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Article

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## iKnow demo apps (part 1) - Knowledge Portal

InterSystems' iKnow technology allows you to identify the concepts in natural language texts and the relations that link them together. As that's still a fairly abstract definition, we produced [this video](#) to explain what that means in more detail. But when meeting with customers, what really counts is a compelling demonstration, on data that makes sense to them, so they understand the value in identifying these concepts over classic top-down approaches. That's why it's probably worth spending a few articles on some of the demo apps and tools we've built to work with iKnow.

In the first article in this series, we'll start with the Knowledge Portal, a simple query interface to explore the contents of your domain.

### Installation and setup

This interface has shipped with the kit since the very first iKnow release and does not require any particular type of data, metadata or other external dependencies. It will work right off any domain in your system, and can be accessed from the link in the iKnow Architect page for your domain definition or by opening the following link: <http://localhost:57772/csp/samples/iKnow.UI.KnowledgePortal.zen>. If you don't have a domain set up yet, take a look at [this article](#) on creating a simple iKnow domain. Alternatively, you can initialize the demo domain on aviation event reports in the SAMPLES namespace by calling `do`

```
##class(Aviation.Utils).SetupStandalone(), which we'll use in this article.
```

Depending on your security settings, you may still have to enable your web application for iKnow (like for DeepSee) through the checkbox in the SMP page at System Administration > Security > Applications > Web applications for your web app or by calling `do EnableIKnow^%SYS.cspServer("/csp/myapp/")`.

For 2016.3 (currently available in field test), we did a complete makeover of the original layout and styled it using the Bootstrap libraries available in the kit since 2016.1.

### Using the Knowledge Portal

As this is a read-only interface for exploring the output of iKnow's bottom-up approach for a given domain, there is no particular workflow to run through. We'll stick to a simple investigative scenario, using the Aviation Events Demo domain in the SAMPLES namespace (see above). Upon opening the Knowledge Portal, you should see the following:

Explore!

1200
▼
⚙

Top Concepts		
	frequency	dominance
airplane	6343	983
pilot	6200	1083
engine	2093	559
accident	1667	766
flight	1474	697
runway	1160	506
helicopter	933	138
examination	838	442
visual meteorological conditions	780	775
ground	708	431

Similar Entities

◀
▶

Related Concepts

related
proximity

◀
▶

Sources
Paths
CRCs

◀
▶

### Exploring entities

The widget in the top left displays the top concepts for this domain, which quite evidently contain aviation incident related terminology. The two numbers to the right of each entity are the number of times the entity occurs in total (frequency) and the number of distinct documents in which it appears (spread). If you toggle to "dominance" in the widget's title bar, the entities will be ranked according to dominance, a bottom-up metric expressing entity relevance within the domain. Using the "<" and ">" buttons at the bottom, you can scroll through the different pages of results.

When you click one of the entities in the list, the real exploration starts. Let's start with "pilot":

Explore!

1200
▼
⚙

Top Concepts		
	frequency	dominance
airplane	6343	983
pilot	6200	1083
engine	2093	559
accident	1667	766
flight	1474	697
runway	1160	506
helicopter	933	138
examination	838	442
visual meteorological conditions	780	775
ground	708	431

Similar Entities

pilot	6205	1083
private pilot	385	297
student pilot	319	141
accident pilot	173	58
commercial pilot	168	147
private pilot certificate	128	117
commercial pilot certificate	91	87
certificated private pilot	78	76
pilots	75	58
pilot's logbook	70	62

Related Concepts

	related	proximity
airplane	384	311
passenger	117	86
autopsy	89	88
controller	112	52
specimens	61	54
engine	67	58
private pilot certificate	59	59
helicopter	60	46
takeoff	43	41
accident	51	50

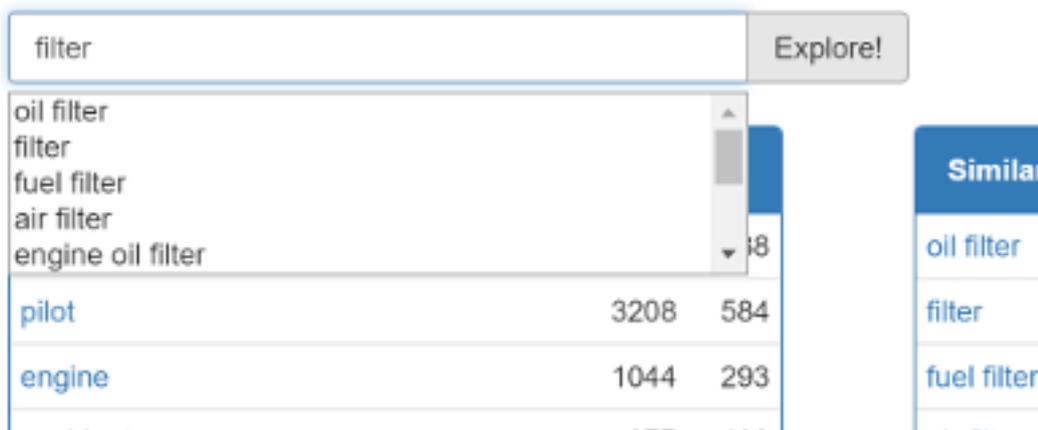
Sources
Paths
CRCs

1200	:SQL:2010:20101209X94036	The <span style="background-color: #90EE90;">pilot</span> sustained serious injuries and his passenger sustained minor injuries. ... In a written statement submitted by the <span style="background-color: #90EE90;">pilot</span> , he had just reduced the engine power, while turning to final for runway 17, when the left engine lost power. ... The <span style="background-color: #90EE90;">pilot</span> reported that there was not enough airspeed or altitude to reach the airport so he performed an off-field landing. ... The <span style="background-color: #90EE90;">pilot</span> wrote that he had encountered a loss of engine power on both engines within the preceding few months. ... The <span style="background-color: #90EE90;">pilot</span> felt that in both cases the root cause of the problem was never identified and was related to "fuel delivery that exceeds that required for stable combustion." ... The fuel flow indicator recorded 66.8 gallons of fuel remaining, based upon the information loaded by the <span style="background-color: #90EE90;">pilot</span> prior to the flight. ...	👁	🔍
1199	:SQL:2010:20101027X85534	The <span style="background-color: #90EE90;">pilot</span> elected to ditch in the Atlantic Ocean about 2.6 nautical miles east of the airport. ... The personal flight was operated in accordance with Title 14 Code of Federal Regulations Part 91. and the <span style="background-color: #90EE90;">pilot</span> was not injured. ... The <span style="background-color: #90EE90;">pilot</span> stated that after loss of engine power and	👁	🔍

Now many more widgets display data.

- The similar entities widget shows all other entities iKnow found that are "similar" to the string or entity we were exploring, with similar defined as containing that string somewhere at the start of a word within the similar entity (note that for languages like German and Japanese, there's also an alternative option looking at any position inside the entities, cf the [\\$\\$\\$IKPENABLENGRAMS](#) domain parameter). The frequency and spread numbers have the same meaning as in the top concepts widget.
- The related concepts widget shows all other concepts the entity being explored is directly related to (a single relational element between). The frequency and spread numbers now express how often the concepts appear in a direct relationship. If you toggle to "proximity" in the title bar, the relationship can now also be an indirect one, with the concepts appearing at a longer distance within the same path.
- The full-width widget below will show the sources (records), paths (sentence subsections) and CRCs (concept-relation-concept triples) in which the entity appears, with the seed entity highlighted in green. In the source view, text fragments containing the seed entity are displayed, with negative sections marked in red.

Rather than clicking an entity in any of these widgets, you can also start typing in the exploration box in the top left corner. The Knowledge Portal will start suggesting actual entities from the domain that match what you are typing so you can explore even faster.



For example, when starting from the term filter, the similar entities will include many different types of filters installed in aircraft, not because iKnow contained any predefined knowledge on aviation mechanics, but simply because it identified them from the reports bottom-up.

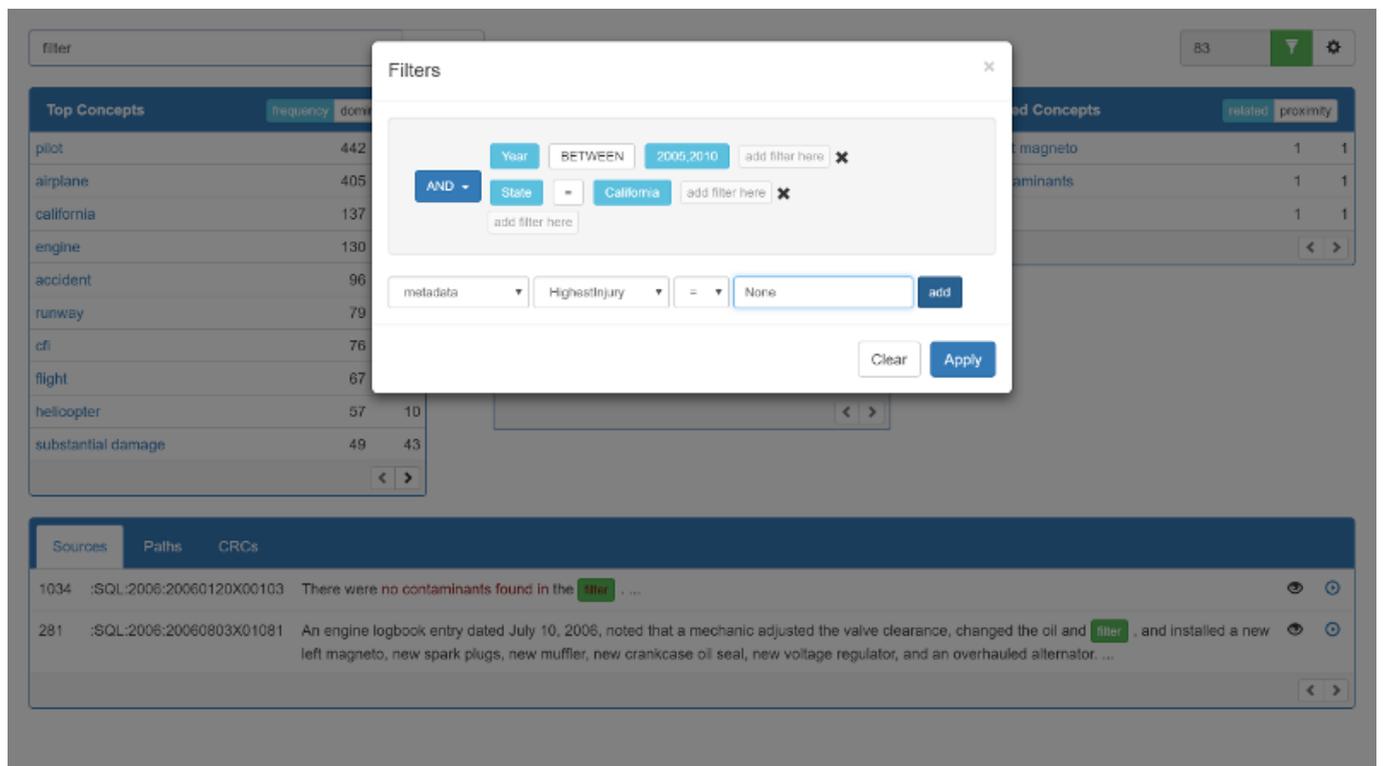
### Exploring context

When looking at sources or paths in the main bottom widget, you can click the eye icon to consult the complete source text and optionally highlight indexing results or dictionaries (more on the latter in future posts). Using the controls at the bottom, you can also look up the source's metadata and generate summaries of the text. In other words, after initial exploration points you to a couple of documents, you can quickly find the original context and read a summary of the entire document.



### Filtering

If the sources in your domain have relevant metadata associated, you can use that to zoom in onto a specific subset of records by clicking the filter icon in the top right corner. In the popup, you can create simple predicates or combine them using boolean logic. When you click apply, all exploration results will only display entities and figures for the filtered set of sources. The filter icon will also remain highlighted as long as any filter conditions are active and the number of sources in the domain is updated to reflect the filter conditions.



If your domain also includes blacklists (not in the demo domain), you'll see another icon next to the filter one to toggle which blacklists' entries should be suppressed from all displayed results. Finally, the cog icon still in the

same button bar will allow you to jump to other domains, to explore yet new horizons.

Next week, we'll zoom in on another iKnow demo app for building dictionaries off an existing domain, formalizing the bottom-up insights brought by iKnow into a structured knowledge base.

[#iKnow](#)

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Source URL: <https://community.intersystems.com/post/iknow-demo-apps-part-1-knowledge-portal>