Android Library Release Notes

Version 6.0.0 of the Comscore library introduces public API changes. Upgrading existing implementations of older library versions will require a small amount of code changes, which are explained in an appendix of the implementation guides.

Library Version 6.4.0.200626

Release Date: June 29, 2020
Data Collection Model Version: 6.3
Supported OS Versions: 5.0 - 9.0 (Android API levels 21 - 28)

Feature changes:

1. (TAG-6353) Update label order.

   Description: An issue related to the panel meter on PC and Windows desktop collecting specific dictionary values caused the label order to be updated.

   Resolution: This does not affect Android, but as label order is shared amongst all solutions, Android was updated accordingly.

2. (TAG-6360) Add child-directed application configuration setting.

   Description: Child-directed applications have different data collection requirements. Until now, publishers received specific instructions for this purpose which involved multiple code statements to align library data collection behavior with the different requirements. These instructions can be simplified by making this a feature of the library.

   Resolution: Add a configuration setting to simplify appropriate tagging of child-directed applications.

Bug fixes:

1. (TAG-6370) Ensure public API method arguments are not obfuscated or minimized.

   Description: Some API methods have had their arguments unintentionally obfuscated in previously released versions.

   Resolution: Correct the build settings to ensure public API method arguments are not obfuscated or minimized.

Known issues and limitations:

▪ There were no known issues for this release.

Library Version 6.3.1.200511

Release Date: May 14, 2020
Data Collection Model Version: 6.2
Supported OS Versions: 5.0 - 9.0 (Android API levels 21 - 28)

Feature changes:

1. (TAG-6165) Update to Android NDK 21.0.

   Description: Along with the C++ tool chain update in version 6.3.0.200311, the NDK can be updated to future-proof the solution.

   Resolution: Update the Android NDK.

Bug fixes:

1. (TAG-6181) Ensure application updates are identified in the collected data.

    Description: The changes from (TAG-6017) in version 6.2.0.200128 caused a problem with the application update detection.

    Resolution: Resolve the problem and ensure application updates are detected.

2. (TAG-6232) Ensure Maven version numbers do not include the build number.

    Description: While Maven repository version numbers use *x.y.z* format, version 6.3.0.200311 was pushed to the Maven repository using its full version number, including the build identifier. This causes a problem with dependency resolution when the full version number is not used in the project.

    Resolution: Ensure Maven version numbers continue to use *x.y.z* format.

3. (TAG-6238) Ensure *ImplementationValidationMode* output is fully visible in console logs.

    Description: Android console logs truncate lines at 1024 bytes. This prevents *ImplementationValidationMode* output from being completely visible.

    Resolution: Cut the *ImplementationValidationMode* output into chunks to span multiple log lines.

Known issues and limitations:

- There were no known issues for this release.

Library Version 6.3.0.200311

Release Date: March 16, 2020

Data Collection Model Version: 6.2

Supported OS Versions: 5.0 - 9.0 (Android API levels 21 - 28)

Feature changes:

1. (TAG-5680) Update minimum Android API level from 16 to 21.

    Description: To be able to use System Clock Jump Detection the C++ tool chain needs to be updated to a newer version. This newer version requires the minimum Android API level to be 21 (Android 5.0.0 / Lollipop).

    Resolution: Update the C++ tool chain.

2. (TAG-6115) Add event-independent re-buffer count for consistency with other metrics.

    Description: Streaming Analytics metrics typically are collected as a three-part values. For re-buffering only two parts are present.

    Resolution: Include the missing re-buffer count.

3. (TAG-6121) Add content media format metadata values for podcasts.

    Description: Streaming Analytics content metadata does not have values for full and partial podcast content.

    Resolution: Add an enum value for full podcast content and an enum value for partial podcast content.

Bug fixes:

1. (TAG-6062, TAG-6065) Ensure customized System Clock Jump Detection Interval and Precision configuration setting values are collected with the appropriate format.

    Description: Values for System Clock Jump Detection Interval and Precision configuration values are not converted to multiples of 100. This causes the provided values to be incorrectly populated in the collected data.

    Resolution: Ensure the System Clock Jump Detection Interval and Precision configuration values are sanitized before they are applied.

Known issues and limitations:

- There were no known issues for this release.

Library Version 6.2.0.200128

Release Date: January 30, 2020

Data Collection Model Version: 6.1

Supported OS Versions: 4.1 - 9.0 (Android API levels 16 - 28)

Feature changes:

1. (TAG-5993) Remove functionality from vCE component.

   Description: Some of the reported issues with Comscore library behavior originate from the requirement for vCE component to support a wide variety of advertisement viewability tagging use cases. Given the adoption of the Open Measurement SDK there no longer is a requirement for viewability measurement in the Comscore library.

   Resolution: Disable the vCE component by default and remove its business logic. This has the following effects on the library API:

   - The `vce` configuration setting is deprecated and no longer has any effect.
   - All vCE-related methods are deprecated and no longer execute any business logic.
   - All vCE-related getters that return a `String` value — such as `Vce.getSdkVersion()` and `Analytics.getVceVersion()` — now return an empty string.
   - All vCE-related getters that return a `Boolean` value now return `false`.
   - The `Vce.getSharedInstance()` and `Analytics.getSharedVceInstance()` methods return `null`, which aligns with vCE being disabled.

Bug fixes:

1. (TAG-5967) Prevent crashes caused by API calls from threads which are killed shortly after the call

   Description: API calls to change the configuration could cause crashes when executed from different threads.

   Resolution: This has been resolved indirectly by the changes for feature change TAG-5993.

2. (TAG-6017) Ensure explicitly specified application name, version and package are collected

   Description: Any values specified explicitly on the `Analytics` configuration object were not collected as the library would override these values with the automatically retrieved ones as soon as a Context was available (which is after any code statements explicitly specifying values).

   Resolution: The library will only collect any automatically retrieved values for application name, version and package if there is no value explicitly specified by the implementation.

Known issues and limitations:

- There were no known issues for this release.

Library Version 6.1.0.191217

Release Date: December 19, 2019

Data Collection Model Version: 6.1

Supported OS Versions: 4.1 - 9.0 (Android API levels 16 - 28)

Feature changes:

1. (TAG-5676, TAG-5705) Add Network Affiliate as `StreamingAnalytics` content asset metadata.

   Description: Network Affiliate was identified as standard content metadata

   Resolution: Add an API method for Publishers to specify the Network Affiliate value.

2. (TAG-5728, TAG-5731, TAG-5732, TAG-5740) Remove code of previously deprecated public API elements (which have

already been removed or hidden or otherwise should not longer be available).

Description: Some of the configuration settings were deprecated and/or removed from the public API with the introduction of data model 6.0, while source code for the involved functionality was retained.

Resolution: Ensure the configuration settings are no longer present and any source code that is no longer needed is removed.

3. (TAG-5729) Collect marker for Live+DVR stream.

Description: For validation and troubleshooting purposes it needs to be clear from the collected data when an asset is identified to be a Live+DVR stream.

Resolution: Add a marker label which indicates whether or not an asset is a Live+DVR stream.

4. (TAG-5893) Include additional metadata labels when distinguishing different assets.

Description: Taking from data collection model 5.0 some asset metadata labels are used to detect asset changes. Over time other labels have been added which can be used in stead to identify different assets. These labels are not inspected during asset change detection.

Resolution: Update asset change detection to include key asset metadata labels which were added after data collection model 5.0.

Bug fixes:

1. (TAG-5772, TAG-5773) Ensure Project ID setter method is available on `StreamingAnalytics` objects.

Description: The method to specify Project ID values was not exposed on the `StreamingAnalytics` public API.

Resolution: Add the method to specify Project ID values to the `StreamingAnalytics` public API.

2. (TAG-5878) Prevent a race condition which could cause crashes when application life cycle notification methods are called from different threads.

Description: Calling application life cycle notification methods from different threads sporadically leads to a race condition which causes a crash.

Resolution: Prevent the race condition from occurring when application life cycle notification methods are called from different threads.

3. (TAG-5902) Ensure break number is incremented when multiple consecutive mid-roll advertisement breaks occur for the same content asset.

Description: The break number is kept at value 1 when multiple consecutive mid-roll advertisement breaks occur for the same content asset, rather than being incremented with each mid-roll advertisement break.

Resolution: Ensure break number is automatically incremented when when multiple consecutive mid-roll advertisement breaks occur for the same content asset.

4. (TAG-5936) Ensure last known content position on advertisements is collected with the correct value.

Description: The last known content position was stored in way that it reflected the position of the content of the previous occurrence of halted playback.

Resolution: Ensure the last known content position is updated correctly for the following advertisement to collect the appropriate value.

Known issues and limitations:

▪ There were no known issues for this release.

Library Version 6.0.0.191011

Release Date: October 14, 2019
Data Collection Model Version: 6.0
Supported OS Versions: 4.1 - 9.0 (Android API levels 16 - 28)

Feature changes:

1. (TAG-3628) Simplify and future-proof Streaming Tag implementation design and improve consistency of API naming and design of all library elements.

Description: Aside from applying internal redesign to remove the root causes of some difficult to reproduce bugs, the overall design of the solution is a few years old and can use an overhaul to apply new insights. Feature changes include:

- Integrate the `ReducedRequirementsStreamingAnalytics` solution into the 'standard' `StreamingAnalytics` solution to have a single Streaming Tag implementation.
- Provide Streaming Tag metadata objects with setters to allow developers to provide metadata without knowledge of label names. *Support for the use of hashmaps with labels from existing implementations is available (see appendix with update instructions in the implementation instructions).*
- Remove API elements which are no longer needed.

Resolution: Apply the changes and increment the major version number accordingly.

2. (TAGLANDR-187, TAG-3995, TAG-4173) Compile the library with the *Position Independent Executable* (PIE) flag and drop support for Android versions below 4.1 (API level 16).

    Description: Android 4.1 introduced the *Position Independent Executable* (PIE) flag. To prevent abuse of an Android vulnerability the library needs to support this flag. This requires the minimum-supported Android version to be increased to 4.1 (instead of 2.3 which was applicable for previous library versions). This change includes removing any workarounds that applied to Android OS versions below 4.1.

    Resolution: Remove workarounds to have backwards compatibility with older Android versions and implement a safeguard mechanism to ensure the library fails silently when running on Android versions below 4.1. This major version of the library the minimum-supported Android version is 4.1 and deliverables are compiled with the PIE flag.

3. (TAG-5090) Add Distributed Content Tagging functionality.

    Description: Provide a simple solution for tagging distributed content in applications.

    Resolution: Add the `notifyDistributedContentViewEvent` API method.

4. (TAG-5131) Make all transmission secure (HTTPS) by default.

    Description: Transmission was non-secure by default which does align with contemporary practices.

    Resolution: Let transmission be secure by default.

5. (TAGLANDR-188, TAG-4169) Drop support for *mips* and *mips64* architectures.

    Description: The *mips* and *mips64* architectures are no longer supported by the Android NDK which is used by the library.

    Resolution: Remove support for *mips* and *mips64* architectures.

Bug fixes:

1. (TAG-4965) Prevent crashes when `StreamingAnalytics` or `ReducedRequirementsStreamingAnalytics` API methods are called to notify of streaming events while the `Analytics` instance is already de-allocated.

    Problem: When an application starts its termination routine it calls the destructor of all static instances. The library internally uses a static instance which could end up being referenced from other threads while it is being destroyed, causing a crash. While this issue was fixed in a previous library version not all use cases could be resolved.

    Resolution: Apply internal design changes to resolve this for all use cases.

2. (TAG-5738) Correct per asset playback counter unique and largest-consecutive playback metrics collection.

    Problem: The data for unique and largest-consecutive playback of the current asset playback counter is reset when an asset transitions into IDLE state. This means merging of intervals upon resuming playback — i.e., the playback counter is not incremented — occurs against an empty history.

    Resolution: Ensure the data for unique playback and largest-consecutive playback per asset playback counter is reset only when the asset playback counter is incremented.

3. (TAG-5739) Improve elapsed time metrics collection.

    Problem: There are use cases where elapsed time does not include time-spent outside of playback.

    Resolution: Ensure the data for elapsed time is collected as soon as state changes from *idle*.

Known issues and limitations:

- There were no known issues for this release.