Global Technologies
CORPORATION

Airtable Search

A unified approach for searching across multiple bases, tables, and documents.

Why Airtable Search?

Simply, it's all about *time*.

Workers have little of it and they need to put their hands on information quickly and efficiently. Since the dawn of the information age, this requirement has never changed.

2.5 HOURS PER DAY

~30% OF THE WORKDAY

According to Interact Source, 19.8 % of business time – the equivalent of one day per working week – is wasted by employees searching for information to do their job effectively.

McKinsey recently reported …

> *"Employees spend 1.8 hours every day — 9.3 hours per week, on average — searching and gathering information. Put another way, businesses hire 5 employees but only 4 show up to work; the fifth is off searching for answers, but not contributing any value."*

IDC data shows that *"the knowledge worker spends about 2.5 hours per day, or roughly 30% of the workday, searching for information."*

And we know that despite access to relatively well-designed information systems, we still struggle to find the information needed to do our best work.

Airtable provides a platform for unifying data, process, and work activities involving information that is typically disparate and disjointed. It's ability to create pools of knowledge in workflows with deep collaboration is undeniable and the market has confirmed the value of the Airtable model. Airtable's success simply elevates the demand for information findability among its users.

Search in Airtable is undeniably one of the most important issues for its users.

Search Challenges and Requirements

One of the many challenges with universal search (i.e., a search that spans multiple Airtable bases and tables) is the types of data and content possibilities that the indexing technology may encounter. It must embrace all that Airtable could ever store and all that any user could ever imagine capturing and in a way that is not only discoverable, but indexable in a reliable and efficient manner.

Search Results as Airtable Views?

Another hurdle; users find Airtable delightful so they'd rather not leave it to search in a completely disengaged web page or adjacent application. Most users will quickly point out that they need the search experience to be native to the Airtable experience - search results should be displayed like any other information is displayed in this magnetic database application.

Search Beyond Airtable Bases and Workspaces

Ideally, a search solution should be open (but secure) and relatively easy to implement. The architecture must also embrace the idea that search should (in some cases) traverse more than just Airtable data - it should integrate with information artifacts that are not necessarily integral to Airtable.

Indices need a Home

Another very big issue concerning a unified search solution is gated by this basic question -

*If you had an index of all your Airtable data, where would you
feel comfortable storing it?*

The answer is simple - Airtable, of course. The search system must be agile enough to store indices anywhere, but in many cases, Airtable itself is a desirable option. Ideally, the search solution should index Airtable content into the same Airtable workspace where workers are creating information.

Index Reusability

The index [itself] should be stored, managed, and available in an open web-standards format that can be employed to meet a variety of use cases. Imagine sharing Airtable search indices with other enterprise systems essentially making it possible for Airtable data to be elevated to wider visibility.

Search Relevance

A key requirement in search is relevance. Users have demonstrated little tolerance for search results that fail to organize and rank results by degrees of importance. To be effective, search outcomes must be ordered using a ranking algorithm.

Consider a search query for "*sales projections*". If these keywords appear in the name of an Airtable base, it's probably far more relevant than when it appears in a field, a comment, or an attached document. Likewise, an attached document containing this search phrase would probably be more helpful than when it appears in note field.

Artificial Intelligence and Machine Learning

Increasingly, users expect their information systems to exhibit intelligence. The advancements in AI and deep learning have set a new bar for information systems that are predictive and able to understand complex needs. Building a search solution must consider the ability to integrate content with AI, ML, and NLP platforms.

Multiple Indices

A key infrastructure requirement for indexing solutions is the agility to create and manage multiple indexes. While the idea of a unified search solution that is all-knowing is certainly appealing, the realities of search are more stringent. There are security and accessibility concerns that must be considered. Index management must be agile; it must be easily shaped to meet organizational needs.

Real-time Indexing and Notifications

At no time in the history of information management has truly real-time awareness and zero-latency become so critical even to non-technical businesses. The search architecture must embrace real-time data from many possible sources as well as sub-second notification globally for users.

Performance

Lastly, search must be effortless and performant. Results must be displayed in near-real-time. Accessibility to search tools must be pervasive. These two dimensions dovetail in the realm of integration; Airtable search must share an open architecture to expose not only broad access to search indices but also blend seamlessly with real-time streaming information networks.

Airborne: Search for Airtable

Airborne is a research project; it's not a product or a specific solution. It is a foundation of search technology that has already demonstrated a number of successful findability approaches in Airtable.

Airborne was developed over a period of one year investing and experimenting in the development of adjacent technologies in AI and real-time networks as they relate to Airtable. It is heavily influenced by many of the best open-source projects in search and utilizes elements of Lucene's indexing algorithm and ElasticSearch's ranking

algorithm. Airborne leverages these success patterns to accelerate performance while reducing index size.

Airborne Possibilities

Simply stated, Airborne is an indexing technology for information and designed as a platform to build out many user experiences involving information discovery.
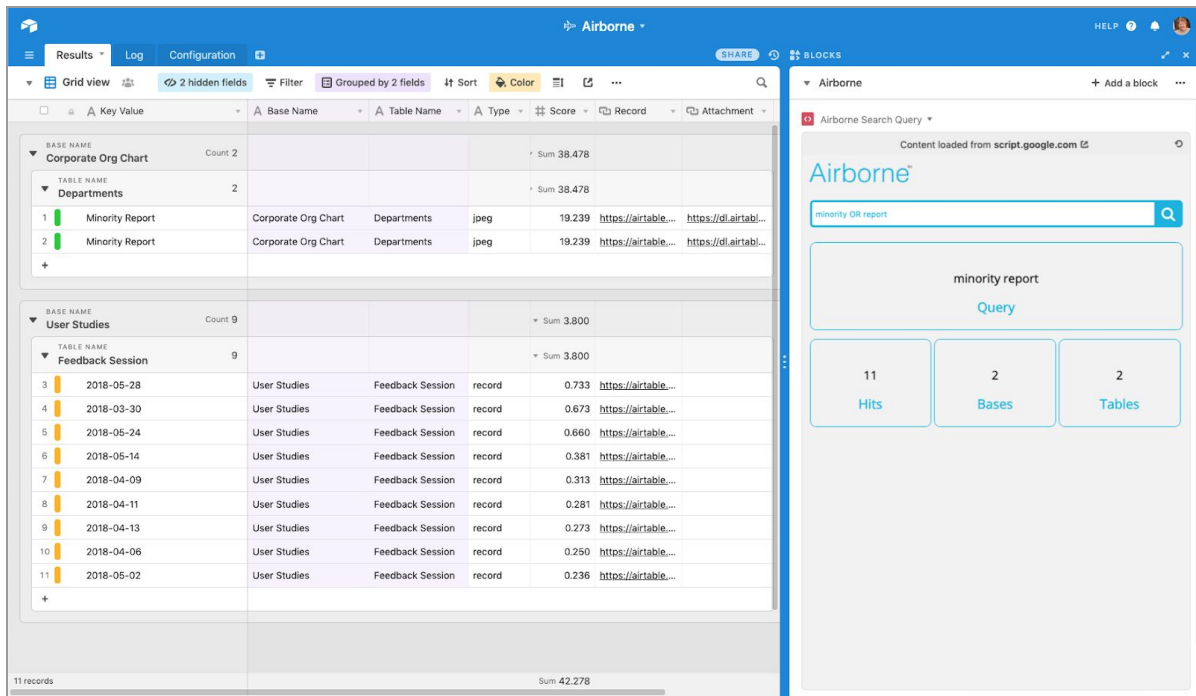
Basic Search Example

Solutions that stem from Airborne indexes are numerous and varied. Possible examples include -

- Basic Search - it's just what you might imagine; a search bar designed for workers to scour Airtable bases and tables looking for keywords of interest. Results are displayed with meta-data and links for quick and effortless access to the discovered information.
- Saved Search - imagine transforming a basic search into one that is updated hourly providing you with alerts when new information has been found.
- Enhanced Data - as new information is added to a table, imagine a background process that infuses other relevant tables and records into the new records.

- <u>Real-time Search</u> - a chatbot listens carefully as a conversation unfolds; search results based on keywords and entities are presented to the participants.
- <u>Analytics</u> - reports and assessments that utilize the Airborne indices to understand frequencies of terms and other data values, or sentiment analysis in texts.

Instances of Airborne actually exist in production and developed through professional services engagements, although they are seamless to the solutions they provide. They work silently under the covers to provide ,elements of integrated features.
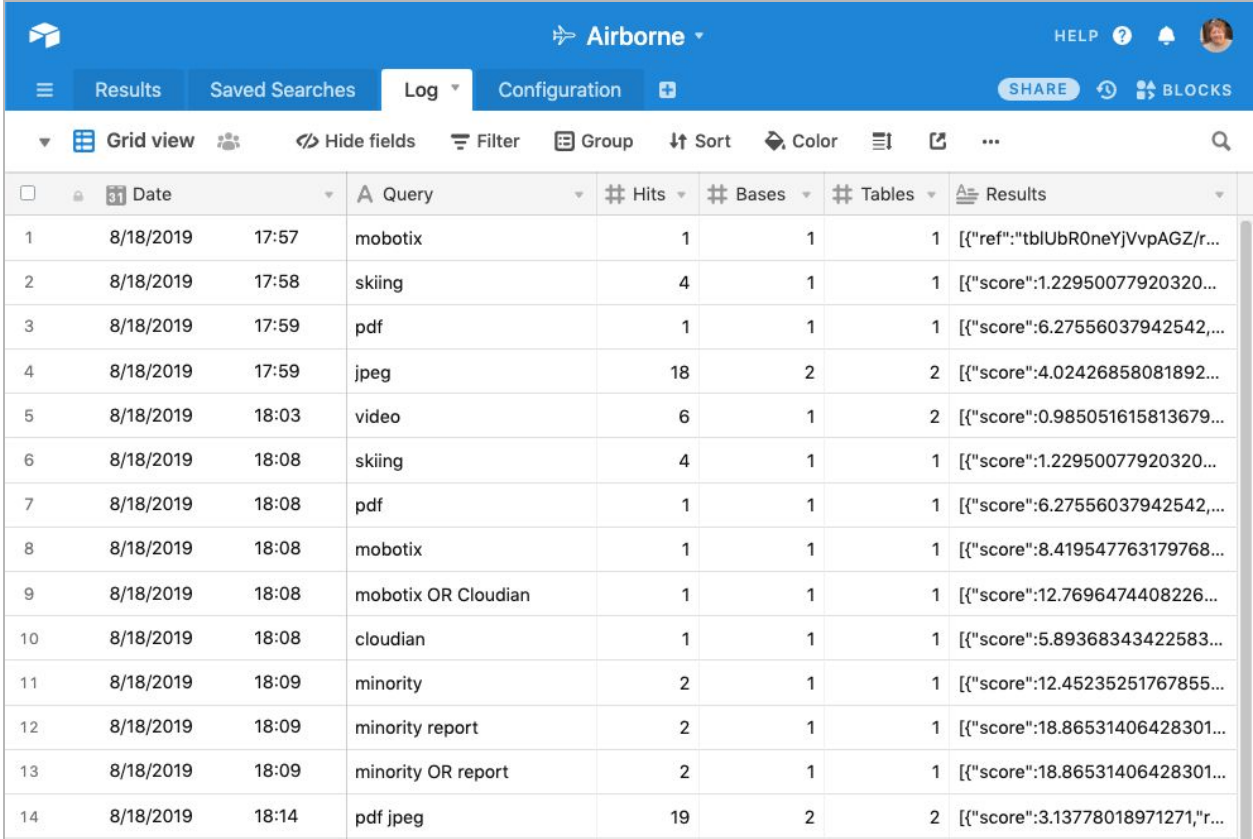
Configuring Airborne

Setting up an Airborne instance requires the registration of bases and tables in the Airborne base[1] Base IDs, table names, and

table IDs are declared in a simple table allowing administrators to manage indexation processes.

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[1] This requirement will soon evaporate when Airtable releases the much-anticipated API v2 which is expected to include an event architecture and admin-level methods that exposed the data schema of workspaces, bases, and tables.

Search Analytics

As Google fully understands, there's much to be gleaned from search activities. Collecting analytics and click-throughs is almost as important as index-building itself. Airborne provides real-time analytics including click-through actions as well as search results making it possible to apply deep learning techniques or for simple reporting to understand the effectiveness of the search platform.

	Date		Query		Hits	Bases	Tables	Results
1	8/18/2019	17:57	mobotix		1	1	1	[{"ref":"tblUbR0neYjVvpAGZ/r...
2	8/18/2019	17:58	skiing		4	1	1	[{"score":1.22950077920320...
3	8/18/2019	17:59	pdf		1	1	1	[{"score":6.27556037942542,...
4	8/18/2019	17:59	jpeg		18	2	2	[{"score":4.02426858081892...
5	8/18/2019	18:03	video		6	1	2	[{"score":0.985051615813679...
6	8/18/2019	18:08	skiing		4	1	1	[{"score":1.22950077920320...
7	8/18/2019	18:08	pdf		1	1	1	[{"score":6.27556037942542,...
8	8/18/2019	18:08	mobotix		1	1	1	[{"score":8.419547763179768...
9	8/18/2019	18:08	mobotix OR Cloudian		1	1	1	[{"score":12.7696474408226...
10	8/18/2019	18:08	cloudian		1	1	1	[{"score":5.89368343422583...
11	8/18/2019	18:09	minority		2	1	1	[{"score":12.45235251767855...
12	8/18/2019	18:09	minority report		2	1	1	[{"score":18.86531406428301...
13	8/18/2019	18:09	minority OR report		2	1	1	[{"score":18.86531406428301...
14	8/18/2019	18:14	pdf jpeg		19	2	2	[{"score":3.13778018971271,"r...

Airborne Rollout

Airborne [today] is simply a technology platform for building search experiences and specifically for climates that are search-challenged. Airtable qualifies, of course.

Airborne will soon be refactored into two flavors of the same product;

1. Airborne (personal edition)
2. Airborne (business edition)

The business edition will only be sold through professional services engagements from Global Technologies Corporation or any competent Airtable consultants during 2019 (possibly longer depending on the productization ramp and revenue model).

The business edition will provide Airtable consultants with an additional revenue opportunity as resellers/implementers. In that sense, it will be productized as a "search tool kit" - a collection of code, documentation, and best practices that allow us (i.e., Global Technologies Corporation and other consultants) to craft customized search solutions for businesses that have adopted Airtable.

The business edition will be "open" in the sense that it will feature a variety of ways to integrate search experiences into many aspects of a company's information architecture including free-standing web apps, block embedding, mobile apps, intranet portals, and index integration into other services and databases.

Pricing and licensing of the business edition is not fully fleshed out yet.

The personal edition will be released in 2019 and will be free (initially and perhaps indefinitely) with some indexation constraints (TBD).

Contact Info

For information about Airborne sign up for future announcements and feel free to reach out to:

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