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Introduction

Leaderboards can be a fun way to drive competition among your players, both for your most hardcore fans (who will be fighting for the top spot in a public leaderboard) and for your more casual players (who will be interested in comparing their progress to their friends').

Understanding leaderboards

When you create a leaderboard, the game services will take care of managing most aspects of this leaderboard for you. The typical process works like this:

1. At the end of a game (or at an appropriate moment that you've determined), the game submits the player's score to one or more leaderboards you've created for the game.
2. The game services checks if this score is better than the player's current leaderboard entry for the daily, weekly, or all-time score. If it is, the game services updates the corresponding leaderboards with the new score.
3. The game services sends a score report back to the game client. This report tells the client whether this is a new daily, weekly, or all-time high score. If it isn't, the game services will tell the client what the current daily, weekly, or all-time high score is for this player.
4. To retrieve a player's results for a leaderboard, you can request a time frame (daily, weekly, or all-time), and specify whether or not the user wants to see a social or public leaderboard. The game service performs all the necessary filtering, and then sends the results back to the client.
5. In cases where there are a lot of scores to report, the game service sends back only the data for the top leaderboard scores. You can also retrieve raw score data for the top scores or the scores adjacent to the player's.

Multiple leaderboards

Games can have multiple leaderboards, up to a maximum of 100. For example, a multi-level game might provide a different leaderboard for each level, and a racing game might have a separate leaderboard for each track.

Leaderboard time frames

The Google Play game services SDK automatically creates daily, weekly, and all-time versions of every

leaderboard that you create. There's no need for you to create separate leaderboards for each time frame.

Daily leaderboards reset at midnight PST every day, and weekly leaderboards reset at Saturday midnight PST.

Public and social leaderboards

The Google Play game services SDK can display two different versions of each leaderboard to the player:

The **social** leaderboard is a leaderboard made up of people in the user's circles (or, more accurately, members of the circles that the user has chosen to share with your application) who have decided to share their gameplay activity to the user.

The **public** leaderboard is a leaderboard made up of players who have chosen to share their gameplay activity publicly. If your player has not chosen to share their gameplay activity publicly, they won't appear in this leaderboard.

For more information about social and public leaderboards, including important information to consider when building your own leaderboard widgets, see [Advanced Topics in Leaderboards](#).

Displaying leaderboards

In the mobile client libraries, the libraries take care of all the formatting and displaying of leaderboards. You can specify whether a player can see a specific leaderboard, or see a list of all of your leaderboards that they can choose from.

You can also implement your own versions of the leaderboards by accessing the data directly from the client libraries.

Warning: Player names that you retrieve directly using the client libraries may contain Unicode characters (for example, if the name has non-English characters). If you are implementing your own version of a leaderboard UI that uses decorative fonts, make sure that your UI can display these names correctly.

Attributes

To create and manage leaderboards, you'll want to be familiar with these leaderboard attributes:

The basics

These basic elements are associated with every leaderboard:

- **ID** is a unique string that the Developer Console will generate for you. You'll use this unique ID to refer to the leaderboard in your game clients.
- **Name** is a short name of the leaderboard (for example, "High Scores" or "Level 3"). This can be up to 100 characters.
- **Icon** is a square icon that will be associated with your leaderboard. For best practices when creating your leaderboard icons, see the [Icon Guidelines](#) section below.
- **List order** is the order in which the leaderboard will appear when a player views the leaderboards associated with your game.
- **Limits** are optional values that define the lower and upper limits of scores that are allowed in the leaderboard. This can help you discard score submissions that are clearly fraudulent.

Ordering

Leaderboards can have one of two ordering types:

- **Larger is better** leaderboards are the default. This is typically what you would see in most games where players earn points.
- **Smaller is better** leaderboards are occasionally used in cases where a smaller score would be better. The most common examples of this type of leaderboard are in racing games, where the score represents the player's time to finish the race.

Score formatting

While all scores are submitted to leaderboards and stored internally as long integers, the game service can present them to the user in a number of different formats:

- **Numeric** leaderboards present scores as numbers. These can be displayed as integers or as real

numbers with a fixed number of decimal places. You submit the score as integers and the decimal point is inserted in the specified location. A score of `314159`, for example, would be displayed as `3.14159`, `3141.59`, or `314159`, depending on the decimal place you specified.

- **Time** leaderboards present scores in hours / minutes / seconds / hundredths of a second format. You must submit scores as milliseconds, so `66032` would be interpreted as `1:06.03`.
- **Currency** leaderboards present scores in a currency format. You submit scores as 1/1,000,000th of the main currency unit. For example, a score of 19,950,000 would be interpreted as `$19.95`, assuming you specified your currency as USD.

Numeric leaderboards also support custom units. For instance, if your game measures high scores in meters, you can specify "meters" as the default unit for your leaderboard.

Translations and score formatting

When the mobile client libraries request leaderboard data from the game service, they specify a language and locale in which to display these scores. The [REST API](#) allows you to specify a locale-based language as well. The game service returns formatted leaderboard scores appropriate for that language and locale. These formatted scores will appear whether or not you have added [translations](#) for your leaderboard.

For **Numeric** leaderboards, the number format is displayed differently per language. (For example, `12,345.78` in the US, and `12 345,78` in France.) If you are using custom units and have added [translations](#) to your game, you must supply translated units for every language you have added. The service then displays these translated units where appropriate.

Depending on the language you choose, you might need to supply different versions of the names of your units. In English you'll need a version for one item, and another for everything else (for instance, "meter" and "meters"). In Polish, on the other hand, you would need to provide a version for one unit, a few units, many units, and everything else. To learn more about plural rules, see [Quantity Strings \(Plurals\)](#).

For **Time** leaderboards, the time format is displayed according to the player's language and locale. This will mainly be noticeable if you are using fractions of a second or have an hours value with more than 3 digits (for example, `4,815:16:23.42` in the US and `4.815:16:23,42` in Germany).

For **Currency** leaderboards, the currency format will be displayed according to the player's language and locale. However, you cannot change the unit of currency. For example, if you specify your currency in USD, the game will display `$19.95` in the US and `19,95 $` in France. But you cannot specify that your game shows dollars in the US and Euros in France.

Icon guidelines

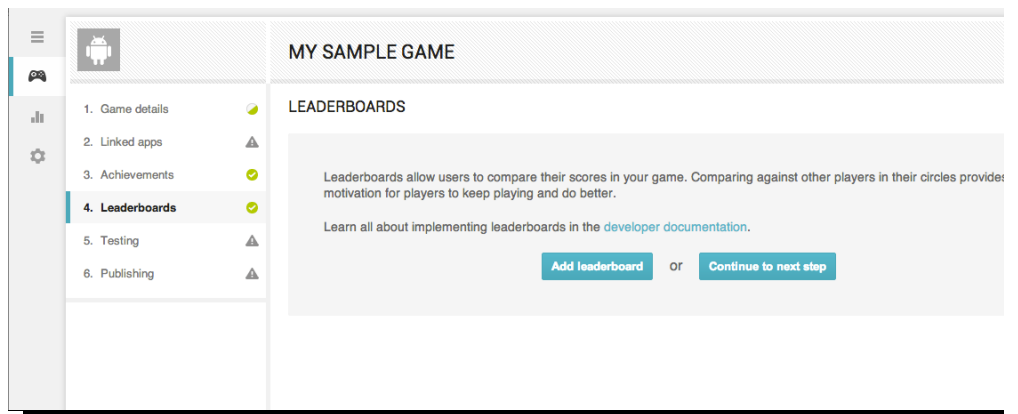
Icons should be created as 512 x 512 PNG or JPEG files. Your icons will be scaled down in most game clients, so you should avoid creating icons with too much fine detail. You can submit icons with an alpha channel, and the transparency will be retained. The leaderboard icon will be shown against a light gray background on iOS devices and against a somewhat darker gray background on Android devices, so choose an icon that can work well in both situations.

The same icon is used in all locales, so we recommend against including any text or localized content in an icon.

Creating a leaderboard

For a new game

To create a leaderboard for a new and unpublished game, go to the Developer Console entry for your game, select the **Leaderboard** tab on the left, then click the **Add new Leaderboard** button.



Then, simply fill out the information required for this leaderboard.

Click **Save**, and your leaderboard will be made available in "Ready to publish" mode. Once you publish your game, all of your game's leaderboards will be published with it.

For a published game

To create an additional leaderboard for a game that has already been published, follow the same steps as above. The only difference is that the **Save** button will be relabeled as **Save as draft** and your leaderboard will be in a "Ready to test" mode. For more information on testing an updated version of a game, see [Publishing Your Game Changes](#).

Once you've tested your leaderboard and are happy with it, you can republish your game with the new leaderboards, and they will be pushed out to the world.

Editing a leaderboard

To edit a leaderboard that you've already created, click the leaderboard in the **Leaderboards** tab of the Developer Console. At this point, you will see the same form you used when first creating the leaderboard, and you will be able to edit any of the fields as you wish.

When you're done editing a leaderboard, click the **Save as draft** button. The newly edited leaderboard will be in a "ready to test" stage, and you'll be able to test it out. If it is working correctly, select **Republish** from the drop-down list, and this will republish your game, along with all your updated leaderboards, to the public.

Note: Once a leaderboard is published, its ordering is fixed and cannot be changed.

Undoing an edit

If you decide you don't like your newly-edited leaderboard and want to go back to the way it was beforehand, simply select "Revert" from the drop-down list, and all of your leaderboards will revert back to the already published version.

Deleting a leaderboard

Once your leaderboard has been published, it **cannot** be deleted.

You can only delete a leaderboard in a pre-published state by clicking the button labeled "Delete" at the bottom of the form for that leaderboard.

Client implementation

To learn how to display and update player scores on leaderboards from the game client, see the [iOS](#), [Android](#), and [web](#) documentation.

Adding translations for leaderboards

You can specify your own translations for leaderboards that are associated with your game. Before you do so, first make sure to complete the steps described in [Adding translations for your game](#). You must also have created one or more leaderboards for your game.

To add your own translations for leaderboards, open the **Leaderboards** tab for your game in the Developer Console, then select an existing leaderboard. On the leaderboard details page, click the tab for a language that you previously added in the **Game details** tab. In the leaderboard details page for that language, edit the form with your translations for that leaderboard. Click **Save** to store your translated leaderboard details.

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