

# **Guidance for NAI Members:** Determining Whether Location is Imprecise

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The 2015 Update to the NAI Code of Conduct (Code) requires member companies to obtain a user’s Opt-In Consent to use Precise Location Data for Interest-Based Advertising (IBA). The NAI Mobile Application Code (App Code) has an identical requirement for member companies using Precise Location Data for Cross-App Advertising (CAA). Determining whether a member is required to obtain Opt-In Consent when using Precise Location Data centers on the level of “precision” of the data.

The definitions of Precise Location Data under the Code and App Code (together referred to as the Codes) are essentially identical and neither defines the term “precise.” Instead, the definition of Precise Location Data provides two explicit examples of how technologies are used to derive “precise” location and are therefore covered by the Codes. These include the use of latitude-longitude coordinates as derived from GPS and location as derived from Wi-Fi triangulation.

Precise Location Data is information that describes the **precise** geographic location of a device derived through any technology that is capable of determining with reasonable specificity the actual physical location of a person or device, such as GPS level latitude-longitude coordinates or location based Wi-Fi triangulation. - Section I.G of the Code

The commentary, found in both Codes, notes that Precise Location Data excludes data that is or will be altered such that a member cannot determine with “reasonable specificity the actual physical location of a person or device.” Such data is referred to as “imprecise” data in this guidance.

The main goal of this guidance is to provide clarity as to conditions under which location data is considered de facto imprecise. This guidance is based on feedback from the industry and the NAI’s own technical analysis, and is expected to apply to a majority of location-based practices in the marketplace today. The guidance defines when location data is de facto imprecise, provides clarification on how members may render location imprecise, and explains the process to otherwise determine whether location is imprecise. This guidance also explains how to apply these principles when receiving location data in various formats. Appendix A contains a flowchart summarizing the contents of this guidance.

In summary, the NAI’s research demonstrated that imprecise location data can be defined as geographic coordinates having the precision of two or fewer decimal places (or the geographical equivalent) consistent with the Codes’ reference to technologies used to determine Precise Location Data (i.e., GPS-level latitude/longitude coordinates and Wi-Fi triangulation).<sup>1</sup> Outside of that benchmark, NAI employs soft factors to encourage members to engage in practices that reduce the potential of re-identifying an individual through the location data and to reduce the potential sensitivity of that location.

**Please note that this guidance is not intended as legal advice regarding compliance with laws or regulations. NAI encourages members to consult with counsel regarding compliance with laws and regulations in all geographic regions applicable to their business, and to review and update business models, privacy policies, terms of service, advertisements, or other representations accordingly.**

<sup>1</sup> Location coordinates are generally two numbers used to describe the latitude and longitude of a location on the geographic coordinate system (e.g., 38.8977° N, 77.0366° W). Limiting the decimal places of these numbers will reduce the precision of these coordinates. For example, 38.8° N is less precise than 38.8977° N in describing a device’s latitude.

## Step 1: Real-Time Use

The initial step in a member’s analysis is determining whether location is stored or otherwise saved. If the member collects or receives location data, serves or delivers an advertisement in real time, and does not store the location once the ad is served or delivered, NAI sees it as a form of contextual ad delivery, and so therefore the member has no choice obligations under the Codes.

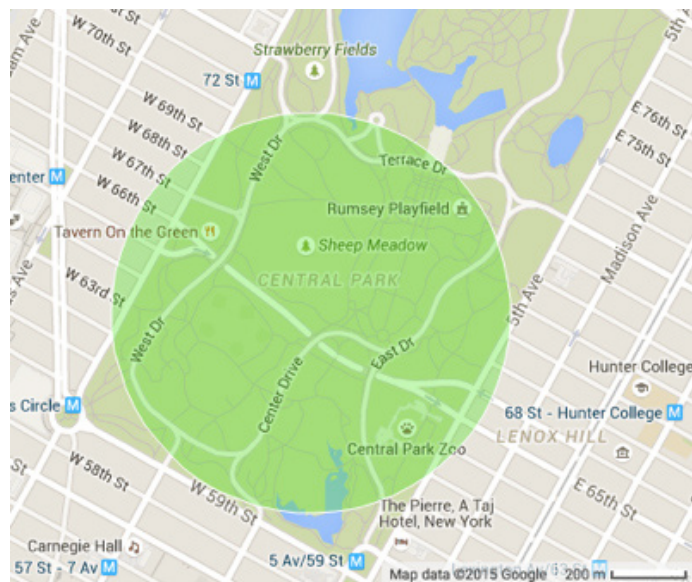
## Step 2: De Facto Imprecise

### BENCHMARKS FOR DE FACTO IMPRECISE LOCATION DATA

The second step in the analysis is to determine whether the location data is de facto imprecise. NAI members are not required to obtain Opt-In Consent when they use imprecise location data. To help members understand their obligations, NAI is providing formally defined benchmarks under which members are evaluated as using imprecise location data. To be clear, these benchmarks do not delineate the boundaries between precise and imprecise location data – they only serve to establish bright-line tests to help establish when NAI staff will classify location as imprecise without any further analysis during annual compliance reviews.

### LOCATION AS LATITUDE/LONGITUDE COORDINATES

When using latitude and longitude coordinates to determine location, the precision of the location increases as more decimal places are used. To limit precision, the use of two or fewer decimal places is considered de facto imprecise. It is useful to think about location as a geographic area where the member believes the consumer may be located, as shown in the image to the right. Current research shows that the use of two or fewer decimal places in latitude/longitude data is equivalent to knowing the location to the area of a circle with a radius greater than 500m with an accuracy of 68% or more.<sup>2</sup>



Comparison of a 500m radius circle and the width of Central Park

### LOCATION AS GEOGRAPHIC SHAPES

The above standard for circular shapes also applies to members’ use of non-circular geometric shapes or tiles (collectively referred to as geographic shapes) to represent a user’s location. Data that locates a device or person to a geographic area that is greater than the area of a circle with a radius of 500m (i.e., 785,398 meters<sup>2</sup>, 0.785 kilometers<sup>2</sup>, or 0.303 miles<sup>2</sup>) is de facto imprecise, regardless of the shape of that area.

<sup>2</sup> See Android Developer Documentation regarding the Precision of various location technologies (<http://developer.android.com/reference/android/location/Location.html#getAccuracy>), ([http://developer.android.com/reference/android/location/Criteria.html#ACCURACY\\_LOW](http://developer.android.com/reference/android/location/Criteria.html#ACCURACY_LOW)), the precision of iOS’s “significant-change” service (<https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/LocationAwarenessPG/CoreLocation/CoreLocation.html>), and Wikipedia’s article on Decimal Degrees ([http://en.wikipedia.org/wiki/Decimal\\_degrees](http://en.wikipedia.org/wiki/Decimal_degrees)).

## LOCATION AS NAMES OR ADDRESSES

Members may receive a name or address for the location (hereafter referred to as a “place”) instead of receiving location in the form of coordinates or geographic shapes. For example, a member may receive information through a Wi-Fi connection that the user is at a Starbucks at a specific street address in a given city. Similarly, a member may receive information that a device is in a particular city or neighborhood based on that device’s IP Address.

In scenarios where a place is used in lieu of coordinates or geographic shapes, the above standard for latitude/longitude coordinates applies to the geographic area of the identified place. Therefore, if the geographic area of the identified place is larger than the area represented by coordinates with two or fewer decimal places, then that place is de facto imprecise. To illustrate, Disney World, Central Park, and downtown San Francisco all have areas larger than 785,398 meters<sup>2</sup> and therefore, they are examples of de facto imprecise location.

When a place is a name referring to multiple locations, the above standard is applied to the combined size of all specific locations. Thus, knowing that a consumer or device is simply located at one of many national Starbucks stores, as opposed to a particular Starbucks, does not narrow the device’s location to a small area. Because the collective geographic area of Starbucks’ stores is larger than 785,398 meters<sup>2</sup>, it is deemed de facto imprecise.

## RENDERING LOCATION IMPRECISE

There are three primary ways to render precise location data de facto imprecise – dropping decimals, increasing the size of the geographic shape or place, and using general descriptors. Under all three methods, the relevant action must occur prior to storing the location data in order for the location to be rendered de facto imprecise.

Using the first method, a member may remove decimal places from the received coordinates before storing them. For example, if a member receives latitude/longitude coordinates with seven decimal places, this location would likely be regarded as precise. By dropping decimal places three through seven and then saving the coordinates with only the remaining first two decimals, the location is rendered imprecise.

Similarly, members may increase the size of the geographic shape or place to render location de facto imprecise. Thus, if a member receives information that a person or device is at a particular address, that member can render that location de facto imprecise by storing only the name of the city. Similarly, if a member receives information locating a person or device to an area with a size of 1,000 meters<sup>2</sup>, that member can render the data imprecise by only storing information that the person or device was in an area with a size of 800,000 meters<sup>2</sup>.

Finally, saving only a generic descriptor of the location is another way to avoid “identif[ing] with reasonable specificity the actual physical location of a person or device.” To illustrate, a member receives a latitude/longitude coordinate with seven decimals that identifies a specific Starbucks on the corner of 5th street and 6th avenue in Manhattan. The member only saves only the term “Starbucks”

The definition of Precise Location Data also does not include location data that has been altered, or will be altered, upon its provision for use in Interest-Based Advertising, so that a member is unable to determine with reasonable specificity the actual physical location of an individual or device. - Code Commentary, page 13

or “coffee”, based on that consumer’s location. This scenario does not constitute the use of Precise Location Data. Because “Starbucks” and “coffee” describe generic places (i.e., there are many Starbucks and Coffee shops in the US), they do not precisely locate an individual and thus the location is rendered imprecise if those general descriptors are saved instead of the latitude/longitude coordinate with seven decimals.

### **Step 3: Four-Factor Analysis to Determine Whether Location is Imprecise**

When location data is neither de facto imprecise nor rendered imprecise, the ability to identify an individual increases. However, this ability to identify the individual is also affected by additional factors such as population density and geographic area. In addition, the sensitivity of that location data tends to increase since the ability to determine exact places from that location (e.g., a particular hotel or house) is enhanced when using additional decimal places, smaller geographic shapes, or more specific places.

When location is neither de facto imprecise nor rendered imprecise, NAI requires members to consider four factors in their analysis to determine whether location is imprecise:

- a. the area of the identified location (e.g., how many decimal places were used in the location coordinates?),
- b. the population density of the located area (e.g., is the location of a crowded stadium or a country road?),
- c. the accuracy of the data (e.g., were extra decimal places in the coordinates added arbitrarily, such as trailing zeros?), and
- d. the presence and detail of the location’s timestamp (e.g., does the location describe a user’s location at a specific millisecond or specific month?)

No single factor listed above is dispositive of whether location is precise when evaluating these factors. Instead, all four factors should be considered. For example, if a member uses three decimal coordinates, that member may then determine that location is imprecise based on information such as whether its use is minimized in sparsely populated areas, the accuracy of the technology producing these coordinates, and whether the timestamps are attached to the location data.

Similarly, when working with places or geographic shapes, if the geographic area of the located place or shape is smaller than 785,398 meters<sup>2</sup>, then the location is subject to the four-factor analysis mentioned above. For example, information that a consumer or device is in a particular store may be imprecise depending on the size of the store, the usual number of customers in that store, the accuracy of that data, and the detail of the location’s timestamp.

Any member that conducts a reasonable analysis using the above factors and concludes that the location is imprecise will not be in violation of the Codes, even if other stakeholders, including, but not limited to, the NAI compliance team, arrive at a different conclusion. However, a member may be asked to change its practices if NAI staff determines the location does not meet the above factors, subject to all procedure and rights of appeal under the NAI Sanction Procedures. Through this process, NAI staff will work with members to ensure that the risk of re-identifying an individual and the sensitivity of the location are minimized when classifying it as imprecise.

## Summary and Implementation

This guidance helps clarify whether members are using Precise Location Data under the Codes in four ways:

1. Members are not using Precise Location Data if they are not storing location.
2. Members are not using Precise Location Data if they only store:
  - a. location coordinates with two or fewer decimals; or
  - b. location in the form of geographic shapes larger than 785,398 meters<sup>2</sup>; or
  - c. location describing a place or groups of places larger than 785,398 meters<sup>2</sup>.
3. Members are not using Precise Location Data if, before storing the location, they first:
  - a. Remove decimal places and only storing coordinates with two or fewer decimals; or
  - b. Store only places or geographic shapes larger than 785,398 meters<sup>2</sup>; or
  - c. Convert the location into general descriptors.
4. Members not meeting the above benchmarks must undertake a four-factor analysis to determine whether location is imprecise. This includes considering (a) the location's area, (b) the population density of the location, (c) the accuracy of the location, and (d) the presence and detail of the location's timestamp. A member may be asked to change its practices if NAI staff determines the location does not meet the above factors, subject to all procedure and rights of appeal under the NAI Sanction Procedures.

## APPENDIX A

### How to Determine Whether Location is Imprecise

