#### $lookup (aggregation)

Performs a left outer join to an unsharded collection in the same database to filter in documents from the “joined” collection for processing. To each input document, the [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) stage adds a new array field whose elements are the matching documents from the “joined” collection. The [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) stage passes these reshaped documents to the next stage.

##### Equality Match

To perform an equality match between a field from the input documents with a field from the documents of the “joined” collection, the [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) stage has the following syntax:

{

$lookup:

{

from: <collection to join>,

localField: <field from the input documents>,

foreignField: <field from the documents of the "from" collection>,

as: <output array field>

}

}

| Field | Description |
| --- | --- |
| from | Specifies the collection in the same database to perform the join with. The from collection cannot be sharded. |
| localField | Specifies the field from the documents input to the [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) stage. [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) performs an equality match on the localField to the foreignField from the documents of the from collection. If an input document does not contain the localField, the [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) treats the field as having a value of null for matching purposes.  Note  If your localField is an array, you may want to add an [$unwind](https://docs.mongodb.com/manual/reference/operator/aggregation/unwind/" \l "pipe._S_unwind) stage to your pipeline. Otherwise, the equality condition between the localField and foreignField is foreignField: { $in: [ localField.elem1, localField.elem2, ... ] }.  See the [example](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "unwind-example) on this page. |
| foreignField | Specifies the field from the documents in the from collection. [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) performs an equality match on the foreignField to the localField from the input documents. If a document in the from collection does not contain the foreignField, the [$lookup](https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/index.html" \l "pipe._S_lookup) treats the value as null for matching purposes. |
| as | Specifies the name of the new array field to add to the input documents. The new array field contains the matching documents from the from collection. If the specified name already exists in the input document, the existing field is overwritten. |

# Sharding