OTT Media Measurement

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Purpose of this document

This document is intended to MNOs to share that Innogem capable to measure OTT Media (Tiktok, Netflix and Facebook) and to share why OTT Media should be measured.

Introduction

There are a few components that need to be explained before starting the measurement of OTT Media, and the components are:

1. **Over-the-top (OTT)**

   Over-the-top is a media services that distribute its content directly to the user using internet, without using a middleman such as cable television, satellite, or telecommunication operator. Over-the-top services offer many kinds of contents like films, music, live streaming, and voice call. There are many examples of over-the-top applications and one of them is WhatsApp.

2. **Tiktok**

   TikTok is a popular social networking software that allows users to make, edit, and share short movies ranging from 15 to 60 seconds. Users may use the software to produce unique and compelling video footage by applying numerous filters, effects, and background music. TikTok also provides options to follow other users and share videos with its community of users.

3. **Netflix**

   Netflix is a video streaming app or service that lets you view TV series and movies on a variety of internet-connected devices. The app provides a diverse selection of entertainment, including movies, television programs, documentaries, and Netflix's own original creations.

4. **Facebook**

   Facebook is a social media and networking website that allows users to communicate with their friends, family, and others. The site provides a variety of functions, including photo sharing, movies, and even a marketplace. Facebook is owned by Meta Platforms, a technology business.

OTT Media Data Statistic

1. General

In General, all streaming services that provide material online are referred to as OTT, or over-the-top. While most over-the-top (OTT) services require a subscription, some are free to use, although with intrusive commercials throughout each episode.

In recent years, over-the-top (OTT) media has gained popularity. Almost everyone has used the services offered by these OTTs. This white paper will explain why it is vital to measure OTT Media using usage statistics. According to Populix's OTT usage statistics in Indonesia in 2024, 33% use OTT services every day, with some using them more than five times a week, as shown in the chart below.

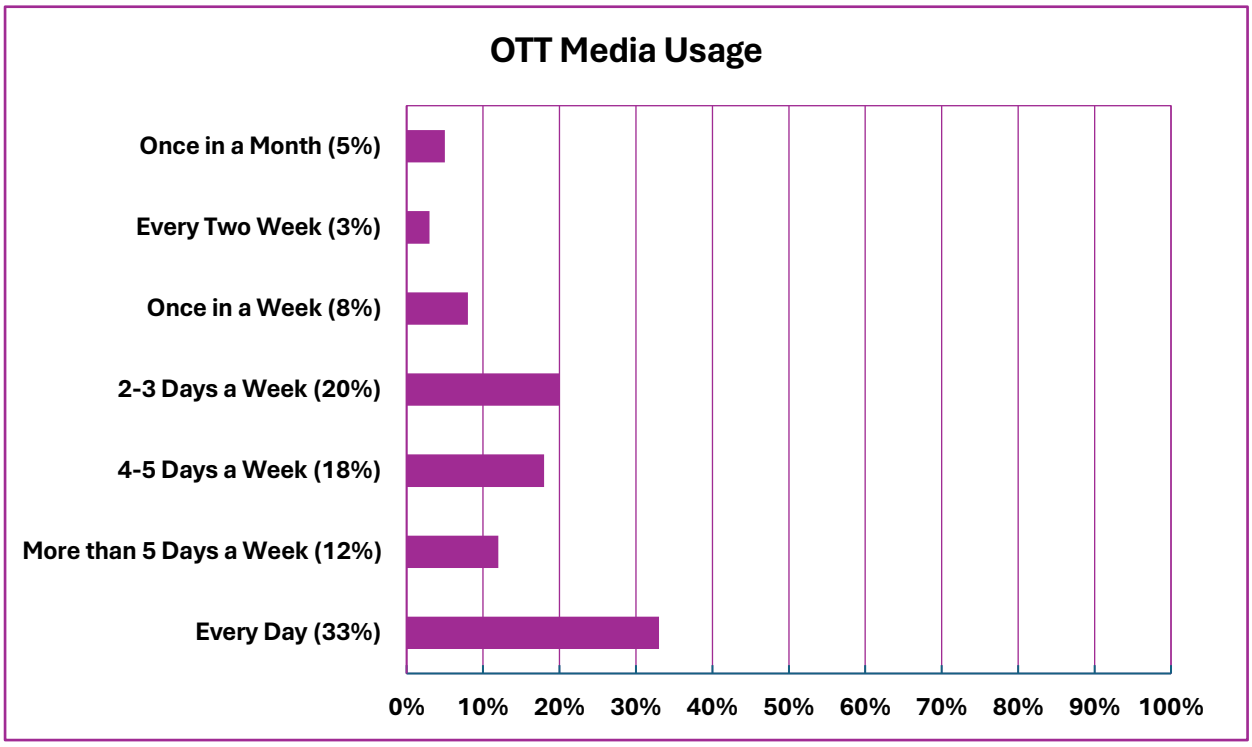

Figure 1, OTT Media Usage Statistic

From the chart above we can see that the usage of OTT Media is so high that more than 50% people are using OTTs more than 4 days, but in this white paper we will also breakdown deeper the usage statistic of some of OTT platform.

1.1 TikTok

According to a We Are Social and Meltwater research, the worldwide TikTok user base will exceed 1.58 billion by 2024. The bulk of users are between 18 and 34 years old. According to the most recent DataReportal data, Indonesia has the world's highest TikTok user base, with 157.6 million users. This amount even exceeds the United States' total of 120.5 million users. The breakdown is as shown in the chart below.

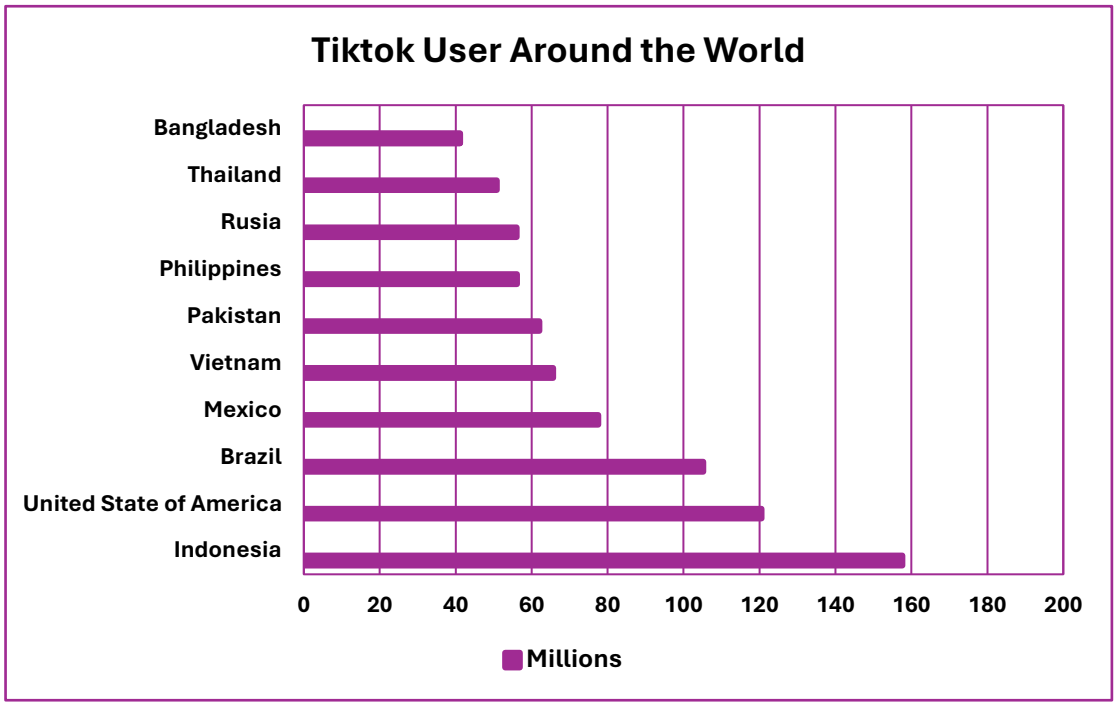

Figure 2, TikTok user statistic

1.1 Netflix

Throughout 2024, Netflix remained the most popular entertainment app, a position it had held since 2023. As of 2024, Netflix had been downloaded 161 million times, outpacing other popular entertainment applications worldwide. The breakdown is as shown in the chart below

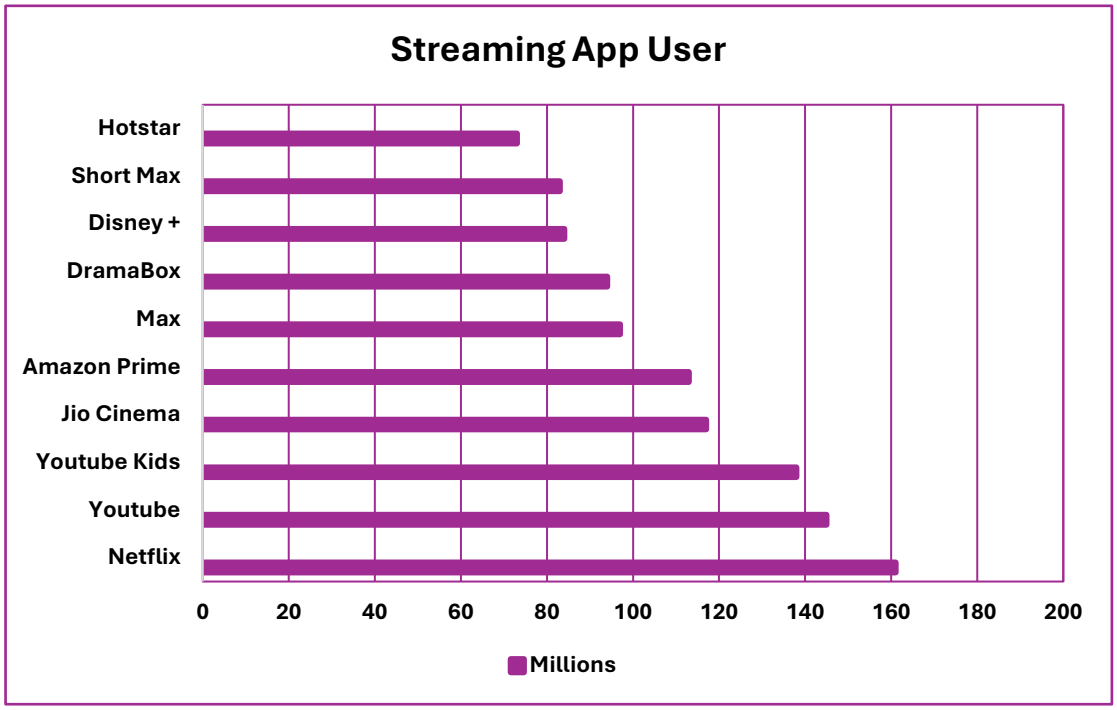

Figure 3, Streaming app user statistics

2.1 Facebook

Despite widespread doubts about its significance in the face of increasingly severe competition from social media platforms, Facebook has persisted and developed tremendously in Indonesia. According to the Digital 2025 Indonesia estimate, Facebook has 122 million users in Indonesia as of early 2025, accounting for 43% of the entire population. As shown in the chart below.

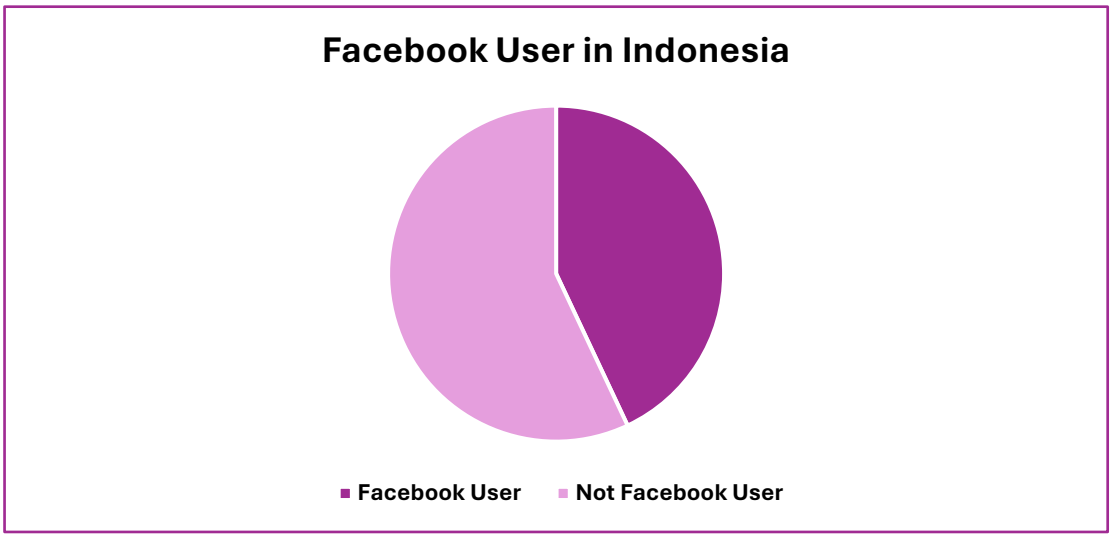

Figure 4, Facebook user Statistic

Why OTT Media Should be Measured

Why should OTT media be measured? Because network quality data has a substantial impact on the user experience of Over-The-Top (OTT) platforms. Good network quality, such as consistent internet speed and connectivity, heavily influences video streaming, audio playback, and app reaction time. In contrast, a weak network can cause buffering, lag, and poor video quality, lowering customer happiness.

According to the data statistic provided earlier, Indonesia is one of the countries with a significant number of OTT Media users. Be it on TikTok, Netflix, or Facebook. And thus, why MNOs in Indonesia should measure and monitor the quality of their network regarding the OTT media to always ensure the user experience while using the OTT media smoothly without any lag or buffering. To estimate network quality, some major metrics utilized are:

1. Download Speed: Measures how quickly data can be downloaded from the internet.
2. Upload Speed: Measures how quickly data can be uploaded to the internet.
3. Latency (also known as Ping): The time it takes for data to reach the server and return.
4. Jitter indicates changes or instability in latency.
5. Packet Loss: This is the percentage of data packets lost during transmission.

Innogem is more than capable of doing the testing and collecting the logfiles regarding the Radio condition of the network, the quality of the OTT Media using OTT media script in Tems Investigation, and deliver the report to MNOs, so MNOs can always in check and up to date about their network performance especially for OTT media.

Measurement for OTT Media

1. Method of Measurement

the method used in measuring OTT media are quite flexible, it depends on the test case. If the test case needs to be done without a parallel script, then mostly for the test just need one UE. But if the test case needs a parallel script for each OTT media platform or Inter Activity script, then one UE will not enough. As shown in the figure below is an example of non-parallel script

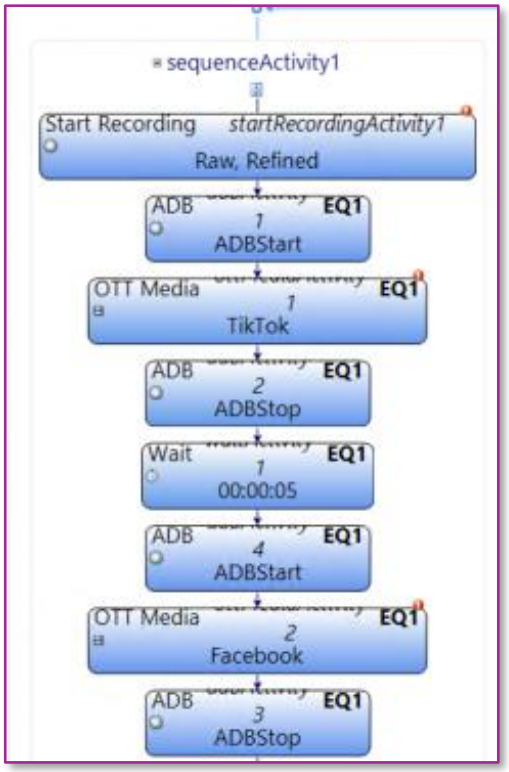

Figure 5, Non-parallel OTT Media scripts

2. ADB Command

In contrast to standard scripts, media OTT necessitates ADB activity to allow for more comprehensive automated control over the Android device in use. TEMS's typical features center on network measurements because OTT testing frequently necessitates interaction with the app (starting, navigating, and adjusting playback), in addition to the possibility of app-side metrics collecting. Consequently, atx-agent, an automation server, is executed in the device's background using this ADB command. Test scripts in TEMS (or similar automation frameworks) can then use this server as a communication bridge to send commands to the device, mimic user behaviors, and programmatically interface with OTT applications. Therefore, this "ADB Activity" turns into a crucial phase in thorough OTT test automation.

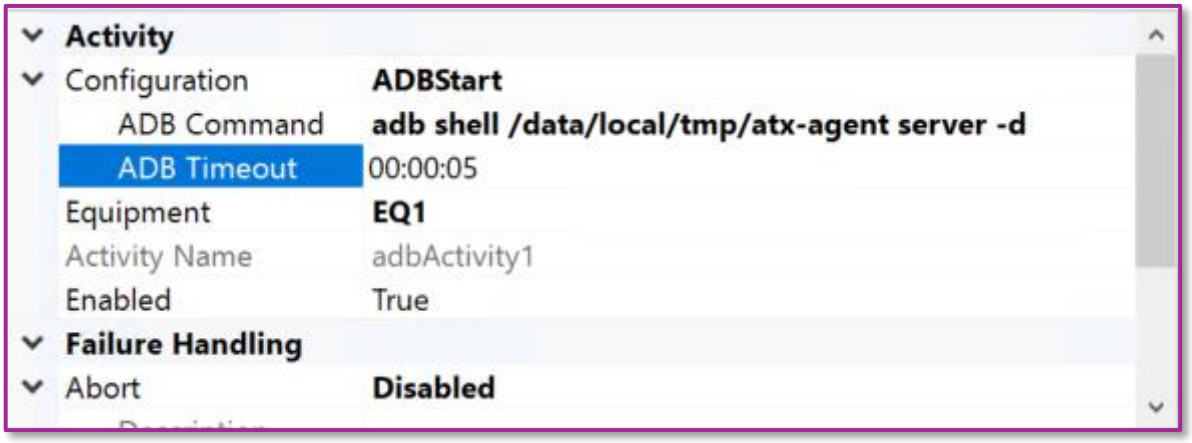

Figure 6, ADB start configuration menu

TOOLS AND TEMS SCRIPT

To conduct this measurement, we must prepare several things, including:

- Mobile Device & License: To do the test, we need to have a Temsify mobile device (UE and Laptop). License for TEMS Investigation and License to use OTT Media service in TEMS Investigation to make and execute the script.
- TEMS Investigation, measurements will be taken using this program, hence we need a script to run later.

3. TEMS Investigation

TEMS Investigation is a software program that is widely used in the telecommunications industry, particularly for mobile network testing. The software will be used to measure and testing the OTT Media services.

a. TEMS Script

As shown in the image below, the TEMS script for testing OTT Media includes the following:

1. Start Recording
2. Stop Recording
3. ADB Start
4. OTT Media (Tiktok, Netflix, Facebook)
5. ADB Stop

To guarantee compatibility, make sure all the devices are connected to the same computer if the test use more than one UE, and make sure the tools already have the required licenses and already Temsify.

3.1 Start Recording

Before starting the script for the actual test, Start Recording must be added in the script, The function of this script is to record the activity and saving the logfiles. Without the start recording the logfiles will not be generated. Directory for the logfiles can be set in the Directory part in the configuration and for the logfiles name we can set it in the prefix part in the configuration.

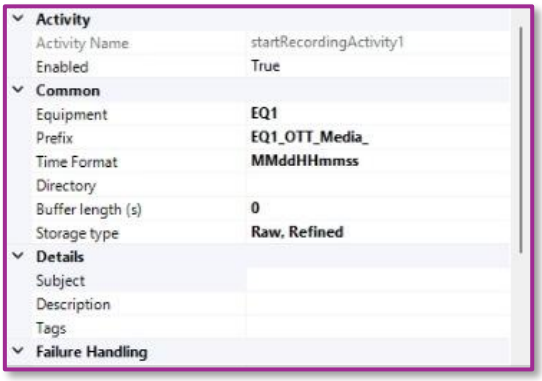

Figure 7, Start Recording Configuration

4.1 Stop Recording

Following start recording, stop recording is also a crucial step. Stop recording ends the recording and creates the logfile if the script already has start recording set to record. Make sure the recording activity in the Stop Recording configuration is the corresponding for the Start activity, If the stop recording is to stop the start recording activity 1 then the recording activity in the config should be addressed for start recording activity 1.

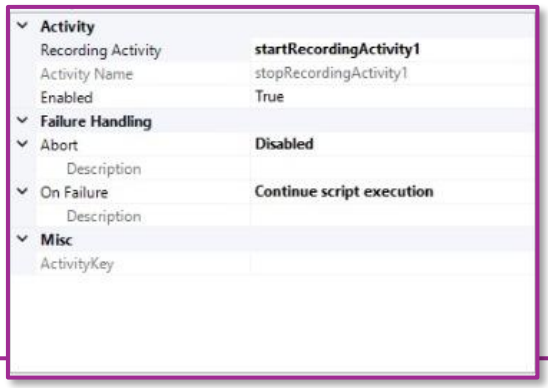

Figure 8, Stop Recording Configuration

5.1 ADB Start

as described in the section on methodologies. An essential component of measuring OTT media is this ADB activity. The configuration's ADB command section needs to be set up as indicated below. There is also a start and stop section for the ADB operation.

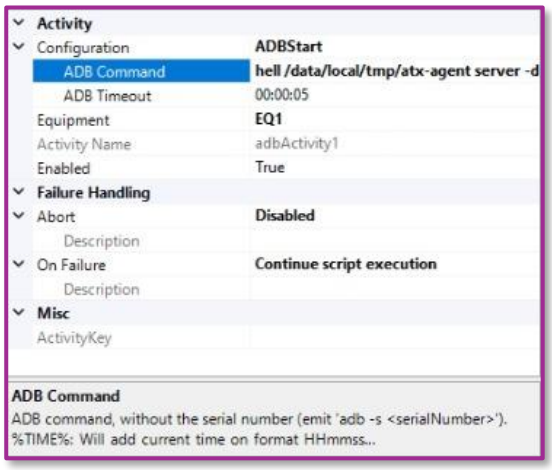

Figure 9, ADB Start Configuration

6.1 OTT Media (Tiktok, Netflix, Facebook)

To test OTT Media, you must use the OTT Media script. Several settings in the Configuration are required for this OTT Media Activity such as:

1. OTT Media Type: This section determines the type of OTT to be carried out, such as voice calls, video calls, and so on. However, in this whitepaper, OTT Media will be carried out using the type Video Streaming.
2. Script Path, In the OTT Media configuration, TEMS will run additional scripts automatically. And this section defining the path of the script is kept.
3. Script Argument, In this section is an additional argument that will be added to the script that was established in point number 2. We must input the video link (Netflix, Facebook, TikTok video link) that will be opened during testing so that it may be executed automatically by TEMS Script.

Figure 10, OTT Media Tiktok Configuration

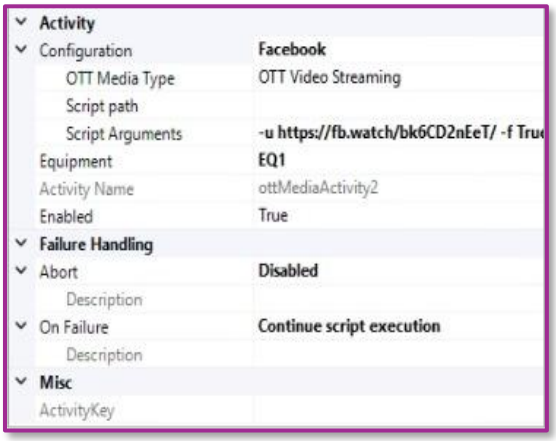

Figure 11, OTT Media Facebook Configuration

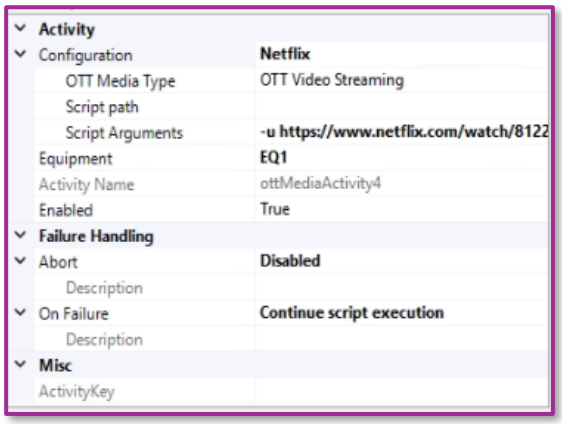

Figure 12, OTT Media Netflix Configuration

7.1 ADB Stop

The server that has been configured by the ADB command in the ADB Start section is stopped by the ADB Stop activity. The ADB command configuration is where ADB Start and ADB Stop differ from one another.

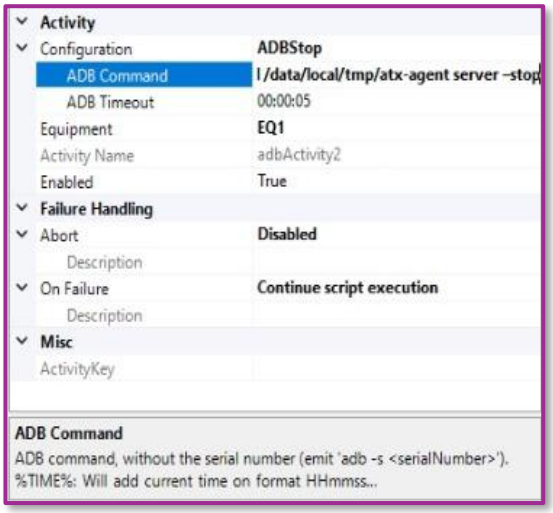

Figure 13, ADB Stop Configuration

SUMMARY

Over-The-Top (OTT) media services have become increasingly popular in Indonesia in recent years. Indonesians now use platforms like YouTube, Netflix, TikTok, and others on a daily basis to get information, entertainment, and education. Because of this its Important for MNOs to measure OTT Media and these are the reasons:

1. MNOs can always in check and up to date about their network performance, especially for OTT media. MNOs can also compare the quality of their network in some areas each month whether it improves or not.
2. because OTT media is widely used in Indonesia. It's critical to monitor the network's performance regarding OTT media so that MNOs can take preventative and corrective measures to ensure subscriber or user satisfaction based on data collected in the field.
3. The obtained network performance data can be utilized for collaborative talks or technical collaboration with OTT partners to optimize content distribution.

From this whitepaper it shows that Innogem is ready and more than capable from tools and human resources to do the measuring for the OTT Media.