



HPE IDOL

Advanced analytics for text, video, image, and audio



Power applications with applied machine learning

Overview

HPE IDOL is a unified data analytics platform supporting 1000 data formats encompassing text, video, image, and audio content. It enables out-of-the-box access to 150 data repositories behind and beyond your firewall, (for example, Documentum, Dropbox, and such) as well as indexes data without relocation and disruption. Built on proven world-class technology and innovations such as machine learning and deep neural networks, HPE IDOL unlocks hidden insights by revealing trends, patterns, and relationships. With HPE IDOL, you gain an in-depth understanding of user profiles and actions to personalize knowledge delivery. In information search and knowledge discovery, HPE IDOL natural language question answering transforms the end-user experience. It enables simple and contextually relevant dialogues between humans and machines.

With modular offerings of hundreds of advanced analytics functions, as well as an open and scalable architecture for easy embedding and third-party integration, HPE IDOL lends itself to supporting diverse use cases spanning a broad spectrum of industries.

Protecting confidentiality within an organization is critical to effective operations. HPE IDOL mapped security enables preservation of security entitlements. Synchronized updates of such entitlements enable users to access the right information while simultaneously safeguarding sensitive data.

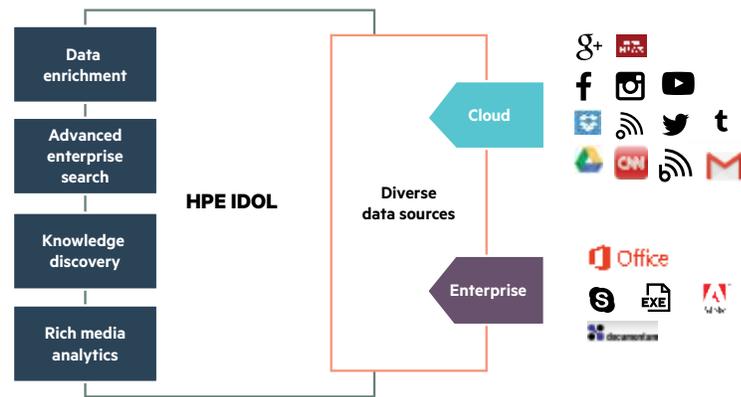


Figure 1. Typical use cases for HPE IDOL

Understand and act on human data

Data enrichment is about augmentation with other relevant data, such as metadata. For example, HPE IDOL can extract company names from tweets, associate the tweets with the extracted names, and make the tweets filterable by company name.

Advanced enterprise search is about providing enterprise search results based upon relevant concepts associated with the search terms. This goes beyond simple key-word search. A conceptual enterprise search example—if you search for Apple, you may see results associated with Apple, Samsung, and Microsoft® because IDOL understands that these companies are related, in that they're in the same industry and address similar markets.

Knowledge discovery liberates users from having to know what questions to ask beforehand. HPE IDOL builds on machine learning and deep neural network algorithms to recognize patterns, trends, and relationships hidden within the data and let the data tell the story. For example, HPE IDOL can analyze customers' tweets and call center logs to reveal root causes as to why a product may be underperforming.

Rich media analytics allows users to incorporate video, image, and audio content to gain complete data insights. For example, in addition to text analytics of social media, a marketer can also monitor and analyze broadcast media for logos, on-screen text, and speech.

Key features

Natural language question answering accepts queries in natural language. A variety of question examples may include “how do I turn off roaming on iPhone® 7?”, “what was the earnings per share (EPS) of HPQ (HP Inc.) in Q3 2016?”, or “what did critic X say about movie Y?”

IDOL can be configured to create a more natural system of customer services. Rather than a single search box, an IM-style interface allows a user to enter an initial question or problem description in natural language. In many cases, the problem can be answered directly and a single answer or solution provided, but in many other cases a conversation between system and the user is activated to gather more information on how to diagnose and solve the problem.

For ongoing refinement of an answers' availability, accuracy, and relevancy, administrators can use the intuitive GUI based tool for improving the efficiency of manual curation of question/answer pairs.

Automatic query guidance groups search results into dynamically generated categories so you can quickly narrow down a search set (for example, a search for “Madonna” would create clusters of the singer, the religious icon, and other relevant categories).

Hyperlinking displays links to files of varying formats (including audio and video) that are conceptually related to the document you are currently consuming. If you are reading an article about a competitor, HPE IDOL may display links to the company's latest ad campaign, an audio interview with a CEO, internal competitive battle cards, and such. Links are generated in real time when a document is viewed so you can delve deeper into the topic at hand.



Figure 2. Natural Language Question Answering Admin UI simplifies question/answer pair curation

Business intelligence for human information (BIFHI)



Figure 3. Key concepts with easy drill-down



Figure 4. Filter based on extracted entities (people, place, company) from data



Figure 5. Direct preview of original information from search results



Figure 6. Detailed summary of document's metadata, list of similar documents, and documents with similar dates

Retrieval concept allows you to input a sentence or even an entire document as your query because it can extract the main concepts without relying on key words. Searching by concept leads to the most comprehensive result set because it will also retrieve relevant documents that do not contain the actual query term(s) used.

Personalization constructs an understanding of your interests and skillset to deliver more accurate, targeted enterprise search, and knowledge discovery results based on content consumption including browsing histories, content contributions, and interactions. You can also explicitly define your interests and train the search engine.

Expertise locator identifies experts based on their content activities and social cues instead of relying on outdated profile information entered years ago.

Categorization and channels organize the enterprise corpus of data according to predefined or dynamically generated categories for easy navigation. Existing legacy taxonomies can be either maintained or enriched with a contextual understanding.

Education automatically identifies and extracts terms in documents that lend themselves to key fields, such as the names of companies or people, locations, addresses, and telephone numbers. HPE IDOL offers hundreds of entity grammars out of the box across numerous languages.

Clustering takes a large set of data and automatically partitions it so that similar information, even in varying data formats, is clustered together. Each cluster represents a concept area, making it easier for you to identify inherent themes and emerging trends.

Sentiment analysis determines the degree to which a given text's sentiment is positive, negative, or neutral for the entire content or a segment of the content. IDOL uses both linguistic analysis and a statistical, pattern-based approach to derive sentiment. Currently, it is offered in Arabic, Chinese, Czech, English, French, German, Italian, Polish, Portuguese, Russian, Spanish, and Turkish.

Visualization is provided by BIFHI, an end-user graphical user interface with functionality that includes a topic map to highlight key concepts. It includes a sunburst diagram to enable easy filtering based on extracted entities (for example, people, place, company, and more). The result is set as a comparison to examine how a change of search parameter may impact the outcome. BIFHI offers a rich contextual view where the query result includes not only the document itself but also shows metadata and other relevant information such as documents by the same author or documents from around the same period.

Customizable search interface, HPE Find, is an open source tool from Hewlett Packard Enterprise. It is an extensible enterprise search user interface, which now ships with HPE IDOL for our customer's convenience. It is designed to be a highly flexible foundation upon which custom-made applications can be based. The quick-to-start and easy-to-use enterprise search interface enables almost instantaneous search productivity while accelerating the development of applications requiring intelligent search capabilities.

Knowledge graph uses advanced graph analytics technology to discover relationships between entities that lead to richer and more impactful knowledge discovery. Find out who knows whom, who knows what, what shared common traits exist among your important customers, and more.

Connectors provide access to enterprise content management system (CMS) and mail applications in addition to supporting open protocols and cloud-based systems to provide a wide data collection for index generation.

Security capabilities include synchronized security entitlement preservation, authentication, access control, and user homogenization.

Open and robust architecture components allow for easy integration, high availability, and scalability options.

Search covers 150 languages, including:

Acehnese	Khmer
Afrikaans	Kikongo
Albanian	Kinyarwanda
Amharic	Kirundi
Arabic	Komi
Armenian	Korean
Azeri	Kurdish
Basque	Kyrgyz
Belarussian	Lao
Bengali	Lappish
Berber	Latin
Bihari languages (Magahi, Bhojpuri, Maithili)	Latvian
Bikol	Lingala
Bishnupriya	Lithuanian
Bosnian	Luxembourgish
Breton	Macedonian
Bulgarian	Malagasy
Burmese	Malay
Catalan	Malayalam
Cebuano	Maltese
Cherokee	Manipuri
Chinese	Maori
Chuvash	Marathi
Croatian	Mazandarani
Czech	Norwegian
Danish	Oriya
Dhivehi	Ossetian
Dutch	Panjabi
English	Papiamentu
Erzya	Pashto
Esperanto	Polish
Estonian	Portuguese
Ethiopic languages	Quechua
Faroese	Rhaeto-Romance (Romansh, Ladin and Friulian)
Farsi/Persian	Romanian
Finnish	Russian
Flemish	Sakha
French	Sami
Frisian	Sanskrit
Galician	Serbian
Georgian	Sesotho
German	Sesotho sa Leboa/ Northern Sotho
Gilaki	Sindhi
Greek	Singhalese
Greenlandic	Slovak/Slovakian
Guarani	Slovenian
Gujarati	Somali
Haitian	Sorbian
Hausa	Southern Ndebele
Hawaiian	Spanish
Hebrew	Sranan
Hindi	Sundanese
Hungarian	Swahili
Icelandic	Swazi
Ido	Swedish
Igbo	Syriac
Ilokano	Tagalog
Indonesian	Tahitian
Irish Gaelic	Tajik
Italian	Tamil
Japanese	Tatar
Javanese	Telugu
Kalmyk	Thai
Kannada	Tibetan
Kapampangan	Tok Pisin
Kazakh	

System administration

- User/role management
- Memory and thread usage monitoring
- Service monitoring and control
- HPE IDOL database creation monitoring
- Module configuration
- Host/service discovery
- Configuration validation
- Document tracking

Platforms supported

The platforms supported vary upon the individual components. This is an inevitable result of the complexity of integrating with software supplied by multiple vendors. Provide your sales team with your requirements for definitive guidance on supported platforms.

Product tiers

HPE IDOL Express Search

This is licensed by the number of documents on an unlimited number of CPUs and for an unlimited number of users, operating across a single cluster. In HPE IDOL Express Search, if a document is stored more than once, each instance is included in the count separately.

The features and functions included in HPE IDOL Express Search are as follows:

• Functions

- Retrieval—Lite
- Retrieval—Concept
- Retrieval—Advanced
- Retrieval—Parametric
- Hyperlinking
- Summarization
- Dynamic Thesaurus
- Spelling Correction
- Automatic Language Detection
- Highlighting

• Infrastructure tools

- Distributed Index Handler
- Distributed Action Handler
- Application Builder (ACI API)

• System administration tools

- HPE IDOL Admin
- HPE IDOL Site Admin

• Data administration tools

- HPE IDOL Data Admin

• End-user tools

- HPE Find
- HPE BIFHI

• Connectors

- HPE IDOL Express Search includes all HPE IDOL standard connectors

Search covers 150 languages—continued

Tongan	Venda
Tsonga	Vietnamese
Tswana	Waray-waray
Turkish	Welsh
Turkmen	Wolof
Ukrainian	Xhosa
Urdu	Yiddish
Uyghur	Yoruba
Uzbek	Zulu



The HPE IDOL Admin dashboard allows administrators to troubleshoot performance-related issues quickly.

Figure 7. HPE IDOL Admin dashboard



The HPE IDOL Data Admin provides business administrators with a dashboard view of various statistics so they can refine to improve the search experience.

Figure 8. HPE IDOL Data Admin

HPE IDOL Premium Search

HPE IDOL Premium Search is licensed by the number of documents on an unlimited number of CPUs and for an unlimited number of users, operating across a single cluster. If a document is stored more than once, each instance is included in the count separately. The features and functionality in HPE IDOL Premium Search include those in HPE IDOL Express Search and the following:

• **Functions**

- Generic mapped security (IAS)
- Personalization package (alerting, mailing, agents, and more)
- Expertise package (collaboration, expertise, profiling, and more)
- Automatic Query Guidance (AQG)
- Agent Boolean

Other functionality can be added to HPE IDOL Premium Search (see the following HPE IDOL add-on modules.)

• **Connectors**

- HPE IDOL Premium Search includes all HPE IDOL standard connectors

HPE IDOL Ultimate

HPE IDOL Ultimate is licensed by the number of documents on an unlimited number of CPUs and for an unlimited number of users operating across a single cluster. If a document is stored more than once, each instance is included in the count separately. The features and functionality in HPE IDOL Ultimate include those in HPE IDOL Premium Search listed in the preceding section, along with the following:

• **Functions**

- Sentiment analysis
- Education
- Clustering
- Knowledge graph analytics
- Taxonomy generation
- Categorization and channels
- Geospatial
- Natural language question answering

• **Business administration tools**

- HPE IDOL Collaborative Classifier

• **Connectors**

- HPE IDOL Ultimate includes all HPE IDOL standard connectors

HPE IDOL Premium Search add-ons

HPE IDOL Premium add-on modules provide additional functionality and can be applied to HPE IDOL Premium Search. They are licensed by the number of documents and tie in with a purchase of HPE IDOL Premium Search software. If a document is stored more than once, each instance is included in the count separately.

• **Available add-on modules**

- Sentiment analysis
- Education
- Clustering

HPE IDOL connectors

HPE IDOL standard connectors

HPE IDOL standard connectors are included with HPE IDOL Express Search, HPE IDOL Premium Search, and HPE IDOL Ultimate. They are not separately licensable. HPE IDOL standard connectors include the ability to connect to and access data from repositories. The following connectors are HPE IDOL standard connectors:

- File system (all platforms)
- ODBC
- Web

HPE IDOL Social Media Connectors

These connectors are add-on modules that can be applied to HPE IDOL Premium Search and HPE IDOL Ultimate. They are licensed by a number of HPE IDOL Social Media Connectors and a license key is for a specified number of social media connectors. To modify which specific connectors are licensed, you must obtain a new license key. Modifications to connector license keys can be done once per month.

HPE IDOL Social Media Connectors include the ability to connect to and access data from repositories, on a polling basis. The following connectors are HPE IDOL Social Media Connectors:

- Facebook
- Amazon
- Twitter
- LinkedIn
- YouTube
- Atom
- Quicr
- Weibo
- Yahoo

HPE IDOL Advanced Connectors

HPE IDOL Advanced Connectors are add-on modules that can be applied to HPE IDOL Premium Search and HPE IDOL Ultimate. They are licensed by a number of HPE Advanced Connectors and a license key is for a specified number of HPE Advanced Connectors. To modify which specific connectors are licensed, you must obtain a new license key. Modifications to connector license keys can be done once per month. HPE Advanced Connectors include the ability to connect to and access data from repositories.

The following connectors are HPE IDOL Advanced Connectors:

- Box
- Chatter
- Confluence
- DataSift
- Documentum
- Dropbox
- Evernote
- Exchange
- Exchange Web Services
- IMAP
- Lotus Notes
- Lync® Archiving
- Lync Group Chat
- OCS
- OneDrive
- Oracle
- Oracle UCM
- POP3
- RSS
- Salesforce
- SAP® NetWeaver
- SharePoint
- SharePoint Remote
- Skype for Business
- SourceOne
- HPE StoreAll
- Twitter streaming

HPE IDOL Plus Connectors

HPE IDOL Plus Connectors are add-on modules that can be applied to HPE IDOL Premium Search and HPE IDOL Ultimate. They are licensed by a number of HPE IDOL Plus Connectors and a license key is for a specified number of HPE IDOL Plus Connectors. To modify which specific connectors are licensed, you must obtain a new license key. Modifications to connector license keys can be done no more often than once per month.

HPE IDOL Plus Connectors include the ability to connect to and access data from repositories. The following connectors are HPE IDOL Plus Connectors:

- Alfresco
- Drupal
- Documentum PLUS(+)
- Ektron
- ENOVIA
- Enterprise Vault
- eRoom
- Exchange PLUS(+)
- FileNet P8 PLUS(+)
- Hadoop, IBM Content Manager
- IBM Seedlist
- JIRA
- Jive
- Lotus Notes PLUS(+)
- OpenText/Hummingbird
- SAP NetWeaver
- SharePoint PLUS(+)

HPE IDOL Plus Connectors marked (+) also include one or more advanced features such as:

- **View:** View a document in native or near-native view
- **Collect:** Retrieve documents and send them to a destination, such as a shared folder
- **Hold:** Make a set of documents unchangeable in the source repository
- **Release:** Feature provides the opposite capability of Hold
- **Delete:** Delete, unlink, and remove a set of documents from a repository
- **Update:** Change repository metadata about a set of documents (created time, author, and others)
- **Insert:** Add a document into a repository

Glossary

Cluster: A set of instances created on one or more servers for the express purpose of improving the capacity, performance, or availability characteristics of a single instance

Concurrent media asset: Simultaneous use of more than one media asset at any point in time

Core: A part of a CPU that executes a single stream of compiled instruction code

CPU: A system in a single integrated circuit package with one or more discrete processing cores

Document: A text unit (and its associated metadata) that is independently returnable as a search result

E-LTU and E-Media: Products, which are only delivered electronically; as such, any reference to FOB destination or delivery methods that are stated on your purchase order other than electronic shall be null and void with respect to these E-LTU or E-media products

GB: Gigabytes, which designates the amount of physical capacity that can be managed

Ingest channel: A single input to the analytics server that can handle one external source of rich media at a time

Instance: Each implementation of the application installed on a server

HPE IDOL raw data size: The uncompressed size of all documents, including text and metadata that are stored in a node table excluding any deleted documents that have not been purged

LTU: License to use

Media asset: A single file containing either video, audio, or image content

Rich media: Video, audio, or image content either as a file or continuous stream via IP

Server or SVR: Means any designated computer system in which an instance or instances of the software are installed

TB: Terabytes, which designates the amount of physical capacity that can be managed

Term license to use or Term LTU: A software LTU, which indicates in its license description that the license is valid for a specific period of time such as one month (1M), one year (1Y), and the like; term LTUs are not perpetual licenses

Term support: A fixed period support offering that is only valid during the period of the associated Term LTU

Unlimited or Unl: Without restrictions in terms of a number of systems, devices, or media, depending on the context

User: A user whose use is restricted to the type of software that is being licensed

“With IDOL, we can understand what actually happened in the world, forecasting the future.”

Kaz Komba, Director, Point Three Co. Ltd¹

¹ TechValidate Survey, September 2015

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hpe.com/idol



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