iab. TECH LAB

Podcast Measurement Technical Guidelines
Version 2.2

Released May 2024

About This Document
The IAB Tech Lab Podcast Technical Measurement Guidelines was developed to address measurement of downloaded media and the ads included in those downloads. Companies can apply for compliance with these guidelines, but compliance details are defined separately. Visit https://iabtechlab.com/compliance-programs/ to learn more.

About IAB Tech Lab
The IAB Technology Laboratory is a nonprofit research and development consortium charged with producing and helping companies implement global industry technical standards and solutions. The goal of the Tech Lab is to reduce friction associated with the digital advertising and marketing supply chain while contributing to the safe growth of an industry. The IAB Tech Lab spearheads the development of technical standards, creates and maintains a code library to assist in rapid, cost-effective implementation of IAB standards, and establishes a test platform for companies to evaluate the compatibility of their technology solutions with IAB standards, which for 18 years have been the foundation for interoperability and profitable growth in the digital advertising supply chain. Further details about the IAB Technology Lab can be found at https://iabtechlab.com.

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Please contact support@iabtechlab.com if you have any questions or comments about this document. This document and other related resources can be found on the IAB Tech Lab website at: https://iabtechlab.com/standards/podcast-measurement-guidelines/

Contributing Member Companies

The IAB Podcast Measurement Technical Guidelines document was developed by the IAB Tech Lab Podcast Technical Working Group, in partnership with the IAB Audio Committee. The following IAB Tech Lab member companies contributed to the update of this document:

- A+E Networks
- Acast
- ACPM
- Ad Results Media
- Adelaide
- AdLarge Media
- AdsWizz
- Algorix
- ART19
- Audacy
- Audio Alliance GmbH
- Audion
- Audit Bureau of Circulations UK
- Barometer
- Barstool Sports
- CBC Radio Canada
- Centillion
- Chartable
- Dailymotion
- Doceree
- DoubleVerify
- Epsilon
- ESPN
- Experian Marketing Services
- Extreme Reach
- Global Media & Entertainment
- Google LLC
- GroupM US
- Hearst
- Hubhopper
- IAB Germany
- IAB Tech Lab
- IAB UK
- iHeartMedia
- Julep Media GmbH
- Jun Group
- Kantar Media Sweden AB
- Katz Media Group
- Kinesso
- Libsyn
- Lucid
- Magellan AI
- Media.net Advertising FZ LLC
- National Public Media
- NBCUniversal
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- Nexxen
- Nielsen
- Nova Entertainment
- NPR
- Omny Studio
- Oracle Advertising & Customer Experience
- Paramount
- Podigee GmbH
- Podscribe
- Podtrac
- Protected Media
- Publicis Media
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- RawVoice
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- ResponsiveAds
- SiriusXM Media
- Slate
- Sony Music Entertainment
- Sounder
- Sounds Profitable
- Soundstack
- Spreaker
- StackAdapt
- The Daily Wire
- The Inquirer
- The New York Times Company
- The Trade Desk
- TripleLift
- Triton Digital
- Veritonic
- VRTCAL
- Warner Bros. Discovery
- Westwood One
- WideOrbit
- Xaxis

A list of current members subscribed to the Podcast Technical Working Group can be found at https://iabtechlab.com/working-groups/podcast-technical-working-group/

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1. Executive Summary

Podcast audiences represent a growing segment of effective marketable media. Podcast ad revenues are expected to reach over $4 Billion by 2025—more than double posted revenues in 2022--according to the IAB Podcast Advertising Revenue Study conducted by PwC US and posted May 2023. Podcasts offer advertisers hyper-focused audiences that remain attentive even during ads. Podcast listeners have been shown to be the most loyal and engaged audience of any digital medium.

The stakes for revenue in podcasting are growing, and the need to attract buyers will become more competitive over time. To foster a fair market for podcast businesses, IAB Tech Lab and the Podcast Technical Measurement Working Group developed and maintains guidelines for metrics used in podcasting.

Measuring performance in podcast advertising is unique in the market of digital advertising. Podcast episodes are downloaded for consumption and measurement is based on server logs. This is in contrast to other digital mediums that typically maintain an open connection between a consumer's device and the content server. This nuance produces different metrics in podcast advertising.

The challenge for podcast producers and distributors is to offer buyers a set of metrics that is consistently defined and measured equally across the podcast medium. This document provides an overview of ad delivery in podcasting and describes the technical process for measuring: downloads, audience, and ad delivery. IAB Tech Lab also offers a compliance program for companies who wish to signal to buyers their adherence to these guidelines.

With a consistent set of podcast advertising metrics, buyers and sellers can engage in a conversation about campaign strategy with confidence.

1.1   About Compliance

This document informs the [Podcast Compliance Program](#) provided by IAB Tech Lab. However, because the Podcast Technical Measurement Working Group defines these guidelines, and because many of the member companies go through the compliance process, the Compliance Program must be defined separately to gain the trust of buyers and meet basic expectations for third-party certification.

To claim compliance with these guidelines, an organization must go through the IAB Tech Lab certification process and get listed on the IAB Tech Lab website.

To learn more about Tech Lab's Compliance Program, visit:
https://iabtechlab.com/compliance-programs/podcast-measurement-compliance/

For a list of compliant podcast companies, visit:
https://iabtechlab.com/compliance-programs/compliant-companies/#podcast

1.2   Who Should Read These Guidelines?

While all professionals in the podcast supply chain can benefit by being familiar with this document, metric definitions are primarily intended for podcast producers and distributors who provide measurement services. Specifically, account managers should be familiar with and use metrics as defined in this document when negotiating ad packages with buyers. Additionally, publishers and podcast hosting platforms should use the metric definitions in this document to design or adjust the ad measurement technology they use to analyze server logs for podcast ad measurement. Podcast creator organizations should also familiarize themselves with these guidelines to understand how ad measurement for their content is accomplished when they partner with a compliant podcast publishing service.

Buyers should also reference this document to better understand how ads placed in podcast content are counted. This document offers a set of metrics that establish a mutual understanding in podcast advertising negotiations.

1.3   About this Version

The first version of this document was released in September 2016. Additional significant updates were made with version 2.0 released in December 2017. Updates in version 2.1, released in 2021, included language edits for more clarity, a new section with guidance on user agent structure, recommendations for IPv6 IP addresses, filtering guidance for Apple watchOS user agents, and a number of additional podcast player recommendations.

Updates in version 2.2 (this version):

- Added disclaimer language to highlight that patents might be involved in the processes we recommend and that it's up to each company to do "due diligence" on finding such patents and seeking appropriate licenses where necessary.
- Clarified the difference between measurement using a redirect for downloads and measurement based on complete server logs for downloads. Section 5.2
- Added language to explain invalid traffic and the difference between general invalid traffic (GIVT) and sophisticated invalid traffic (SIVT). Section 5.3
- Clarified that an ad can only be counted as valid if it's part of a valid download.
- Described how a "fixed" measurement window and a "rolling" measurement window impact results, and the need to declare which method the company is using. Section 5.4.1
- Divided the Podcast Measurement section into two parts: one for the measurement process and one for the metrics. Note in Section 5.4.2
- Applied a numbering scheme to simplify cross-reference.
- Included language about using a document of methodology (DOM) to be transparent about specific methods (in sections where relevant)
- Moved player recommendations from the appendix to the main doc to support player companies working with podcast publishers and distributors. Section 7
- Moved the requirement to filter out downloads by a UA for Apple Watch from addendum to body of the guidelines for filtering process. Section 5.4.2, Step 1.2.
- Included a more broad requirement to account for changes in technology and signaling that might impact measurement. Section 8.2

2. Overview

Podcast content is an on-demand media format that listeners either download to listen to later or consume online. Unlike the streaming format more common in video, podcasts continue to be downloaded because of the convenience offered by existing platform and application functionality.

Despite the use of the word "streaming" in podcasting, "streamed" podcast files are progressively downloaded via the standard HTTP protocol.

The delivery of a streamed podcast is logged the same way as a downloaded file in the server logs. This important distinction impacts the ability to measure content and ad delivery in real-time without access to client-side analytics. Podcast publishers must work around this limitation and track metrics using server log data.

2.1 The Advantage of Podcast Syndication

Podcast consumption relies on and benefits from a fragmented ecosystem. This fragmentation allows consumers to access podcasts wherever they want - with any podcast app or on websites offering to consume podcasts. Podcast creators and advertisers benefit by being able to reach a larger audience compared to an ecosystem limited to only one place of consumption.

The ability to track podcast content and ad playback largely depends on the player requesting the file. Podcast aggregator apps, like Apple Podcasts and Spotify, typically do not send playback data to publishers. Host-branded players (players owned by the podcast producers) can provide playback data for podcasts consumed using their branded app; however, this playback data represents limited reach because the majority of listeners prefer aggregator apps over host-branded ones.

Despite the limitations, podcast audiences are growing and offer valuable exposure for marketers. In order to offer this value to buyers, metrics must be consistently defined across the industry. IAB Tech Lab collaborates with the podcasting community to establish and maintain metric definitions that can be used consistently in the podcast marketplace.

Establishing consensus and clarity for podcast reporting metrics improves communication and establishes trust and accountability with buyers.

2.2 Scope

This document defines content, ad, and audience metrics in the context of downloaded podcasts whether saved for later listening or listened to while being downloaded. In this context, both formats are typically pre-recorded and available on demand whenever the listener is ready to access the files.

Podcasts that use true streaming technology offer the ability to track activity in real-time or near real-time with "client-confirmed ad delivery." We cover this one metric as part of the measurement guidance provided in this document. Additional measurement guidance for true streaming audio is covered in the MRC Audio Measurement Guidelines released January 2018. However, the percentage of market share for true streaming apps is too small to represent true performance in a podcast campaign. A well-rounded analysis of podcast measurement includes metrics for ad delivery in a medium with limited client-confirmed playback data.

For the sake of establishing common ground in tracking podcast performance, the definitions presented in this document focus on counting ad delivery in downloaded and progressively downloaded podcast episodes. This count comes from analyzing server logs to determine what was actually delivered.

3.   The Podcast Medium – Content Delivery

Podcast listeners acquire podcast files in one of two ways: either by downloading the file for later listening (downloaded), or by listening while the file is downloaded (progressively downloaded). To a lesser degree, some podcasts may also be played while a persistent connection to the server is maintained (streamed), but the market share for applications that support this format is insignificant for campaign measurement and excluded from discussion here.

Delivery methods for downloaded files, whether listened to later or during download, offer valuable inventory to advertisers, but content and ad delivery are handled differently in both environments. An overview of each format is explained in the following paragraphs. Despite different tracking capabilities in each environment, a few baseline metrics should be able to offer similar reports for both podcast types.

3.1   Downloaded Podcasts
Podcast downloading allows the audience to download full episodes of content that can be played at a later date and time. Listeners may subscribe to select programs, and platforms like Apple Podcasts continue to support full downloads to a personal library for listening offline at any time in the future. The convenience of this system makes downloaded podcasts a continued preference among listeners.

3.2   Progressively Downloaded Podcasts
These podcasts appear to be streamed, but the file is actually being downloaded while the listener is listening to the file. The downloaded file is stored in a temporary location rather than to a library as with a downloaded podcast. Since progressively downloaded files are typically downloaded the same way as the files stored for later listening, delivery for these two formats are recorded the same way in the server logs. The only difference between the two is whether the listener is actively playing the file as it is downloaded or being saved for later listening - which can only be discerned by the player.

3.2.1   Raw Server Logs for Progressive Downloads

In a downloaded file, segments of the file are collected on the listener's device, or progressively downloaded. These progressively downloaded files result in a server log with several requests to the server, which must then be analyzed and filtered from other server requests in order to represent how many files were downloaded and to what audiences. When podcast publishers use a consistent process, metrics can be reported and trusted with a high level of confidence.

4.   The Podcast Medium – Ad Delivery

Podcast ads can be delivered and tracked in a variety of different ways, but in general two different methods are used with variations on each.

4.2   Integrated Ads

Historically, podcasting ad campaigns often involved ads that were read by the podcast host or a familiar voice. A static ad or jingle may be also included as part of the file. These ads are part of the content and included, or "baked-in," with the file that is downloaded. Targeting is limited because everyone who downloads the file gets the same ads.

4.3   Dynamically Inserted Ads

In recent years, ad technology has allowed for ads to be targeted and dynamically inserted at the time of file request (rather than recorded directly into the audio file). The ad server determines the best ad to serve to the listener at the time of request. In a podcast consumed online, ads may be inserted into a file that is being progressively downloaded at designated ad breaks.

4.4   Sponsorship Ads

Ads that directly sponsor a podcast episode have typically been host-read, or integrated as described in 4.2 above. However, with today's technology and business models, sponsorships can be dynamically inserted as described in 4.3.

5.   Podcast Measurement Process[1]

Most players that initiate a podcast download (client) send no information about playback, which is in contrast to other IP-connected mediums that rely on client signals to confirm the ad was received. In podcast measurement ad play is calculated based on server logs that provide information about what was served.

5.1   Measurement with Server Logs

In order to produce accurate counts for podcast downloads and ads, podcast hosting, measurement, and monetization companies must analyze server logs. These server logs may include file requests for a combination of downloaded podcast files, dynamically inserted ads, and any content requested by the web page or application hosting the player. HTTP GET requests usually contain the following data:

- **IP Address** - The IP address is one of the factors that may be used to determine if the request is unique or a duplicate, except when the IP address is of known corporate offices, dorms, and other IP-connected setups where multiple people share one IP address. The IP address is also used to determine geographical information on where the podcast is downloaded. Both IPv4 and IPv6 IP formats are accounted for in measurement data outlined in this guidance.
- **Time Stamp** - The date and time is used to define a 24-hour window (either by calendar day or rolling 24 hours) in which downloads are filtered for duplicates.
- **HTTP Status Code** - The appropriate HTTP status code is examined to determine if the request should be counted.
- **Bytes Served** - only available in native server logs, the bytes served value may be used to determine how much of the podcast was downloaded.
- **Referrer** - The origin of the download, if available, provides details about the download, such as whether the content was auto-played (in which case the download would be removed or reported).
- **User Agent** - The identifier for the app or service consuming the media, which helps to determine if the download request is unique.
- **Byte Range** - The range of bytes requested in a given request, used to determine what portion of the media is requested. A low byte range may signal a pre-download which is excluded from valid counts.

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[1] Please be advised that: (i) one or more of the measurement processes described herein may be subject to patents; (ii) IAB Tech Lab has performed no diligence and has not analyzed the validity of any of these patents; (iii) IAB Tech Lab is not promulgating any standards or specifications under these guidelines; and (iv) prior to implementing any measurement processes described herein, you are solely responsible for conducting any such diligence and analyses and/or licensing any necessary patents.

When analyzed across multiple requests, filtered log data offers statistics that represent podcast downloads, audience and ad delivery. Since media technology is always changing, no specific combination of factors or techniques will offer the most accurate count indefinitely. However, meeting some minimum requirements and following some best practices will help produce more consistent results across providers and platforms.

This guidance outlines best practices for filtering server logs for measurement and defines specific metrics for podcast content measurement, audience measurement, and ad measurement. Podcast producers and distributors may include additional metrics beyond the ones defined here, but such additional metrics should be labeled separately from the core list of IAB Tech Lab metrics.

5.2   Measurement Using a URL Prefix

Measurement can be done by appending a prefix to the download URL, collecting most of the data elements listed above for the GET requests, and counting how many times that prefix was used to trigger a download. This method of measurement tracks the download request, but not the server response.

For example, a prefix measurement vendor may not be able to discern how much of the file was downloaded because it can't directly gather data on how many bytes were consumed. The vendor may be able to obtain this information from other sources, but the results will vary from measurement using filtered server log data that include bytes served.

Validation of this measurement method is distinct from working with podcast hosting platform server logs and must be proven to meet the recommendations provided in this document. For example, partial download removal might be accomplished by comparing prefix measurement counts to server log data from either the vendor's own first-party server logs or a partner's first-party server logs.

5.3   Invalid Traffic

In podcasting, downloads generated by bots or other systems that will not be heard are considered invalid traffic. In all advertising mediums, invalid traffic (IVT) can be broken down into two categories: general and sophisticated.

General IVT is generated by crawlers (bots, spiders, etc.), known data centers, pre-fetching, and other general routine practices that can be easily filtered from logged data using common practices and technology that identifies general IVT.

Sophisticated IVT, on the other hand, is more difficult to detect because it's intended to look like human traffic, and in most cases, is fraud. This kind of traffic is generated using hijacked devices, bots designed to mimic human traffic, by manipulating data, or using other technology and tactics to generate false audiences for advertising. The public version of this guideline will not offer specific guidance on what to filter because the organizations generating this kind of IVT might read that same guidance and adjust their strategies. That said, your organization can implement practices that look for anomalies in the data and address them as appropriate.

Valid measurement outlined in this document includes filtering recommendations aimed at minimizing invalid traffic. While more data is needed to set specific thresholds for measurement compliance, the filtering guidance offered here will catch most general IVT and some of the more obvious sophisticated IVT. Companies trying to catch more sophisticated IVT can look to additional resources and services for a higher level of accountability to their customers and partners.

5.4   Recommended Process for Measurement

While we have made the effort to be specific with our guidance on filtering server log data for measurement, publishers and distributors will have to consider best practices to align with their circumstances. For certification, metrics providers must support the process outlined in this document to the best of their ability, or follow a process with a similar or more stringent level of analysis, disclose the options selected, disclose where they diverge from the guidance in this document, and provide the rationale or circumstances that drove those decisions.

To claim compliance with these guidelines, an organization must go through the IAB certification process and get listed on the IAB Tech Lab website:

https://iabtechlab.com/compliance-programs/compliant-companies/#podcast

We recommend a 5-step process to generating metrics using server side log analysis.

1. Apply filtering logic
2. Apply file threshold logic
3. Identify and aggregate uniques
4. Generate metrics
5. Audit the process (feedback loop)

5.4.1 Measurement Window

Measurement is calculated for data within a 24 hour window. This 24 hour window can be a calendar day (fixed) or a rolling 24 hour window. Using a rolling 24 hour window can be more complicated, but the data will be more accurate. For example, using a fixed 24 hour window to count a download that spans the boundary of that fixed window means that part of the download happens on the first day and the rest of the download happens on the second day, which may result in counting the download twice. A rolling 24 hour window would only count that download once. Over the span of a few days, these discrepancies don't amount to much, but over longer periods of time the counting discrepancy between the two methodologies becomes more significant.

A company being certified under this guidance must disclose, in a corporate document of methodology (DOM), whether they use a fixed 24 hour window or a rolling 24 hour window for measurement.

5.4.2 Step 1: Filtering

All requests that should not be counted for any reason should be filtered out up front. The criteria we have identified for filtering are listed below.

Step 1.1: Eliminate Pre-Load Requests

Pre-loading of podcasts directly results in podcast downloads being counted when they should not. There are two possible solutions to handle this.

- Policy put in place to not allow preloading in players and on websites (e.g. preload=none for HTML5)
- Use a download threshold based on one minute of content, excluding any data used for headers or other information, to determine if request was for a play/download or for pre-loading (see Step 2 **"Apply file threshold levels"** below)

Look for evidence of pre-loading in the logfile data. If found, try to identify the source of the pre-loading, then contact the business responsible and ask them to correct the behavior.

Step 1.2: Eliminate Potential Bots and Bogus Requests

A number of scenarios include requests that should not be counted because they likely come from bots or from systems designed to mimic human behavior for downloads. This step is a first defense against general invalid traffic.

Metrics providers must filter out the following:

1. IP addresses that cannot originate to actual listeners (such as known servers instead of listener devices).
2. IP addresses that account for a large number of downloads in the 24 hour period used by the metrics provider. Large numbers of downloads that represent an unrealistic number of downloads for a single listener should be examined for potential fraud. (But also look at the safe IP addresses note below.)
3. IP addresses that are identified from sources that are not actual listeners (such as requests that come from known bots, data centers, VPN traffic, or other non-human sources.)
4. Erroneous referrer data. Referrer data is rarely available, but it provides valuable information when it is. For example, accurate referrer data can imply that certain sources are not actual listeners. Check for accuracy on any available referrer data.
5. Malformed user agents. For example, a legitimate Firefox version number is 55.0.2. However, a bogus user agent could use the device label "Firefox 55.02" which only lacks a period "." separator between 0 and 2 and looks like a legitimate user agent. This could be an error or intentional. Be wary of malformed user agents, which prevent proper filtering. If simply malformed, then correct, and if intentionally false, filter them out.
6. User Agents that identify to be from sources that are not actual listeners (e.g. bots that self identify as being bots)
7. Some apps perform a 2 byte range request (Range: 0-1) to check if the media file can be downloaded using byte range requests. This kind of request is often immediately followed by 1 or more additional range requests. Disregard any 2 byte (0-1 byte) range requests. These requests don't represent a valid download.
8. Duplicates on paired Apple Watch devices indicated by UA's that begin with atc/ and include watchOS (/for example atc/1.0 watchOS/), or UA's that contain (null)/(null) watchOS

> **Note:** Known "safe" IP Addresses (dorms, corporations, etc.) should be maintained in an inclusion-list and be allowed for counting. These inclusion lists must be re-validated at least every 90 days since IP addresses may not be static. Keep a record of list re-validation to share with customers and partners to indicate efforts for combating invalid traffic.

Step 1.3: Handling HTTP Requests

Different types of HTTP requests indicate different kinds of behavior in the server logs. HTTP requests in the server logs should be handled as follows:

1. HEAD requests: typically used to check for changes. No data is transferred in a HEAD request, so these requests should be excluded.
2. GET requests:
   a. 200 (ok response): valid count for downloads
   b. 206 (partial response): only count if the download covers the 1 minute rule defined in 1.2 above, and de-duplication based on IP Address/UA to cover cases where the listener might be skipping ahead. Determining whether the requests cover the 1-minute requirement might require reassembling requests.
   c. 304 (not modified response) -> signal that the user has an existing file and wants to see if it changed. These should not be counted.
3. There may also be platform specific quirks to watch for. For example, Akamai uses a HTTP code of 000 for 206 requests that ended prematurely. These requests can only be counted if they pass all measurement filters.

5.4.3   Step 2: Apply File Threshold Levels

Downloads below a certain size are unlikely to result in human consumption because too little of the file was received to listen to any content. The following rules help eliminate the downloads that are too small to be counted.

1. To count as a valid download, the header information plus ***enough of the podcast content to play for 1 minute*** should have been downloaded.
2. ID3 size recommendation – since the ID3 file size can vary quite significantly, each publisher should measure the ID3 tag file size for each podcast. To be more efficient in cases where the ID3 size doesn't change, the publisher could set a size for the show/program and whenever the artwork changes, re-calculate the size.
3. Content size recommendation – the size of the download for 1 minute of content will vary based on the bitrate used and the amount of bytes ID3 headers consume. The publisher must calculate this size for each episode.

This step requires a continuous monitoring of the podcasts as each episode gets served.

Alternatively, if the podcast episode is shorter than 1 minute or if it isn't possible to compute the file and ID3 sizes regularly, **complete file downloads** (100% of the file, including the ID3 tag or other header information) should be used.

> **Note:** One minute was chosen as a conservative minimum size since other mediums use similar or smaller thresholds.

> **Note:** When byte range request data is not available, more advanced algorithms that factor in a correction for partially downloaded content may be used. Such a system must disclose how their system overcomes not having the byte range data.

5.4.4 Step 3: Identify and aggregate uniques

Once filtering is completed, requests should be aggregated to identify uniques in the following two scenarios.

Scenario 1: Identifying Uniques (for Downloads & Listeners):
Identifying unique requests is important in counting downloads for an episode and in counting audience size. The standard way to sort downloads and remove duplicates is to match an IP address with a user agent (UA); however, additional metadata may be available for the download and may help further reduce duplicate downloads. Details for all methods should be made transparent.

First, filter using IP address + user agent (UA); then filter using additional metadata if available.

Filter for **IP Address + UA** with the following considerations:

- A combination of IP Address + UA is used to identify unique listeners and downloads. For example, if the same file is downloaded 10 times by 6 user agents behind one IP address within a 24 hour window, that would count as 6 listeners and 6 downloads.
- This method requires some technique to constrain counts for a maintained exclusion-list for blocking IP addresses that excessively download/play at a rate that is not feasible.
- To better support known high density IP Addresses (dorms, corporations, etc.), an inclusion-list of IP Addresses may also be maintained. For these IP Addresses, different filtering rules may be needed to account for a concentration of similar devices.

Scenario 1 *(continued)*: **Identifying Uniques (for Downloads & Listeners):**

Filter for **Additional Metadata**
Companies can filter using additional metadata if available. When using additional sources of data, these companies must be transparent about what metadata is being used.

Examples of additional metadata may include:

- UserId
- Cookie or similar identifier
- X-playback sessionID

Scenario 2: Play-Pause-Play Scenarios
If a unique download is divided into multiple file requests, for example if a listener plays the first half of an episode using a website audio player, clicks pause, and then resumes an hour later, that counts as one unique download.

Regardless of the use case and the metadata used to filter for uniques, companies must be transparent in their methods by communicating their methods in a corporate description of methodology (DOM).

Working with IPv6 Addresses

The members of the Podcast Technical Working Group recognize that measuring unique devices assigned with IPv6 addresses poses certain challenges. IPv6 addresses are not static, and multiple new addresses are cycled on a single device in a given time period. Without special consideration, this feature of IPv6 addresses could result in inflated metrics, and could also impact frequency capping of ad campaigns.

The Podcast Technical Working Group has researched methods to address potential discrepancies attributed to IPv6 measurements to define the following treatment for IPv6 based measurements.

The best way to handle IPv6 addresses is to truncate it to its first 64 bits before calculating. The IP addresses used in calculating metrics is a combination of full IPv4 IP addresses along with partial IPv6 addresses truncated to 64 bits.

> **Note:** IPv4 or partial IPv6 addresses can be hashed for privacy reasons without affecting the above formulas. Truncating IPv6 addresses to 64 bits may result in a few duplicated listeners; however, our research has shown that results are comparable to the results for non-truncated IPv4 calculations. Ultimately, metrics providers must be transparent about the methodology used.

5.4.5   Step 4: Generate Metrics

Once the requests have gone through the filtering process above and uniques have been identified, generate the metrics defined in section 6, as well as any additional / custom metrics supported. The metrics should be formatted, and delivered according to each company's process and policy, using their choice of analytics technology.

5.4.6   Step 5. Audit the Process

The goal of this section is to allow for adjustments to metrics generation. Measurement platforms must watch for behavior that indicates diminished quality of the metrics, and investigate the source of potential errors or fraud.

The entire process must be self-audited and reported in a corporate document of methodology at least twice a year. Anomalies, such as uncharacteristic spikes or drops in data, should be identified and metrics adjusted based on deeper investigation.

Future cycles of metrics generation should factor in any learnings from each run. For example, if certain IP addresses are identified as generating downloads not intended for human consumption, downloads from those IP addresses must be removed from current metric generation, and the IP address must be added to an exclusion list for future metrics generation.

6. Podcast Metric Definitions

Since podcast ads are so closely integrated with podcast content, metrics that measure content are vital to ad measurement in podcasting.

Show producers, executives, marketing, and digital product teams are interested in the following questions:

- **Audience:** How many people are downloading my network/show/episode?
- **Downloads:** How many times is my network/show/episode downloaded and potentially listened to, at least in part?

Podcast metrics are broken down into 4 categories:

1. Podcast Content Delivery
2. Podcast Audience
3. Podcast Ad
4. Higher Level or Advanced

The metrics for each category are defined in the following sections.

6.1   Podcast Content Delivery Metric Definitions

The following metric is used to describe content downloads. Server log analysis for content delivery must filter data to produce metrics as defined below.

1. **Download:** a unique file request that was downloaded. This includes complete file downloads as well as partial downloads in accordance with the rules described in section 5, which outlines the filtering process for measurement.

6.2   Podcast Audience Metric Definitions

Podcast listeners often download more than one episode and often from more than one podcast. A measure of how many people downloaded episodes can be used to describe the reach of the podcast or group of podcasts.

HTTP requests include the IP address of the client receiving the file and usually include a user agent that, while not unique to the listener, provides some ability to distinguish multiple listeners behind one IP address.

2. **Listener**: data that represents a single user who downloads content (for immediate or delayed consumption). Listeners are represented by the unique combination of IP address and User Agent as described in section 5, step 3. Listeners must be specified within a stated time frame (day, week, month, etc.).

> **Note:** The nature of podcast consumption involves listeners on mobile devices, which means that the IP addresses change frequently for each listener, or what we call "IP-hopping." IP-hopping can result in double counting listeners, but IP addresses can also be recycled, resulting in undercounting listeners. These factors can be difficult to account for. Shorter time frames can produce better results while longer time frames exacerbate the issue. The time frame within which counts are provided should be disclosed to customers.

Listener metric using IPv6 Addresses

The best way to handle IPv6 addresses is to truncate it to its first 64 bits before calculating the *listener* metric, which is a combination of IP + UA. Please see Working with IPv6 Addresses under Step 3 of the filtering process for details.

> **Listener** = Count of Unique (IP* + UA)

> *Either the full IPv4 or a partial IPv6 (prefix 64 bits).

6.3   Podcast Ad Metric Definitions

The following metrics represent the first step toward improved ad measurement in podcast advertising. These metrics are derived using the content metrics defined above. As these metrics become adopted in the industry, additional steps can be made toward an improved podcasting ecosystem.

3. **Ad Delivered:** an ad that was delivered as determined by filtered server logs for validated downloads that show either all bytes of the ad file were sent or the bytes representing the portion of the podcast file containing the ad file was downloaded.

   For example, if an ad was included within the first 25% of a podcast and at least 25% of the podcast file was downloaded, then the ad can be counted as delivered.

   When ads are dynamically inserted into the podcast file or within an ad break within the podcast, 100% of the ad content (all bytes) must be downloaded before it may be counted as delivered.

   > **Note:** An ad can only ever be counted as "ad delivered" if the download it belongs to is determined to be valid. For example, if a 30 second pre-roll ad was included in a download that never got 1 full min downloaded, the ad cannot be counted as valid even if the ad itself was fully downloaded.

4. **Client-Confirmed Ad Play:** counts an ad that was able to prompt a tracking beacon from the client when the file was played. Whenever possible, metric should include information about how much of the ad was played using the markers: ad start, first quartile (25%), midpoint (50%), third quartile (75%), and complete (100%).

    While the client-confirmed ad play metric represents the most accurate count for ad plays in a podcast, it requires client-side tracking. As discussed earlier, the platforms used to download, store, and play podcast files lack or prevent the availability of client-confirmed metrics. The IAB Tech Lab will continue working with player platforms to get more access to client side beacons.

6.4   Higher Level or Advanced Metrics

All the metrics described in previous sections were written with a focus on episode level analysis. The *content* and *ad delivered* metrics described above could be applied at 3 levels: publisher, show, and episode.

Client-side tracking or access to some sort of listener ID–for example using cookies or using an Identifier For Advertising (IFA)–would be ideal for tracking audiences over time, but this can be approximated using analytical methods as described below.

If metrics providers have the ability to identify the listener, they should indicate the mechanism used to identify listeners and provide metrics (downloads, listeners and any other additional metrics supported) at the show and publisher level in order to provide a better picture of that podcast's reach.

Lacking a listener ID, building metrics can be done using one of the following options:

1. **Sum the metrics across podcast episodes.**

    Acceptable if the goal is to just count the total number of unique downloads, but does not provide a view of the listener base due to audience overlap.

2. **Use the IP Address & UA to identify and track listeners.**

    Provides a better view of the listener base, with certain limitations:
    - The IP Address for a listener could change – especially in the case of a mobile listener – at which point there is no way to correlate the 2 IP addresses
    - Using UA helps differentiate multiple listeners from an IP address, but breaks down when multiple listeners from an IP have the same kind of device/UA (as is somewhat common in corporate and educational settings)

    The above two negatives likely counteract each other over time, but any innovation to better handle these limitations are welcomed.

7. Podcast Player Recommendations

Companies that provide a player for downloaded podcast episodes can impact server logs used for determining metrics. We recommend the following guidelines for player set up and operations to minimize any impact on podcast measurement.

1. Do not implement auto-play except where listener intent is implied. For example, if a listener initiates play for an episode in their podcast player, the expectation is that the next episode will auto-play when the selected episode is complete. In contrast when a set-up that initiates auto-play upon a page visit or opening an app without any other actions to indicate intent, the result is a bad experience for the listener and inflates measurement metrics to include unwanted audio play.

2. Do not preload podcast episodes unless the intent was clearly to play the podcast.

3. Use header information located at the start of the podcast to prevent a full download when not needed.

4. For a full download, ask for the entire file at once. For a progressive download, ask for the file in slices at a byte range that is more than 2 bytes at a time. This way a full download can be distinguished from a progressive download.

5. Do not modify the enclosure URL when requesting media or add extra parameters.

6. Do not cache podcast episodes on your servers. Always download the latest episode from the enclosure URL for every app listener initiating a download.

7. Use the GUID—as opposed to episode URL, title, publication date, etc.—to identify new episodes in the RSS feed that should be automatically downloaded to a listener's device. The GUID is designed to be persistent regardless of changes to hosting environments, titles, or other details.

8. Employ an "automatic download unsubscribe" behavior. For example, after a number of inactive downloads (episodes never played), stop auto downloading additional episodes.

9. Do not automatically download all episodes (e.g. back catalog episodes) by default. This behavior creates unnecessary drain on the publishers' servers as well as consuming listeners' bandwidth. It also creates a spike in downloads on server logs that require resources for troubleshooting the spike, explaining it, and addressing it.

10. Provide enough details in the user-agent header to allow it to be consistently differentiated from the user agent of other devices. See "User Agent Structure" below.

In addition to listener experience issues and slowing down the websites, if these guidelines are not followed, measurement companies may decide to discount ALL the traffic from these apps/sites because they cannot count true downloads or plays.

7.2   Agent Structure

Device platform providers and app developers used to play podcast episodes should provide enough details in the user-agent header so that it can be consistently differentiated from the user agent of other devices. Using the following pattern to build the user-agent will offer a consistent structure for all parties who consume the details:

```
<app name>/<app version> <device info> <os name>/<os version><other info>
```

For example:

```
AppName/1.2.3 DeviceBrand DeviceModel OSName/1.2.3 LibName/1.2.3
```

Whenever possible the above user agent structure should be applied to both RSS feeds and audio files.

We recommend that OS hosts should allow the user agent to be modifiable when using their libraries. Player platforms should be conservative about adding unnecessary information to the user-agent string and as part of their encoding practices. For example, refrain from injecting user or session IDs into the user-agent string.

We also recommend that platforms submit their user-agent header value to the IAB Tech Lab Spiders and Bots inclusion list so that it is not considered a bot, enabling the signal to be used for determining device information. If the app or platform uses bots to index content, the user-agent should be specified in a way that is distinct from the application user-agent and should also include the word "bot" to clearly identify its use case.

8.   A Use Case in Changing Technology

Certified companies put practices in place to watch for anomalous changes that impact measurement. The Podcast Technical Measurement Working Group with IAB Tech Lab includes companies that look at podcast download measurement on a daily basis. When they see a significant anomaly in their reports, they bring it to the attention of the Working Group and enter a process for discovering what is causing the anomaly and what to do about it.

The below use case demonstrates an example of a shift in technology and how the Working Group addressed the issue.

8.1   Apple watchOS Duplicate Downloads

Podcast server logs can be impacted when podcast player apps introduce new behaviors or updates. For example, wearable computing devices, such as a smart watch, may duplicate downloads for the paired phone device. Filtering for the known user agent helps metric providers remove the duplicate downloads. However, an update that changes how that user agent is made known may cause a spike in downloads. This exact case happened when Apple changed how it labeled the User Agent for Apple Watch.

In 2020, Apple Watch changed metadata conventions for its user agent that impacted metric providers' ability to filter out duplicate downloads. The spike in downloads was obvious to some of Tech Lab's compliant companies and made known to IAB Tech Lab. Once the source of the spike was identified as a change in metadata for Apple Watch downloads, an addendum was issued to highlight the change so that metrics providers could adjust their process.

The addendum required filtering out:

- UA's that begin with **atc/** and include **watchOS** (*for example atc/1.0 watchOS*)

That label was changed again and the addendum was updated to include filtering out:

- UA's that contain **(null)/(null) watchOS***

And yet again in recent years, Apple Watch became capable of downloading episodes independent of its paired device. The result of these changes is that companies seeking certification in Tech Lab's compliance program are required to filter out UAs for Apple Watch while today, some of those downloads may be a download that is unique and not duplicated on a paired device.

However, detecting whether the download on a paired device is a duplicate or unique could be a challenge, and as of the release of this document, Apple Watch downloads still represent a significant amount of duplication. For now, Tech Lab's guidance still requires filtering out Apple Watch downloads. Should the counting methodology change, a new addendum will be issued.

8.2   Accounting for Changes in Technology

The above use case was specific to Apple Watch and likely caught because of the higher market share for Apple devices. However, changes that impact podcast measurement happen on more devices and with more frequency than our version update cycle for podcast measurement guidelines.

Moving forward, compliant podcast measurement companies should have practices in place to account for mass market technology changes in their measurement reports. Such practices might include setting reasonable data thresholds to trigger warnings about anomalies in the data, a course of action when anomalous data occurs, a subscription to common development sites that report known issues or updates.

Measurement practices for your company depend on your business model and strategy. When seeking certification for compliance against these guidelines, be sure to share how your company accounts for changes in technology and what you might be doing to address any known issues or data spikes occurring in the market at the time of audit.

9. In Closing

Podcast syndication offers an enticing selection of inventory for audiences that are more attentive and more loyal to their podcast shows. Measuring podcast advertising performance is dependent on server-side counts and can offer sound data provided that podcast measurement providers adhere to the recommendations outlined in this guidance document.

The recommendations we provide help to define a fair market for podcast inventory because it reduces inflated counts that result from duplicate downloads, general invalid traffic (gIVT) such as known bots, some of the more obvious sophisticated IVT, and temporary anomalies in the data produced by changing technology or other significant events.

IAB Tech Lab's Podcast Technical Measurement Working Group will continue to deliberate over how to bring more clarity and fairness in measurement practices as well as ways to offer support for this growing and lucrative market. Continue to check in on our site at iabtechlab.com, or send your questions and suggestions to support@iabtechlab.com.