data collection rule

Data collection rules (DCR) define the data coming into Azure Monitor and specify where that data should be sent or stored. [Learn more](#)

Data collection rule * DynamicsConVirtual
[Create a new data collection rule](#)



AppTraces transformation ...



- ✓ Basics
- 2 Schema and transformation**
- ③ Review

`</>` Transformation editor

TenantId	TimeGenerated	Message	SeverityLevel	Properties	Measurements
6fe050c1-b020-4a4f-b...	2024-10-22T15:34:43....	Extension is already sy...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T15:06:22....	Extension compiled su...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T15:06:24....	Extension published s...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T15:06:25....	Extension published s...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T15:18:27....	Extension is already sy...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T16:13:47....	Extension compiled su...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T16:13:48....	Extension published s...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T16:13:54....	Extension synchronize...	1	{"extensionPublisher": "...	
6fe050c1-b020-4a4f-b...	2024-10-22T16:14:02....	Extension installed suc...	1	{"extensionPublisher": "...	

« Previous

Next





Logs

e28efbf9-931e-43b3-88b3-e78df531c590-DefaultResourceGroup-WEU



e28efbf9-931e-43...

Select scope

Run

```
1 source
2 | where Properties.eventID == 'RT0018' //Long Running Query
```



TimeGenerated [UTC] ↑↓	AppRoleInstance	AppRoleName	AppVersion
> 10/22/2024, 4:31:57.145 PM	N/A	N/A	N/A
> 10/22/2024, 4:14:02.748 PM	N/A	N/A	N/A
> 10/22/2024, 4:13:54.090 PM	N/A	N/A	N/A
> 10/22/2024, 4:13:48.681 PM	N/A	N/A	N/A
> 10/22/2024, 4:13:47.572 PM	N/A	N/A	N/A
> 10/22/2024, 3:34:43.679 PM	N/A	N/A	N/A
> 10/22/2024, 3:18:27.272 PM	N/A	N/A	N/A
> 10/22/2024, 3:06:25.210 PM	N/A	N/A	N/A

0s 750ms

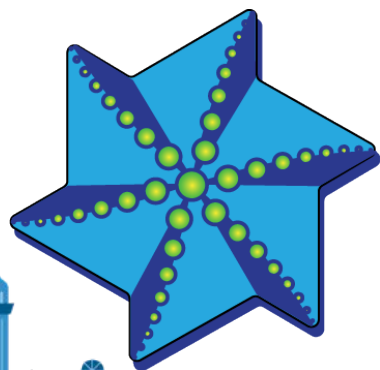
Display time (UTC+00:00) ▾

Apply

Cancel

Apply

Cancel



What signals
to filter out?



- RT0003 and RT0004 - Authorization Succeeded, log for webclient only, otherwise too many records
- ```
(tostring(Properties.eventId) <> "RT0003" or
tostring(Properties.clientType) == "WebClient")
```
- RT0006 - Report rendered: 1320 - Notification Email
- RT0008 - Incoming WS calls for specific publishers that generates large amount of API calls
- RT0019 - Outcoming WS calls for specific publishers that generates large amount of API calls



- RT0030 - Error dialogs with empty text (not really errors)
  - `(toString(Properties.eventId) <> 'RT0030' or toString(Message) !startswith "Error dialog shown:" or Properties has "errorMessage")`
- AL0000JBO - Posting Preview called
- AL0000E24 - Job Queue Lifecycle Job queue entry enqueued
- AL0000E25 - Job Queue Lifecycle Job queue entry started
- AL0000E26 - Job Queue Lifecycle Job queue entry finished
- AL0000CTV - Email sent
- LC0040 - Task XYZ created: TIME scheduled to run after DATETIME.  
Ready to run: True
- LC0043 - Task XYZ main codeunit ID completed.



## source

```
| where not (tostring (Properties.eventId) in ("RT0003", "RT0004",
"RT0006", "RT0008", "RT0010", "RT0014", "RT0015", "RT0016", "RT0019",
"RT0020", "LC0024", "LC0025", "LC0040", "LC0042", "LC0043",
"LC0045"))
```

```
| where tostring(Properties.environmentType) == "Production"
```



The screenshot shows the Azure Monitor Logs interface. At the top, there's a header with the word "Logs" and a close button. Below it, the resource ID "e28efbf9-931e-43b3-88b3-e78df531c590-DefaultResourceGroup-WEU" is displayed. A search bar contains the resource ID "e28efbf9-931e-43..." and a "Select scope" dropdown. A blue "Run" button is next to the search bar. Below the search bar, a KQL query is entered in a text area, with line numbers 1 through 5 on the left. The query is the same as the one shown in the previous blocks. The interface has a light gray background and a clean, modern design.

Logs  
e28efbf9-931e-43b3-88b3-e78df531c590-DefaultResourceGroup-WEU

e28efbf9-931e-43... Select scope Run

```
1 source
2 | where not (tostring (Properties.eventId) in ("RT0003", "RT0004", "RT0006", "RT0008", "RT0010", "RT0014", "RT0015", "RT0016", "RT0019",
"RT0020", "LC0024", "LC0025", "LC0040", "LC0042", "LC0043", "LC0045"))
3 | where tostring(Properties.environmentType) == "Production"
4
5
```



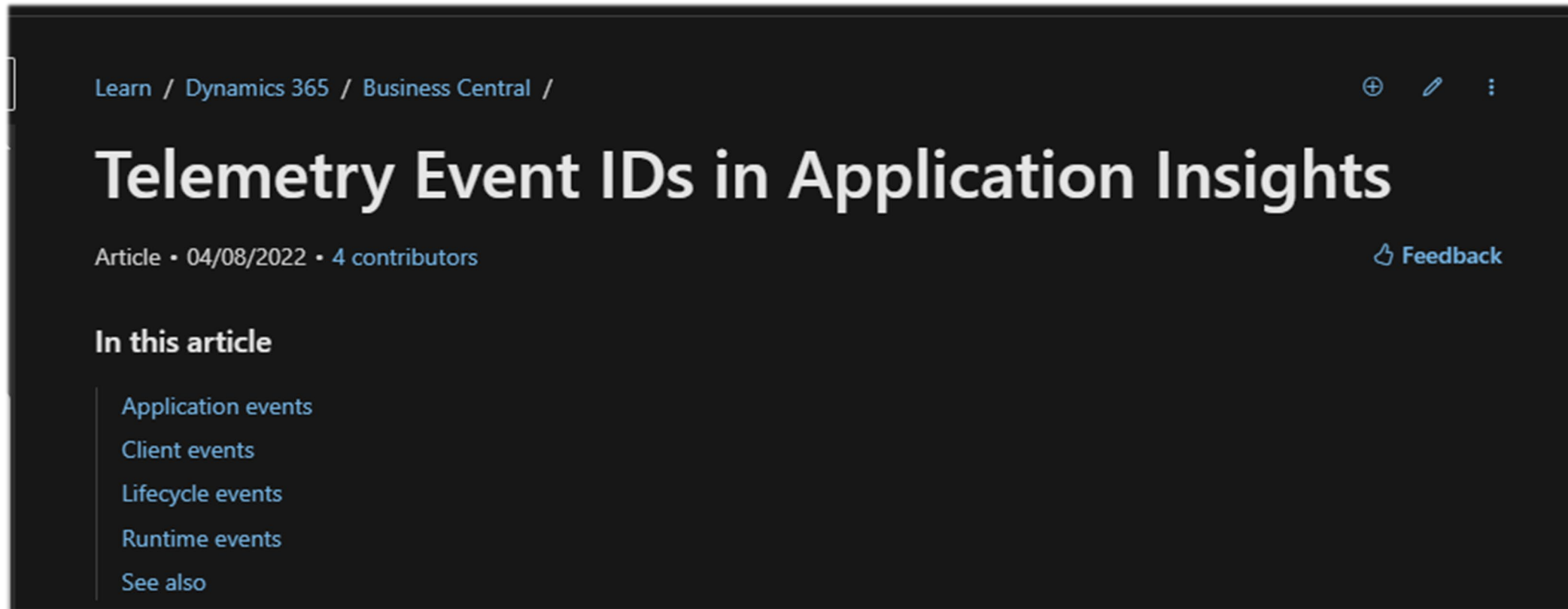
0 = Production, 1 = Sandbox

```
source | where toString(Measurements.environmentType) == "0"
```

The “Properties.environmentType” is not currently available in AppPageViews, but there is a similar information in **(Measurements.environmentType)**



All Event IDs can be found at:



Learn / Dynamics 365 / Business Central /

# Telemetry Event IDs in Application Insights

Article • 04/08/2022 • 4 contributors

Feedback

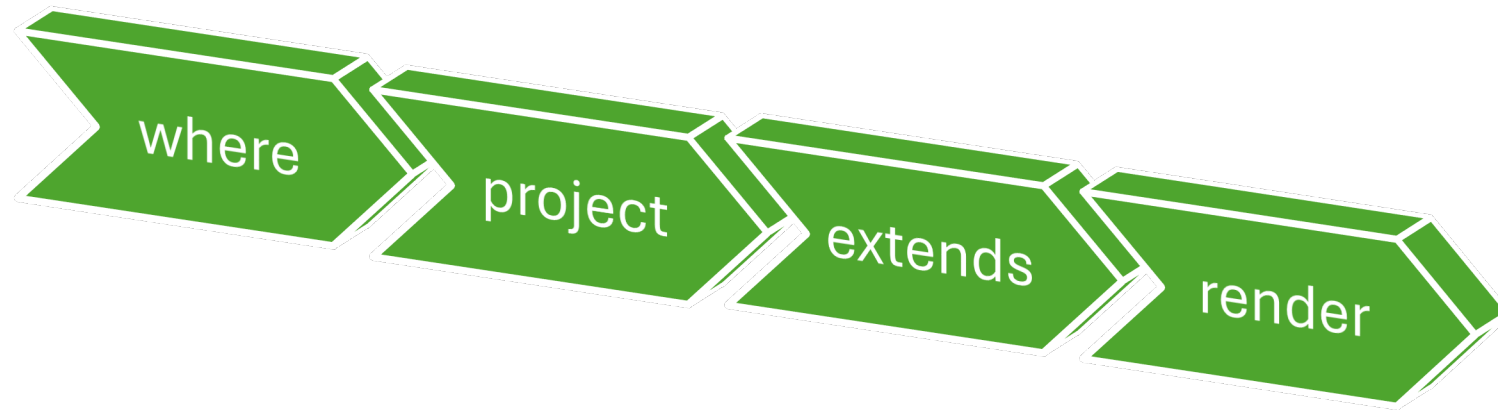
## In this article

- Application events
- Client events
- Lifecycle events
- Runtime events
- See also



# Power of KQL?





# Part 1 of KQL query – filter the data

**where** statement in Kusto Query Language (KQL) is used to filter rows in a dataset based on specified conditions.

| **where** <condition>

You can use various operators to define your conditions, such as ==, !=, >, <, >=, <=, and logical operators like and, or, and not.



# Part 1 of KQL query – filter the data

- Examples -

Filtering by Timestamp To filter telemetry data to only include entries from the last 7 days:

```
traces | where timestamp > ago(7d)
```

Filtering by Specific Value To filter data where a specific column matches a certain value:

```
traces | where customDimensions.eventId == 'RT0018'
```



# Part 1 of KQL query – filter the data

Combining Multiple Conditions You can combine multiple conditions using logical operators:

```
traces | where timestamp > ago(7d) and
customDimensions.eventId == 'RT0018'
```

Using in Operator To filter rows where a column's value is in a specified list:

```
traces | where customDimensions.eventId in ('RT0018',
'RT0019', 'RT0020')
```



# Part 1 of KQL query – filter the data

- *Practical examples* -

Filtering by signals:

| where customDimensions.eventId == 'RT0018'

Filtering by environment type, whether it's production or sandbox:

| where toString(customDimensions.environmentType)  
== "Production"



# Part 1 of KQL query – filter the data

*- Practical examples -*

Filtering by checking if AL Stack Trace contains something:

| where customDimensions.alStackTrace contains XYZ

XYZ – could be some Object Id for example



# Part 1 of KQL query – filter the data

- *Practical examples* -

Filtering by Azure Tenant ID:

```
| where not (tostring(customDimensions.aadTenantId)
contains "aadTenatID")
```

Filtering by Extension Version:

```
| where (tostring(customDimensions.extensionVersion)
contains "1.2.3.4")
```

Filtering by AL Object Type:

```
| where tostring(customDimensions.alObjectType) !=
'Codeunit'
```



# Part 2 of KQL query – limit the number of columns

**project** statement in Kusto Query Language (KQL) is used to select specific columns from a dataset and optionally rename them.

The basic syntax for the project statement is:

```
| project <column1>, <column2>, <column3>
```

or

```
| project NewColumnName = OldColumnName
```



## Part 2 of KQL query – practical examples

```
| project timestamp
// in which environment/company did it happen
, aadTenantId = customDimensions.aadTenantId
, environmentName = customDimensions.environmentName
, environmentType = customDimensions.environmentType
, companyName = customDimensions.companyName
// in which extension/app
, extensionId = customDimensions.extensionId
, extensionName = customDimensions.extensionName
, extensionVersion = customDimensions.extensionVersion
, extensionPublisher = customDimensions.extensionPublisher
// in which object
, alObjectId = customDimensions.alObjectId
, alObjectName = customDimensions.alObjectName
, alObjectType = customDimensions.alObjectType
```



# Part 3 of KQL query – add new columns

**extend** statement, allows you to add new columns to your dataset, enabling deeper insights and more customized data analysis.

The basic syntax for the extend statement is:

| **extend NewColumnName = <expression>**

You can use various expressions to define the new column's values, such as arithmetic operations, string manipulations, or functions.



# Part 3 of KQL query – add new columns

- *Practical examples* –

```
| extend extensionVersion = tostring
(customDimensions.extensionVersion)
```

```
| extend executionTime = totimespan
(customDimensions.executionTime) / 1ms
```

```
| extend renderTimeInMS = totalTimeInMS –
serverExecutionTimeInMS
```



# Part 4 of KQL query – rendering charts

**render** statement in Kusto Query Language (KQL) is used to visualize query results in various chart formats.

The basic syntax for the render statement is:

```
| render <chart_type>
```

You can specify different chart types such as **columnchart**, **areachart**, **barchart**, **piechart**, and more.



# Part 4 of KQL query – rendering column chart

| render columnchart

with (

    legend=hidden,

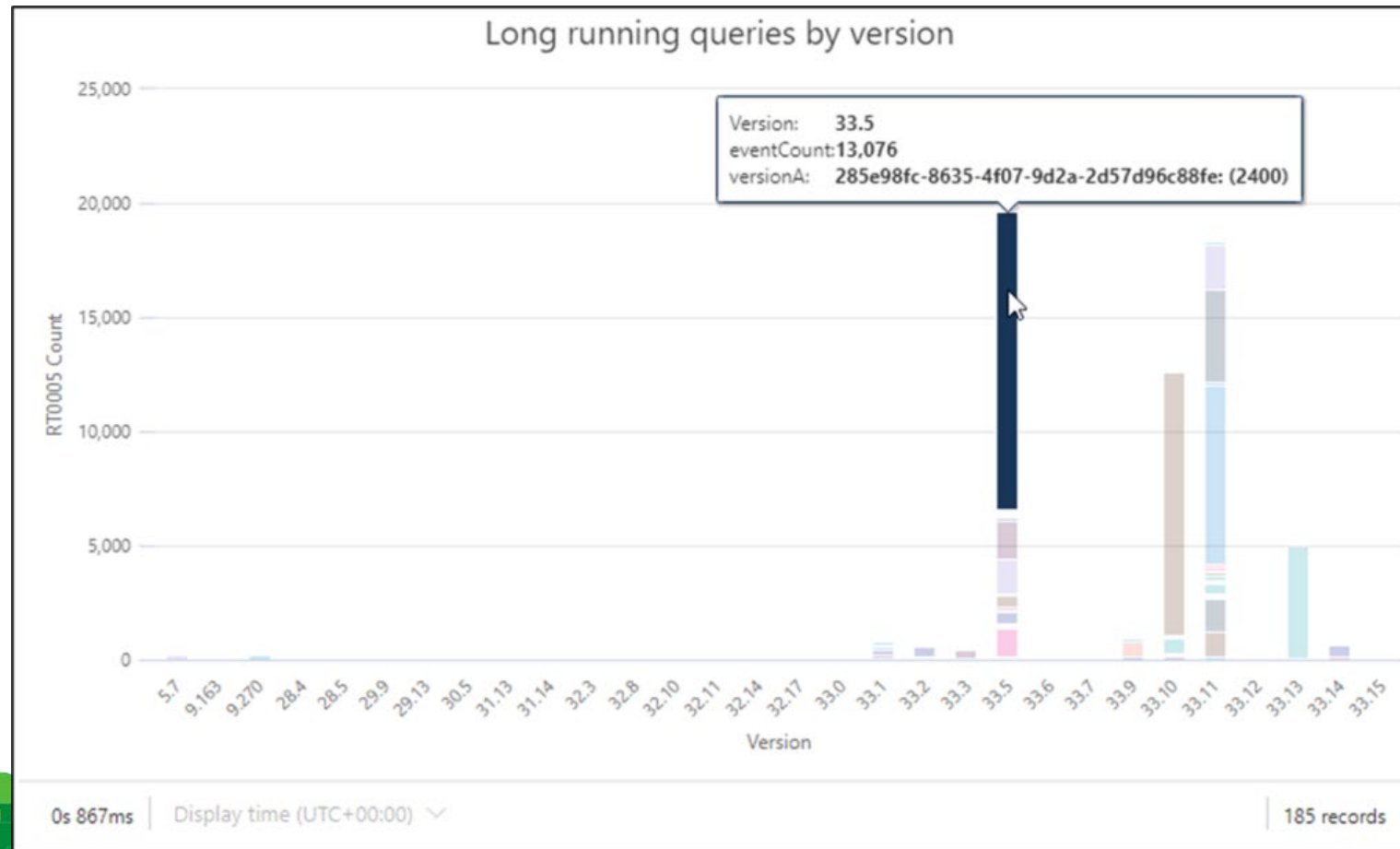
    xtitle="Version",

    ytitle="RT0005 Count",

    title="Long running queries by version")



# Part 4 of KQL query – rendering column chart



# Part 4 of KQL query – rendering area chart

```
| render areachart
```

```
with (
```

```
 legend=hidden,
```

```
 accumulate=true,
```

```
 kind=stacked,
```

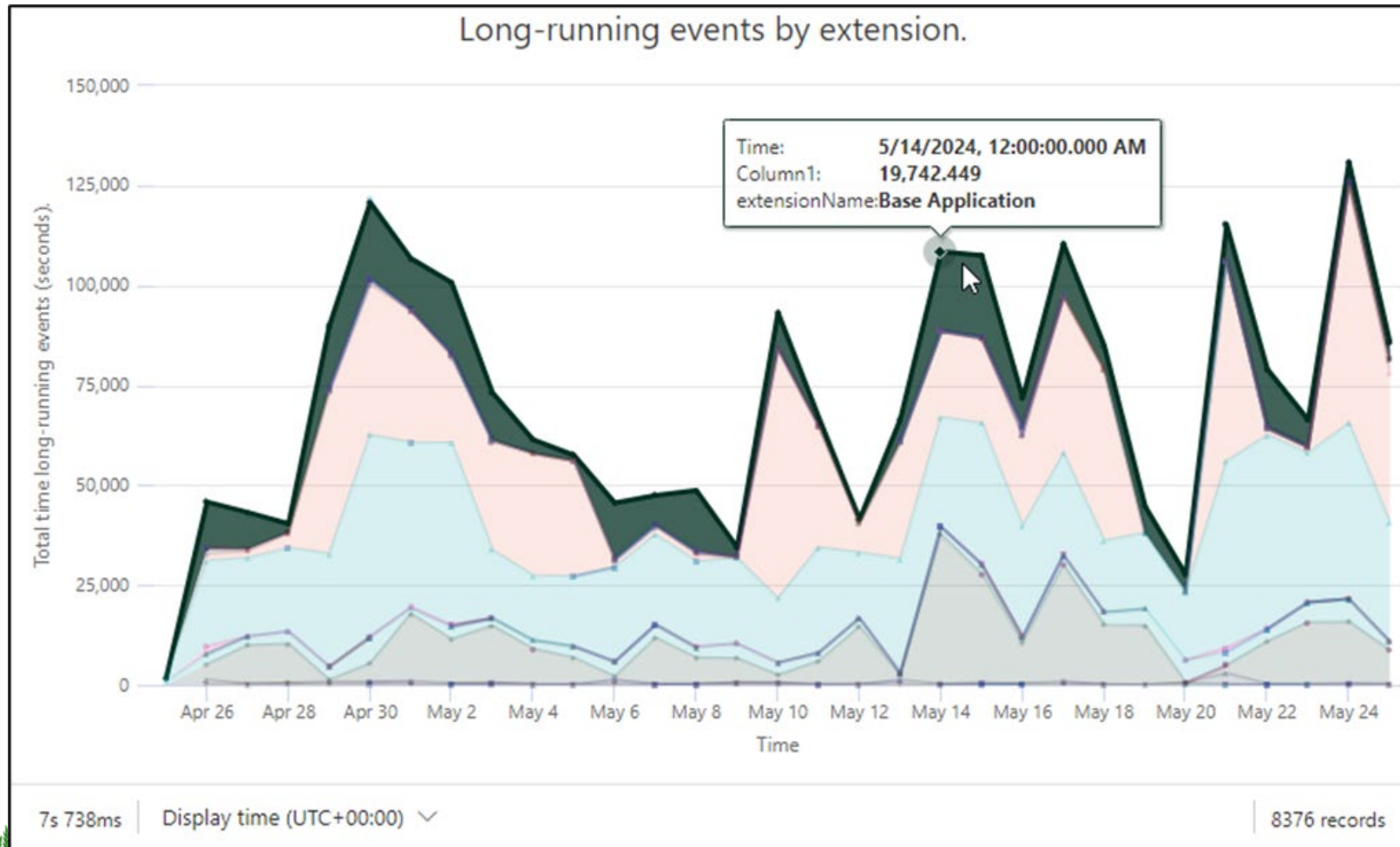
```
 xtitle="Time",
```

```
 ytitle="Total time long-running events (seconds).",
```

```
 title="Long-running events by extension.")
```



# Part 4 of KQL query – rendering area chart



# Part 4 of KQL query – rendering bar chart

```
| render barchart
```

```
with (
```

```
 xcolumn = functionName,
```

```
 xtitle="Average (ms)",
```

```
 title='Top 10 execution times of functions.',
```

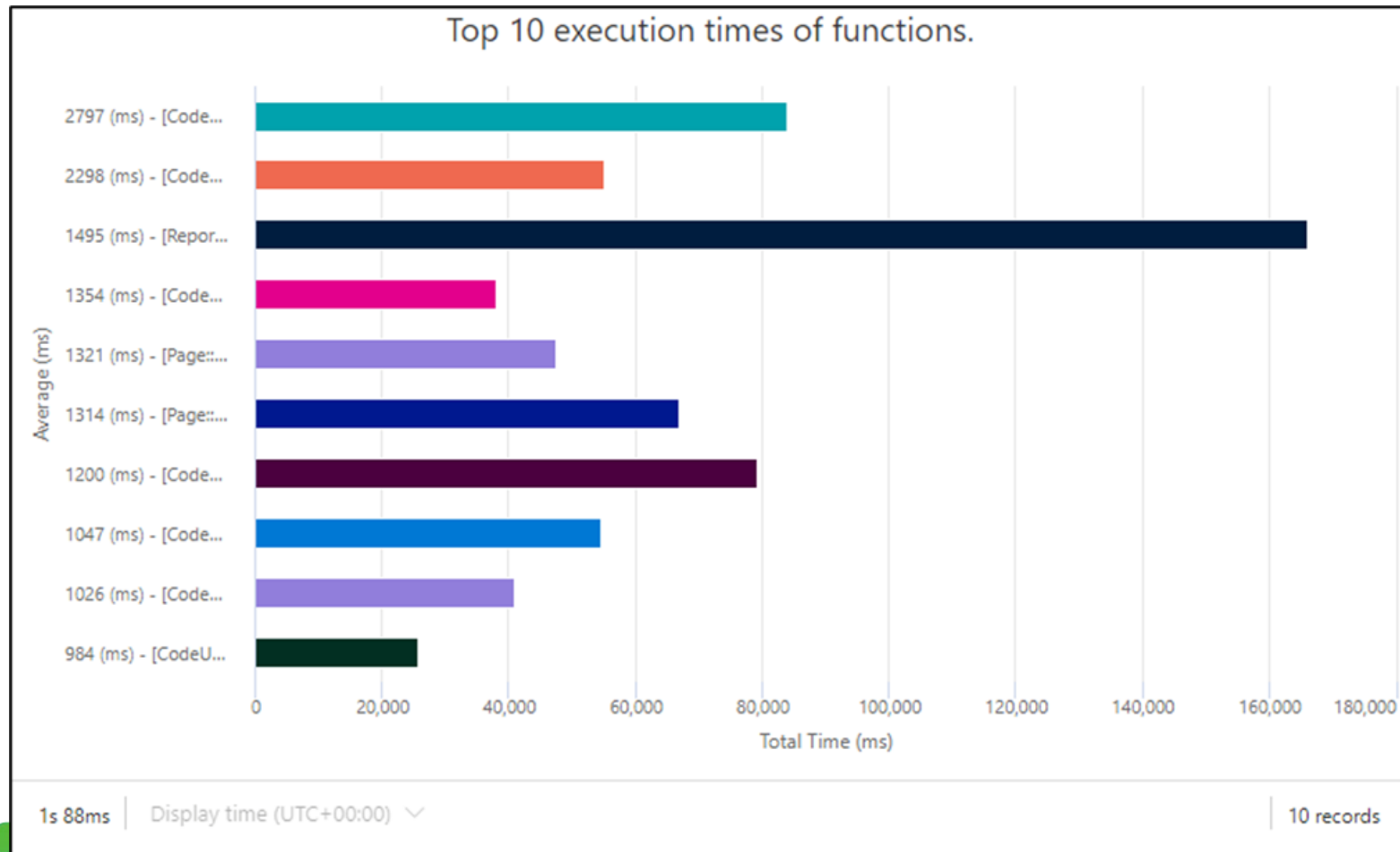
```
 ycolumns=sumExecutionTime,
```

```
 ytitle="Total Time (ms)",
```

```
 legend=hidden)
```



# Part 4 of KQL query – rendering bar chart

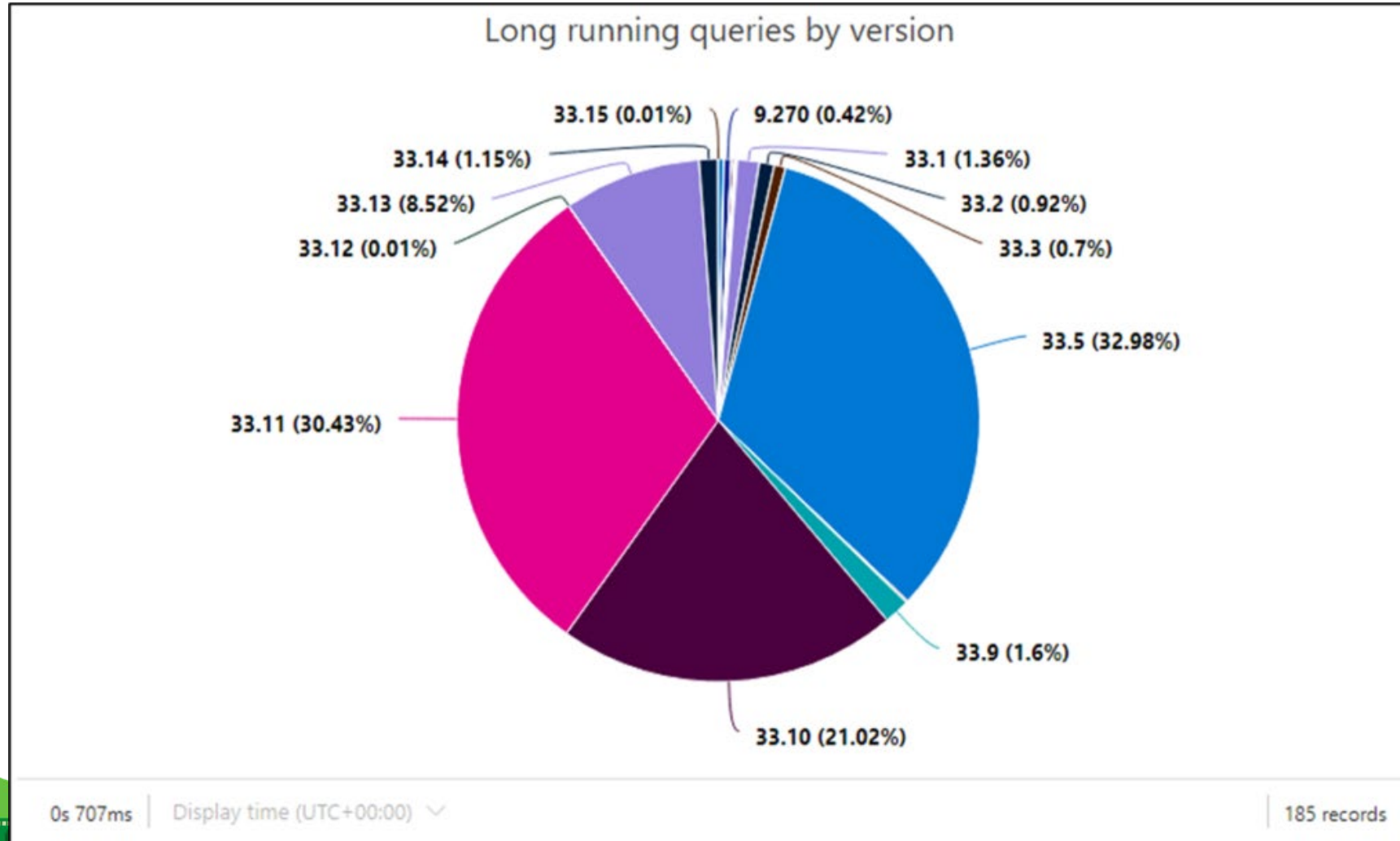


# Part 4 of KQL query – rendering pie chart

```
| render piechart
 with (
 legend=hidden,
 xtitle="Version",
 ytitle="RT0005 Count",
 title="Long running queries by version")
```



# Part 4 of KQL query – rendering pie chart



Add it to dashboard?





## DynamicsConVirtual

Application Insights



Search

★ Applica

Overview

★ Essential

Activity log

Resource gro

Access control (IAM)

Location

Tags

Subscription

Diagnose and solve problems

Subscription

&gt; Investigate

Tags (edit)

Monitoring

Show data

Alerts

30 minu

Metrics

Diagnostic settings

Logs

Failed

Workbooks

100

80

60

40

20

0

&gt; Usage

&gt; Configure

Run

Time range: Last 24 hours

Save

Share

New alert rule

Export

Pin to

Format query

```
1 traces
2 where customDimensions.eventId == 'RT0005'
3 where not (toString(customDimensions.aadTenantId) contains "convert") and not (tostr
4 where toString(customDimensions.environmentType) == "Production"
5 extend st=strcat(customDimensions.alStackTrace)
6 extend f1=indexof(st, "CallStack")
7 extend f2=indexof(st, "- Function Name")
8 extend mn=substring(st, f1 + 10, f2 - f1 - 10)
9 extend fn=substring(mn, indexOf(mn, '.') + 2)
10 extend ln=indexof(fn, " line ")
11 extend fname=substring(fn, 0, ln)
12 extend lname=substring(fn, ln, 8)
```

Azure dashboard

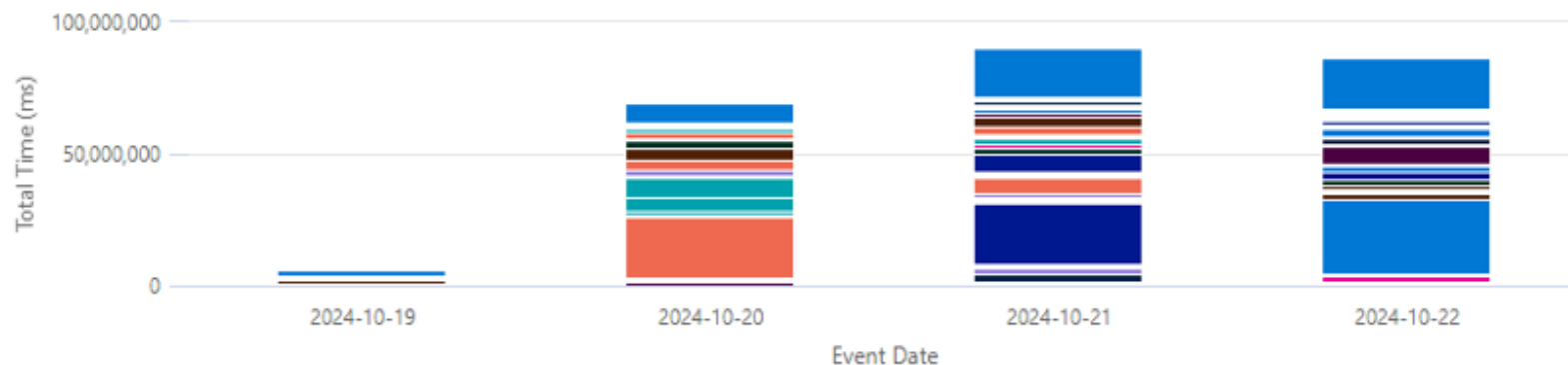
Grafana dashboard

Send to workbook

Results

Chart

## Long running queries by Function Name.



12s 502ms

Display time (UTC+00:00)



Samples!  
[aka.ms/BCTelemetrySamples](https://aka.ms/BCTelemetrySamples)



# Alerts



# Alerts features

- Time-Savers
  - Set and Forget
  - Instant Notifications
- Consistency is a Key
  - 24/7 alertness
  - Human Error Reduction
- Proactive Problem Solving
  - Early Detection
  - Swift Response
- Data-Driven Decisions
  - Real-Time Insights
  - Trend Analysis



# ISV and VAR Alerts Responsibilities

| Condition                     | Event Id(s) | ISV | VAR |
|-------------------------------|-------------|-----|-----|
| AppSource validation failures | LC0035      | X   |     |
| Database performance          | RT0005      | X   | X   |
| Email Errors                  | AL0000CTP   |     | X   |
| Extension failed to install   | LC0011      | X   | X   |
| Extension failed to upgrade   | RT0010      | X   | X   |
| Environment failed to update  | LC0107      |     | X   |
| Error dialog                  | RT0030      |     | X   |
| Job Queue errors              | AL0000E26   |     | X   |



Select scope

▶ Run

Time range : Set in query



Save ▾



Share ▾



+ New alert rule

```
1 traces
2 | where timestamp > ago(1d) // adjust as needed
3 and customDimensions.eventId == 'AL0000HE7'
4 | project timestamp
5 , aadTenantId = customDimensions.aadTenantId
6 , environmentName = customDimensions.environmentName
7 , environmentType = customDimensions.environmentType
8 , alJobQueueId = customDimensions.alJobQueueId
9 , alJobQueueObjectId = customDimensions.alJobQueueObjectId
10 , alJobQueueObjectType = customDimensions.alJobQueueObjectType
11 , alJobQueueStatus = customDimensions.alJobQueueStatus
12 , alJobQueueExecutionTimeInMs = customDimensions.alJobQueueExecutionTimeInMs
13 , alJobQueueStacktrace = customDimensions.alJobQueueStacktrace // stack trace added in 20.5
```



### Measurement

Select how to summarize the results. We try to detect summarized data from the query results automatically.

Measure ⓘ

Table rows

Aggregation type ⓘ

Count

Aggregation granularity ⓘ

1 hour

### Split by dimensions

Use dimensions to monitor specific time series and provide context to the fired alert. Dimensions can be either number or string columns. If you select more than one dimension value, each time series that results from the combination will trigger its own alert and will be charged separately. ⓘ

| Dimension name | Operator | Dimension values | Include all future values |
|----------------|----------|------------------|---------------------------|
|----------------|----------|------------------|---------------------------|

### Alert logic

Operator \* ⓘ

Greater than

Threshold value \* ⓘ

1

Frequency of evaluation \* ⓘ

1 hour

ⓘ

Estimated monthly cost **\$0.50 (USD)**



# Create action group ...

Basics   Notifications   Actions   Tags   Review + create

Choose how to get notified when the action group is triggered. This step is optional.

| Notification type ⓘ            | Name ⓘ | Selected ⓘ |
|--------------------------------|--------|------------|
| Email/SMS message/Push/Voice ▾ |        |            |
| ▾                              |        |            |

## Email/SMS message/Push/Voice

Add or edit Email/SMS message/Push/Voice action

☐ Email

Email ⓘ

☐ SMS (Carrier charges may apply)

Country code

Phone number

☐ Azure mobile app notification

Azure account email ⓘ

☐ Voice

Country code

Phone number

OK



Q&A

