Ministerie van Justitie en Veiligheid

DPIA Office Online and the mobile Office apps
Data protection impact assessment on the processing of
diagnostic data

APPENDIX 1 –telemetry events mobile Office apps on iOS
and Android

Date   23 July 2019
Status   Public

Telemetry events mobile Office apps

Privacy Company has tested the use of the five most popular apps (Word, Outlook, Excel, PowerPoint and Teams), including the use of the Connected Experiences such as Editor (spelling checker), Translator and Insert Online Pictures. This in order to reproduce daily activities of government employees. The scenarios were executed on 7 and 8 May 2019 and repeated on 7 June 2019.

Privacy Company has tested the apps on an iPhone X, with the iOS operating system version 12.2, and the following versions of the apps: version 2.25 (Word, Excel), 1.0.75 (Teams), 3.21.0 (Outlook) and 10.64 (PowerPoint)

The tests were also performed on a Pixel 3, with the Android one rating system version 9. The following versions of the apps were tested: Excel 16.0.11601.20074, Outlook 3.0.55, PowerPoint 16.0.11601.20074, Teams 1416/1.0.0.2019042206 and Word 16.0.11601.20074.

In order to repeat the findings, Privacy Company has performed a limited third test run on 23 July 2019, on the same iPhone X with iOS version 12.3.1, with Word and Excel versions 2.27 and PowerPoint version 2.25.

In all three test runs, the tester logged in to a test account connected to Azure Active Directory in an Enterprise bulk license. The first two test runs were performed with two accounts created in the Azure AD of an EDU Office 365 Enterprise license, the third test run was performed on two accounts created in the Azure AD of a Dutch government Office 365 E5 license.

Privacy Company has intercepted the outgoing traffic from both smartphones with MItmproxy version 4.0.4 (software that allows for the inspection of contents of traffic with and without TLS encryption).

In the network traffic two endpoints are recognizable as telemetry end points: vortex.data.microsoft.com and mobile.pipe.aria.microsoft.com. The first endpoint has only been observed during the first test run, and only from PowerPoint on iOS, not from any other applications and not from Android. Only these data were encoded as JSON events. These data can be decoded relatively easy. During the second test run these events no longer appeared.

The data that were sent to the other network endpoint, mobile.pipe.aria.microsoft.com, were encoded in a non-documented binary format. Privacy Company has made structured searches in the raw data with specific search scripts, based on the content of the test scenarios.

Exceptions and traffic to marketing company
Not all Connected Experiences were available in the different apps. During the second test run it was not possible to send attachments through the Outlook app on Android. During the first test run it was necessary to add many exceptions to the proxy configuration to get this function working. The second time this didn't work in time. During the second test run no telemetry events were sent at all from the PowerPoint and Excel apps on iOS. However, the captured network traffic shows that both apps sent a couple of post requests to the domain mensa.iad.appboy.com, owned by the US-based marketing company Braze. This traffic is separate from the telemetry events. When these tests were repeated on 23 July, traffic to Braze was

also captured from the Word app. The traffic occurred both during the launch of the apps and after the user was logged in.

Example of the captured traffic to marketing company Braze second test run - PowerPoint

```
{
  "api_key": "6f0a70f2-5359-45f8-9106-7507478bc55f",
  "app_version": "2.25",
  "device_id": "F8189EAF-313E-4199-97F6-9D1E861508F3",
  "events": [
    {
      "data": {
        "key": "PowerPoint_EditFile",
        "value": 1
      },
      "name": "inc",
      "session_id": "4F35E555-74A8-40E0-88D6-840FD41F9BE9",
      "time": 1559901297.509,
      "user_id": "80a89116-f786-44b0-b048-a490f1c84444"
    },
    {
      "data": {
        "n": "_EditFile",
        "p": {
          "AppName": "PowerPoint"
        }
      },
      "name": "ce",
      "session_id": "4F35E555-74A8-40E0-88D6-840FD41F9BE9",
      "time": 1559901297.509,
      "user_id": "80a89116-f786-44b0-b048-a490f1c84444"
    }
  ],
  "sdk_version": "3.12.0",
  "time": 1559901307.526232
}
```

Example of the captured traffic to Braze third test run - Word

Flow Details
2019-07-23 12:00:28 POST
https://mensa.iad.appboy.com/api/v3/content_cards/sync
              <- 201 Created application/json 74b 186ms
                  Request

Response	Detail
Host:	mensa.iad.appboy.com
Content-Type:	application/json
X-Braze-ContentCardsRequest:	true
Accept-Encoding:	br, gzip, deflate
User-Agent:	Word/2.27.19070901 CFNetwork/978.0.7 Darwin/18.6.0
Connection:	keep-alive
Accept:	*/*
X-Braze-Api-Key:	0e8ae0e7-2269-456e-8889-0db1ca995724
Content-Length:	267
X-Braze-DataRequest:	true
Accept-Language:	en-us

JSON
[m:auto]
{
  "api_key": "0e8ae0e7-2269-456e-8889-0db1ca995724",
  "app_version": "2.27",
  "device_id": "F8189EAF-313E-4199-97F6-9D1E861508F3",
  "last_card_updated_at": 0,
  "last_full_sync_at": 0,
  "sdk_version": "3.12.0",
  "time": 1563876028.006939,
  "user_id": "73a3aa10-6c74-4145-94de-98c5aff585e7"
}

Example of the captured traffic to Braze third test run - Excel
2019-07-23 11:17:32 POST
https://mensa.iad.appboy.com/api/v3/content_cards/sync
                          <- 201 Created application/json 74b 165ms
                                    Request
Response   Detail
Host: mensa.iad.appboy.com
Content-Type: application/json
X-Braze-ContentCardsRequest: true
Accept-Encoding: br, gzip, deflate
User-Agent: Excel/2.27.19070901 CFNetwork/978.0.7 Darwin/18.6.0
Connection: keep-alive
Accept: */*
X-Braze-Api-Key: e7be02cc-96ab-4bd4-be37-c8c3489f5825
Content-Length: 267
X-Braze-DataRequest: true
Accept-Language: en-us
JSON
[m:auto]
{
  "api_key": "e7be02cc-96ab-4bd4-be37-c8c3489f5825",
  "app_version": "2.27",
  "device_id": "F8189EAF-313E-4199-97F6-9D1E861508F3",
  "last_card_updated_at": 0,
  "last_full_sync_at": 0,
  "sdk_version": "3.12.0",
  "time": 1563873452.880989,
  "user_id": "73a3aa10-6c74-4145-94de-98c5aff585e7"
}
Example of the captured traffic to Braze third test run - PowerPoint

Flow Details
2019-07-23 11:20:09 POST
https://mensa.iad.appboy.com/api/v3/content_cards/sync
                          <- 201 Created application/json 74b 384ms
                                    Request
Response   Detail
Host: mensa.iad.appboy.com
Content-Type: application/json
X-Braze-ContentCardsRequest: true
Accept-Encoding: br, gzip, deflate

User-Agent: PowerPoint/2.27.19070901 CFNetwork/978.0.7
Darwin/18.6.0
Connection: keep-alive
Accept: */*
X-Braze-Api-Key: 6f0a70f2-5359-45f8-9106-7507478bc55f
Content-Length: 217
X-Braze-DataRequest: true
Accept-Language: en-us
JSON
[m:auto]
{
  "api_key": "6f0a70f2-5359-45f8-9106-7507478bc55f",
  "app_version": "2.27",
  "device_id": "F8189EAF-313E-4199-97F6-9D1E861508F3",
  "last_card_updated_at": 0,
  "last_full_sync_at": 0,
  "sdk_version": "3.12.0",
  "time": 1563873609.410924
}

FIRST TEST RUNS ON 7 AND 8 MAY 2019

Mamenrollmentoperation
Observed in Excel on iOS (8 times), Teams on iOS (1 time), Word on iOS (7 times) and Outlook on iOS (1 time).
Contains information about the use of mobile application management.
Remarkable information in the telemetry event:
DeviceInfo.Id = F8189EAF-313E-4199-97F6-9D1E861508F3
Intune.deviceId = 944772A1-ECDC-4750-8319-FF106FC988A5
Intune.mamIdentity = [e-mail address anonymised]
AppInfo.Version = 2.24 (2.24.19041003)
DeviceInfo.Model = iPhone11,8
Mamenrollmentnetworkoperation
Observed in Excel on iOS (16 times), Teams on iOS (1 time), Word on iOS (13 times) and Outlook on iOS (2 times).
act_stats
Observed in Excel on iOS (5 times), Teams on iOS (1 time) and Word on iOS (5 times).
AppSession/StartUp
Observed in Powerpoint on iOS (1 time).
AggregateStatusReport
Observed in Powerpoint on iOS (1 time).
CameraBackup/SettingChange
Observed in Powerpoint on iOS (2 times).
ReasonUXNotShownAutomatically
Observed in Powerpoint on iOS (1 time).
Auth/ADALTelemetry
Observed in Powerpoint on iOS (5 times).
AppLaunch
Observed in Powerpoint on iOS (1 time).
Auth/TokenRefreshResult
Observed in Powerpoint on iOS (6 times).
ECS/RampValues
Observed in Powerpoint on iOS (2 times).
Auth/AccountPlaceChanges

Observed in Powerpoint on iOS (3 times).

Auth/MAMEnrollment

Observed in Powerpoint on iOS (1 time).

UserSku/Refreshed

Observed in Powerpoint on iOS (1 time).

Operation

Observed in Powerpoint on iOS (1 time).

edf_trouter_client_disconnected

Observed in Teams on iOS (8 times).

edf_trouter_client_log_error

Observed in Teams on iOS (4 times).

edf_trouter_client_event

Observed in Teams on iOS (12 times).

edf_trouter_client_connected

Observed in Teams on iOS (8 times).

mdsc_mediaagentmanager

Observed in Teams on iOS (1 time).

mdsc_logging

Observed in Teams on iOS (2 times).

trap_token_manager

Observed in Teams on iOS (1 time).

skypecosi_concore_native_callsignalingagent_httprequest

Observed in Teams on iOS (1 time).

Applifecycle

Observed in Teams on iOS (42 times) and Outlook on iOS (8 times).

Scenario

Observed in Teams on iOS (1055 times).

A collection of different kinds of telemetry evens subdivided in many scenario names:
chat_send_message (14 times), chat_send_message_ui (14 times), bell_count (260 times),
service_send_message (14 times), notification_burnt (28 times), notification_burn_unavailable
(14 times), auth_adal_tokens (375 times), app_incremental_sync_resume (18 times),
app_resume (18 times), app_start_sync (11 time), companionFetchActiveCalls (22 times),
presence_interon_publish (18 times), chat_switch (16 times), app_resume_notification_perf (1
time), auth_skype_tokens (192 times), navChat (6 times), chat_retrieve_contact_groups (6
times), app_incremental_sync_launch (2 times), app_start (2 times), app_start_perf (2
times), calling_service_init (2 times), skylib_skype_token_refresh (2 times),
verify_skylib_state (2 times), calling_service_login (2 times), documents_upload_file_p2p (4
times), documentFilePreview (4 times), documentFileDownload (4 times),
remote_notification_message_sync (2 times)

Trace

Observed in Teams on iOS (737 times).

Contains technical messages about the internal functioning of the app. Some examples:
Trace_Message5:[W] no active user identified, active singal is not set!!!
Trace_Message5<9a>^A[W] [HTTP] TSNALongPollOperation : 0, contextID:,
domain:NSURLErrorDomain, code:-1001, skypeErrorCode:, skypeErrorMessage:<sanitized>,
MT ServerRequestID:
This event did not contain contents of files or communication.

http

Observed in Teams on iOS (259 times).

Contains data about http request that were sent from the Teams client. The event shows URLs
of internal API calls This event did not contain contents of files or communication.

Userbi

Observed in Teams on iOS (69 times).

Session

Observed in Teams on iOS (2 times) and Outlook on iOS (4 times).

Adalauth
Observed in Teams on iOS (198 times).
Notification
Observed in Teams on iOS (52 times).
mail_filter_component
Observed in Outlook on iOS (4 times).
tab_component
Observed in Outlook on iOS (8 times).
inbox_component
Observed in Outlook on iOS (7 times).
core_data_diagnostics
Observed in Outlook on iOS (1 time).
account_consistency
Observed in Outlook on iOS (1 time).
accessibility_report
Observed in Outlook on iOS (1 time).
feed_account_info
Observed in Outlook on iOS (1 time).
adal_telemetry
Observed in Outlook on iOS (7 times).
account_action
Observed in Outlook on iOS (1 time).
hx_fetch_latency_start
Observed in Outlook on iOS (19 times).
boot_time
Observed in Outlook on iOS (1 time).
app_launch_report
Observed in Outlook on iOS (1 time).
cortana_action
Observed in Outlook on iOS (4 times).
feature_flags
Observed in Outlook on iOS (1 time).
exchange_api_duration
Observed in Outlook on iOS (3 times).
addin_report
Observed in Outlook on iOS (1 time).
mail_list_datasource_v2_performance
Observed in Outlook on iOS (3 times).
app_startup_reason
Observed in Outlook on iOS (1 time).
mail_drawer_action
Observed in Outlook on iOS (1 time).
sidebar_action
Observed in Outlook on iOS (5 times).
heterogeneous_favorites
Observed in Outlook on iOS (1 time).
add_account
Observed in Outlook on iOS (1 time).
livepersonacard_qos_lokigetauthtoken
Observed in Outlook on iOS (1 time).
core_data_performance
Observed in Outlook on iOS (3 times).
mail_compose
Observed in Outlook on iOS (2 times).
send_message

Observed in Outlook on iOS (1 time).
cal_component
Observed in Outlook on iOS (2 times).
combined_search_use
Observed in Outlook on iOS (6 times).
unexisting_process_ended
Observed in Outlook on iOS (2 times).
main_thread_blocked
Observed in Outlook on iOS (2 times).
cal_navigate_to_today
Observed in Outlook on iOS (1 time).
cal_drawer_action
Observed in Outlook on iOS (2 times).
composite_stats
Observed in Excel on Android (13 times) and Word on Android (8 times)
profile_load
Observed in Excel on Android (2 times), Powerpoint on Android (1 time) and Word on Android (5 times).
sqlite_policy_storage_onen_database
Observed in Excel on Android (2 times), Powerpoint on Android (1 time) and Word on Android (5 times).
sqlite_policy_storage_create_table_if_needed
Observed in Excel on Android (4 times), Powerpoint on Android (2 times) and Word on Android (10 times).
profile_load_async
Observed in Excel on Android (2 times), Powerpoint on Android (1 time) and Word on Android (5 times).
sqlite_policy_storage_load
Observed in Excel on Android (19 times), Powerpoint on Android (11 time) and Word on Android (47 times).
policy_sync_acquire_policy
Observed in Excel on Android (19 times), Powerpoint on Android (11 time) and Word on Android (47 times).
profile_add_engine_async
Observed in Excel on Android (19 times), Powerpoint on Android (11 time) and Word on Android (47 times).
Bizcritical
Observed in Excel on Android (2 times) and Word on Android (2 times).
Performance
Observed in Excel on Android (13 times) and Word on Android (13 times).
usage
Observed in Excel on Android (2 times) and Word on Android (2 times).

SECOND TEST RUN 7 JUNE 2019

Mamenrollmentoperation
Observed in Teams on iOS (6 times), Word on iOS (7 times) and Outlook on iOS (9 times)
Mamenrollmentnetworkoperation
Observed in Teams on iOS (12 times), Word on iOS (14 times) and Outlook on iOS (16 times)
act_stats
Observed in Teams on iOS (1 time) and Word on iOS (3 times)
AppSession/StartUp
Not found

AggregateStatusReport
Not found
CameraBackup/SettingChange
Not found
ReasonUXNotShownAutomatically
Not found
Auth/ADALTelemetry
Not found
AppLaunch
Not found
Auth/TokenRefreshResult
Not found
ECS/RampValues
Not found
Auth/AccountPlaceChanges
Not found
Auth/MAMEnrollment
Not found
UserSku/Refreshed
Not found
Operation
Not found
edf_trouter_client_disconnected
Observed in Teams on iOS (1 time) and Teams on Android (1 time)
edf_trouter_client_log_error
Not found
edf_trouter_client_event
Observed in Teams on iOS (2 times) and Teams on Android (2 times)
edf_trouter_client_connected
Observed in Teams on iOS (2 times) and Teams on Android (2 times)
mdsc_mediaagentmanager
Observed in Teams on iOS (1 time) and Teams on Android (1 time)
mdsc_logging
Observed in Teams on iOS (2 times)
trap_token_manager
Observed in Teams on iOS (2 times) and Teams on Android (2 times)
skypecosi_concore_native_callsignalingagent_httprequest
Observed in Teams on iOS (1 time) and Teams on Android (1 time)
Applifecycle
Observed in Teams on iOS (8 times) and Outlook on iOS (37 times)
Scenario
Observed in Teams on iOS (523 times)
Trace
Observed in Teams on iOS (135 times)
http
Observed in Teams on iOS (106 times)
Userbi
Observed in Teams on iOS (51 time)
Session
Observed in Teams on iOS (57 times) and Outlook on iOS (28 times)
Adalauth
Observed in Teams on iOS (140 times)
Notification
Observed in Teams on iOS (14 times)
mail_filter_component

Observed in Outlook on iOS (12 times)
tab_component
Observed in Outlook on iOS (12 times)
inbox_component
Observed in Outlook on iOS (17 times)
core_data_diagnostics
Observed in Outlook on iOS (3 times)
account_consistency
Observed in Outlook on iOS (3 times)
accessibility_report
Observed in Outlook on iOS (3 times)
feed_account_info
Observed in Outlook on iOS (3 times)
adal_telemetry
Observed in Outlook on iOS (76 times)
account_action
Observed in Outlook on iOS (5 times)
hx_fetch_latency_start
Observed in Outlook on iOS (58 times)
boot_time
Observed in Outlook on iOS (2 times)
app_launch_report
Observed in Outlook on iOS (3 times)
cortana_action
Observed in Outlook on iOS (39 times)
feature_flags
Observed in Outlook on iOS (6 times)
exchange_api_duration
Observed in Outlook on iOS (8 times)
addin_report
Observed in Outlook on iOS (2 times)
mail_list_datasource_v2_performance
Observed in Outlook on iOS (7 times)
app_startup_reason
Observed in Outlook on iOS (3 times)
mail_drawer_action
Observed in Outlook on iOS (2 times)
sidebar_action
Observed in Outlook on iOS (14 times)
heterogeneous_favorites
Observed in Outlook on iOS (2 times)
add_account
Observed in Outlook on iOS (11 time)
livepersonacard_qos_lokigetauthtoken
Observed in Outlook on iOS (1 time)
core_data_performance
Observed in Outlook on iOS (20 times)
mail_compose
Observed in Outlook on iOS (6 times)
send_message
Observed in Outlook on iOS (2 times)
cal_component
Observed in Outlook on iOS (3 times)
combined_search_use
Not found

unexisting_process_ended
Observed in Outlook on iOS (1 time)
main_thread_blocked
Observed in Outlook on iOS (3 times)
cal_navigate_to_today
Not found
cal_drawer_action
Observed in Outlook on iOS (3 times)
composite_stats
Observed in Outlook on iOS (25 times) and Excel on Android (4 times)
profile_load
Observed in Excel on Android (1 time)
sqlite_policy_storage_onen_database
Observed in Excel on Android (1 time)
sqlite_policy_storage_create_table_if_needed
Observed in Excel on Android (1 time)
profile_load_async
Observed in Excel on Android (2 times)
sqlite_policy_storage_load
Observed in Excel on Android (11 time)
policy_sync_acquire_policy
Observed in Excel on Android (11 time)
profile_add_engine_async
Observed in Excel on Android (11 time)
Bizcritical
Observed in Excel on Android (2 times) and Word on Android (2 times)
Performance
Observed in Excel on Android (13 times) and Word on Android (13 times)
usage
Observed in Excel on Android (2 times) and Word on Android (2 times)

During the second test run 29 other telemetry events have been observed, especially from the Outlook app on iOS. These were:

account_properties_log
Observed in Outlook on iOS (3 times)
adal_error
Observed in Outlook on iOS (336 times)
adal_login_result
Observed in Outlook on iOS (42 times)
add_account_result
Observed in Outlook on iOS (11 time)
app_error
Observed in Outlook on iOS (1 time)
auth_trace
Observed in Teams on iOS (38 times)
autodiscover_result
Observed in Outlook on iOS (11 time)
compose_mail_accessory
Observed in Outlook on iOS (2 times)
configurationsetaction
Observed in Outlook on iOS (1 time)
connection
Observed in Outlook on iOS (2 times)
conversation_load_time

Observed in Outlook on iOS (1 time)
core_data_corruption
Observed in Outlook on iOS (2 times)
cortanaapiaccount_fetch_failure
Observed in Outlook on iOS (2 times)
draft_action
Observed in Outlook on iOS (1 time)
edf_trouter_client_host_and_listener_events
Observed in Teams on Android (3 times)
email_rendering
Observed in Outlook on iOS (2 times)
exo_get_user_info
Observed in Outlook on iOS (1 time)
file_action
Observed in Outlook on iOS (1 time)
file_download
Observed in Outlook on iOS (1 time)
general_properties_log
Observed in Outlook on iOS (3 times)
hx_account_state
Observed in Outlook on iOS (6 times)
hx_pulse
Observed in Outlook on iOS (7 times)
iconic_sync
Observed in Outlook on iOS (4 times)
livepersonacard
Observed in Outlook on iOS (2 times)
livepersonacard_events
Observed in Outlook on iOS (4 times)
livepersonacard_qos
Observed in Outlook on iOS (1 time)
mail_action
Observed in Outlook on iOS (1 time)
reauth_account
Observed in Outlook on iOS (17 times)
updated_host_configuration
Observed in Outlook on iOS (1 time)