**What's new in Dynamics 365 Business Central telemetry - April 2023**

It is April and it has been a month since the last newsletter.

We have been wrapping up the 2023 release wave 1 of Business Central and this also means improvements to telemetry.

As always, the bleeding edge news on Dynamics 365 Business Central telemetry happens on Twitter, so if you want to keep up with the latest and greatest (and the beta versions of the Power BI telemetry apps) then follow me there (@kennienp). The intention of these monthly newsletters is to try to gather everything that I know and learn about this area and present it here. Let’s go…

In the April 2023 edition, read about these things:

* Upcoming conference sessions
* Power BI Usage apps – April updates
* New signal/updates
* Documentation improvements
* Tips and Tricks

# Upcoming conference sessions in April 2023

**Business Central Launch event (March 29 – end of June 2023)**

The Business Central Launch Event will take place from March 29-31, 2023. During the three days, you’ll be able to participate in a live opening session, watch sessions on what's new in 2023 release wave 1 and participate in Q&As. After March 31, all sessions will be available on-demand until end of June 2023.

Event is online, agenda is published online, registration needed, attendance is free).

I have recorded two sessions for the event:

Get data-driven with telemetry. This is a non-technical session on how implementation project managers can use telemetry to get low-friction go-lives. The session also has a section for ISV product owners/managers on how they can use telemetry to improve the quality of their apps.

<insert screenshot>

What’s new in telemetry. A technical session on new data in telemetry and tips and tricks for the KQL data nerds.

<insert screenshot>

Read more and register at

https://aka.ms/bcle

**Directions North America (April 16-19, 2023) in Orlando, Florida**

The big US based conference for Business Central partners is happening this month.

I found these telemetry sessions that you might want to check out if you are participating (there might be more):

Houston, We Do NOT Have a Problem - What You Should Know and Do With Telemetry

Microsoft presents: Guess less. Sell more (abstract pending)

Microsoft presents: Get data-driven with telemetry

Read more about Directions NA and register at

https://directionsna.com/

**Directions Asia 2023 (April 27 - 28, 2023) In Bangkok, Thailand.**

The conference for Business Central partners in Asia is also happening this month.

I give this session on telemetry that you might want to check out if you are participating (there might be more):

Microsoft presents: Guess less. Sell more (abstract pending)

<https://directions4partners.com/events/directions-asia-2023/schedule/?tid=447190>

Read more about Directions Asia and register at

https://directions4partners.com/events/directions-asia-2023/

**Conferences in May and June 2023**

There will also be telemetry sessions at the conferences mentioned below. In upcoming newsletters, I will go more into details about the sessions there.

Days Of Knowledge Central (May 25 - 26, 2023) in Dusseldorf, Germany

https://directions4partners.com/days-of-knowledge/central-2023/

Days Of Knowledge Nordic 2023 (June 1 - 2, 2023) in Odense, Denmark

https://directions4partners.com/days-of-knowledge/nordic-2023/

BC/NAV Techdays 2023 (June 22-23, 2023) in Antwerp, Belgium

https://www.bctechdays.com/

# Power BI Usage apps – April updates

The April updates for both apps have a lot of new improvements and features in all reporting areas: Usage, Errors, Performance, and Administration. This is definitely a release that you want to upgrade to if you want to be more productive with telemetry.

In this release, we added an AL stacktrace visual and visuals to show the top/bottom of the stack trace on a lot of pages. This will make it easier for you to troubleshoot both the AL code where the event is thrown and the AL code where the event surfaces.

**Environment Usage app**

Usage report

A new page was added for v22.0 telemetry on 'Client actions'. You can use this page to see on which pages users enable Analysis mode.

Performance report

On the 'Lock timeouts' page, we added a filter to check if an operation happened in a Job Queue entry run, a filter to check if the lock timeout happened in OnCompanyOpen, and a filter to check if the lock timeout happened in a number series.

On the page ‘Outgoing Web Service Performance’, we added AL stacktrace visual and top/bottom of the stacktrace.

On the slow logins page, we added visuals to show if the login performance issue is due to outgoing ws call or on lock timeouts happening in the OnCompanyOpen trigger.

On the page 'Configuration Packages', we added min/max measures to the statistics visual. Also fixed broken filters.

Error report

The error report got a lot of new content in this release:

On the page Outgoing Web Service Errors, we added an AL stacktrace visual and visuals to show the top/bottom of the stack trace.

On the page 'Error dialogs', we now also show error message in English (available from 21.4) and added per-app/per-object visuals.

On the page 'Error Messages' page, we added visuals for top/bottom of AL stacktrace.

On the page 'Permission Errors' page, we added visuals for top/bottom of AL stacktrace, added a filter to check if an error happened in a Job Queue entry run and a filter to check if an error happened in OnCompanyOpen.

On the page 'Job Queue Errors' page, we added added visuals for top/bottom of stacktrace

On the page 'Configuration Packages Errors', we added an indicator if no errors are shown. Also fixed broken filters.

Administration report

New page 'Feature management' added (for 22.0), showing which features tenant admins turn on/off.

New page 'Permission changes' added (for 22.0), showing if apps change permissions.

Dataset

Tuned data load time for many queries.

See the full change log here:

https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/PowerBI/Reports/AppSource/environment-app-pbix/changelog.txt

**App Usage app**

Usage report

New page 'MAT/WAT/DAT' showing Monthly/Weekly/Daily tenant usage.

On the page Keyvault usage, used combined app name and id on X by app visual.

Performance report

New page 'Session creation' that shows impact on session performance by your apps.

On the page 'Long Running AL', added per-environment visual and aligned per-app/per-object visuals to new design.

On the page ‘Outgoing Web Service Performance’, added AL stacktrace visual and top/bottom of the stacktrace.

On the slow logins page, added visual to show outgoing ws call happening in the OnCompanyOpen trigger.

Error report

New page 'Feature Telemetry app errors', showing events AL0000G7J and AL0000G7K that indicate that extensions use the Feature Telemetry module wrong.

On the page ‘Outgoing Web Service Errors’, added AL stacktrace visual and visuals to show top/bottom of the stacktrace.

On the page 'Error dialogs', also showing error message in English (available from 21.4), added per-app/per-object visuals.

On the page Keyvault errors, added errors by app visual.

Dataset

Tuned data load time for many queries.

See the full change log here:

https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/PowerBI/Reports/AppSource/isv-app-pbix/changelog-isv-app.txt

# New signal/updates

**Company initialized telemetry in 22.0 or 22.1**

We are adding telemetry on the event OnCompanyInitialized. This allows you to see when customers start using companies.

KQL sample

<https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea/CompanyLifecycle.kql>

The Power BI report *Company Lifecycle* has been updated with this.

**Onboarding telemetry in 22.1**

We are adding telemetry on the events

* a user completes an onboarding criteria in a company
* (maybe) a user completes onboarding in a company

This is already available in 21.5, but we discovered that some dimensions are still missing, so this is not supported before everything is looking just right.

In case you cannot wait, the draft KQL sample is available on BCTech (see below).

Also, if you have feedback for Søren and his team on this, please comment on this Yammer thread

<https://www.yammer.com/dynamicsnavdev/threads/2176728709914624>

Onboarding comes with an extensibility story and this will also work in the onboarding telemetry. So, as an ISV you might want to start thinking about your scenarios so that you can get customers onboarded (and get insights on this in telemetry).

PBI apps (for VARs and ISVs) will be updated in the May 2023 release to show this data. Stay tuned.

KQL sample

<https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea/Onboarding.kql>

Docs is not updated yet (PR is in review).

**New dimensions on job queue (21.5 and later)**

In version 21.5, we added two new dimensions

alJobQueueNumberOfAttemptsToRun

alJobQueueMaxNumberOfAttemptsToRun

and in v22.0, you will also get these dimensions on job queues:

customDimensions.alJobQueueObjectName

alJobQueueObjectDescription

KQL sample

<https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea/JobQueue.kql>

These changes came in a bit late for the deadline on Power BI apps, so they will likely surface there in the May 2023 release.

**New telemetry coming in 22.0: client actions**

First two actions logged are Analysis mode enabled/disabled on a list page.

Other candidates for client actions are: share, search, help pane opened, tooltip and tooltip link clicked, error message copied to clipboard. What else would you like to see in telemetry?

See KQL sample code here:

<https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea/ClientActions.kql>

The Usage report in the Power BI app for environments now also have a page showing this data.

**Added in 21.4: error messages in English**

To make it easier to troubleshoot errors regardless of the users’ language setting, we added a new dimension added to Error telemetry in version 21.4: alEnglishLanguageDiagnosticsMessage.

**Feature telemetry setup errors (for ISVs)**

We missed to document and make samples for feature telemetry setup errors in BC apps. Well, not anymore.

You can get KQL samples here:

https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea/FeatureTelemetry.kql

The same sample code can be used for alerting, and the alerting scenario catalogue on BCTech have been updated accordingly

https://github.com/microsoft/BCTech/tree/master/samples/AppInsights/Alerts#alerting-condition-kql-samples:~:text=Feature%20telemetry%20app%20errors

In the April release of the Power BI app on ISV telemetry, we added a new page "Feature Telemetry App Errors",

see attached screenshot.

The beta version of the app is updated with this change, so you can also try it out today:

aka .ms/bctelemetry-isv-app

(remove the space)

I also took a look at the docs for this area and have patched a few holes, see

* XXX
* YYY

**Added in 20.1**

In version 20.1, we added AL stack trace as a custom dimension to outgoing web service calls. This allows you to better troubleshoot where external calls occur in AL.

See KQL sample code here:

https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea/OutGoingWebServiceCalls.kql

**Smaller improvements in 22.0**

When finalizing the 2023 release wave 1, we did some smaller improvements that will come in version 22.0 or in a minor update to version 22:

* Incoming web service telemetry (event RT0008) will include the time spent waiting in the throttling queue in the custom dimension requestQueueTime.
* Error codes in failed OData calls (event RT0008) to help troubleshoot 400 return code signal.
* Long running AL method telemetry (eventId RT0018) will include details on SQL operations in the custom dimensions sqlRowsRead and sqlStatements.
* Outgoing web service telemetry (eventId RT0019) will include details on client type and AL stack trace in the custom dimensions clientType and alStackTrace.

KQL samples might already have been updated, see [BCTech/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea at master · microsoft/BCTech (github.com)](https://github.com/microsoft/BCTech/tree/master/samples/AppInsights/KQL/Queries/ExampleQueriesForEachArea)

The Power BI apps will be updated to use this information in the May/June 2023 updates.

**Coming soon/in the works (no ETA given)**

* Information on files blocked from upload due to malware scanning (only in the online version)..
* Error codes in failed OData calls to help troubleshoot 400 return code signal.
* PTE validation signal (PTEs that block updates to next major)
* New dimension suspendedTime in Long Running AL (RT0018)

# Tips and Tricks

**Deprecated in 22.0: using an instrumentation key for Business Central Telemetry**

According to docs

https://learn.microsoft.com/en-us/dynamics365/business-central/dev-itpro/administration/telemetry-enable-application-insights

*Depending on your Business Central version, when enabling telemetry, use the Connection String or Instrumentation Key of the Azure Application Insights resource.*

Well, for 2023 release wave 1

<insert screenshot>

<https://learn.microsoft.com/en-us/dynamics365/business-central/dev-itpro/upgrade/deprecated-features-platform#business-central-telemetry-using-an-instrumentation-key-removal>

**Calling external services in OnCompanyOpen / OnCompanyOpenCompleted**

We recently had an incident where a partner created a sev 2 ticket because no users could log on. In this case, it was not an outage but simply partner (ISV or PTE) code in a subscriber to the login events OnCompanyOpen / OnCompanyOpenCompleted where they called out to an external service and this endpoint took a long time to respond.

When doing the postmortem of the incident, we decided to do something about this. Hopefully, you can use this to check if your apps/PTEs can be hardened to not delay customer logins.

First, we have added new content on the developer performance tuning guide docs, see

<https://learn.microsoft.com/en-us/dynamics365/business-central/dev-itpro/performance/performance-developer#outgoing-web-service-calls-block-al-execution>

Second, we have added a new alerting KQL query to BCTech

<https://github.com/microsoft/BCTech/tree/master/samples/AppInsights/Alerts#:~:text=LoginPerformance.kql-,Login%20performance,Performance,-VAR/ISV>

Any VAR/ISV can use this to analyze performance impact of this problem as seen from their environment(s) or how their apps affect customers. The query can also be used in a logic app to setup alerts to Teams/email/... to be proactive on this. See screenshot of the KQL query.

Third, the Power BI apps for VAR/ISV telemetry will have new insights to help analyze this problem (see above). These insights will surface in the April update of the apps.

# Blog posts and videos

TODO

Did you know that the BCTech repo has pages with links to blog posts and videos on telemetry?

Blogs: https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/BLOGS.md

Videos: https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/VIDEOS.md

If you create blog posts/videos on telemetry (or know of things that are not linked from these two pages), feel free to do a pull request to the repository (or send me an email/message)

**That’s all folks!**

That's it for the April newsletter. If you made it all the way down here, then you are truly a Telemetry Hero. See you in a month.

PS. Would love to hear your experiences on using alerts to be more proactive. Reach out (or blog about your experiences.)

PPS. It is not too late to rate the Power BI apps on Appsource 😊 Your feedback matters (a lot).

Do it here

aka.ms/bctelemetryreport

or

aka.ms/bctelemetry-isv-app