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| --- | --- | --- | --- |
| Number | Case | Test | Result |
| 1 | Create new piece, W & B images the same | 1 increment added to count | passed |
| 2 | Creating a custom game. | Each image URL that is included somewhere in the game gets 1 increment to its count, even if it appears more than once. | passed |
| 3 | Deleting a game | All imgUrls included in the game are decremented once |  |
| 4 | Deleting a piece | Counts are decremented once, even if same image for W & B |  |
| 5 | Save a game with name that already exists, overriding the old game with that name. | All imageUrlStrs that are in the old version of game but not the new get decremented. |  |
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Update:

An increment to the URl count is needed for every entity that can be added/deleted/changed by a user, which is not every place that the URL appears because a game’s individual attributes cannot be edited once a game is created. The entities for which one increment to the count is needed are:

1. An entry in the image pool
2. A global piece def’s white image
3. A global piece def’s black image
4. A created game

No matter how many times the same image appears in a game, only one increment to the count is given. This is because the purpose of image URL refs is to know when an image can be deleted from Firebase storage, and when a game is deleted, then if that game had all remaining usages of that image, than it can.

**Game possible combinations for a new game:**

* Empty imgStrs array,
* Non-empty image strings array, all refs incremented.

**Game possible combinations for deleting a game:**

* All refs decremented, none deleted
* All refs decremented, some deleted
* All refs decremented, all deleted
* Empty array, skip

**Game combinations for overriding game with same name:**

* Old and new both have empty imgUrlStrs arrays
* Old has empty imgUrlStrs array
* New has empty imgUrlStrs array
* Neither has empty array

Piece Profiles

**The following combinations apply to both a new piece getting created, and a piece overriding one with the same name:**

Color:

W: white,

B: black,

Type :

n: new,

s: sample

example:

*Wn is for ‘white new’ Bs is for ‘Black sample’*

* WnBn
* WnBs
* WsBn
* WsBs

**The following combinations apply to deleting a piece:**

* W & B decremented, neither deleted.
* W & B decremented, W at 0 and is sample, ref removed but not storage image
* ~~W & B decremented, B at 0 and is sample, ref remove but not storage image~~
* W & B decremented, both at 0, both are samples, both refs removed, neither storage image is removed.
* ~~W & B decremented, W at 0 and is uploaded, ref + storage image removed~~
* W & B decremented, B at 0 and is uploaded, ref + storage image removed.
* W & B decremented, both at 0, both are uploaded, both refs removed, both storage images removed.

**The following combinations apply to overriding a piece:**

* New W matches Old W
* New W matches Old B
* New B matches Old B
* New B matches Old W
* Neither match