search made simple

by deploying
a9 AppConnect for Aras Innovator ®

march 2012
sam abu-hamdan, dick bourke

alcove9

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March 2012

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For the Aras Innovator® community

a9 AppConnect for Aras Innovator
provides expanded searching capabilities
that will help **Aras Innovator®** users
achieve their strategic objectives.

prologue

need for extended search capabilities

Many engineering and manufacturing companies constantly struggle to find existing product data when it's vital for timely, fully informed decision-making. Unfortunately, finding this data is often time-consuming and frustrating because users may not remember where it is located. The information may be stored in various formats scattered in isolated data silos throughout the organization.
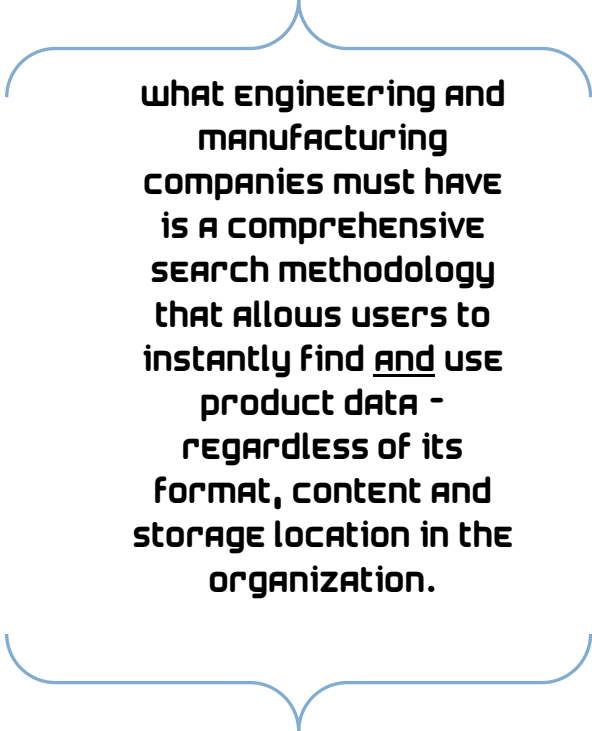
Ineffective search time is wasteful and drains productivity and morale. Key strategic initiatives, such as Lean Product Development and Design Re-use, may suffer. These dire conditions obstruct the continual quest for competitive excellence.

> what engineering and manufacturing companies must have is a comprehensive search methodology that allows users to instantly find and use product data - regardless of its format, content and storage location in the organization.

Now, there is a solution…

Alcove9 LLC, in partnership with Aras, has collaborated to provide an effective search solution called the **a9 AppConnect for Aras Innovator**. It is a component of a comprehensive suite based on proven products for on-premise search, and established on an open source platform.

As stated by Peter Schroer, President of Aras:

> "As new product development becomes more complex and geographically dispersed, advanced search becomes increasingly critical – so we are very pleased to welcome Alcove9 to the Aras Partner Program and the Aras Community. We know this solution is one our Community Members will find appealing and we applaud Alcove9 for migrating to an open source platform."

value of a9 appconnect for aras innovator

Users achieve significant benefits from their current Aras Innovator system, including its search capabilities for data that is *within the scope of its deployment*.

Yet, users want and expect to make fully informed analyses when critical decisions are pending, for instance, when launching new products or managing engineering change. Companies, though, may have a myriad of product data sources, some that are not currently integrated with Aras Innovator.

These sources may include one or more data management systems; an enterprise resource planning (ERP) and other systems; and numerous flat files, such as PDF files, to cite a few.

Therefore, to gain additional benefits from Aras Innovator, users must have the ability to find and use relevant product data located **anywhere** in the enterprise – at the touch of a button.

As emphasized by Peter Schroer:

> "When users can quickly and easily locate product-related information no matter where it resides in the company, re-use goes up, costs go down and time-to-market accelerates."

The **essence** of **a9 AppConnect for Aras Innovator** is to provide expanded searching capabilities that will help companies using **Aras Innovator** achieve their strategic objectives.

Here's how…

what's next

- A description of the product choices offered for Aras Innovator users.

- An explanation of the many searching methods, ranging from Simple – for single objects to the powerful a9 Global Search – for multiple objects.

a9 appconnect for aras innovator - introduction

preface

Forward-thinking managements implement improvement initiatives to boost their competitive position. Lean Product Development and Design Re-use are two of these well-recognized programs deployed to accomplish strategic objectives, such as "Reduce Time-to-Market."

most design re-use initiatives rely heavily on properly classified and coded naming conventions, metadata and attributes. avoiding costly re-purposing (or migrating) of existing data is a significant benefit of search-based applications.

- **Lean Product Development**[1] – Eliminating wasteful practices throughout the organization is one of Lean's fundamental principles. Therefore, Lean in product development must focus on improving unproductive processes, like searching for existing information *that can consume **up to 25% of an employee's time.**[2]*

- **Design Re-use** – Reducing the costs and risks of product development is its primary goal, gained when previous design information can be accessed – instead of reconstructing it because data can't be found. Incomplete information hinders achieving that goal, sabotages design efforts and extends product development lead-times.

alcove9 suite of products for aras innovator

The **a9 AppConnect for Aras Innovator** actively supports these initiatives. It is a Search-Based Application (SBA) grounded on the extensive capabilities of a search engine – coupled with semantic technology.[3]

When Aras Innovator users subscribe to the product suite, they can select from the following two functionality choices: Base Module or Bundled Solution[4].

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[1] Lind, Marc, "Lean in Product Development," Aras, 2011.

[2] The Information Advantage: Information Access in Tomorrow's Enterprise, IDC Executive Brief, October 2009.

[3] Search-based applications (SBA) are software applications in which a search engine platform is used as the core infrastructure for information access and reporting. SBAs use semantic technologies to aggregate, normalize and classify unstructured, semi-structured and/or structured content across multiple repositories, and employ natural language technologies for accessing the aggregated information. Source, Wikipedia.

[4] The a9 product suite pricing and subscription structure offers flexible, bundled solutions that address certain companies' requirements or a-la-carte set of software options that allow companies to select for their specific needs, depending on users, servers and applications.

base module

This module includes three components: a9 Hub, **a9 AppConnect for Aras Innovator** and an a9 interface embedded within Aras Innovator.

a9 Hub – This component is the cornerstone of the suite. It provides the core capabilities through a single, browser-based point-of-access. It allows the user to quickly search and view all needed data and file types in an easy-to-use, scalable, flexible and <u>secure</u> system. It contains the search engine that provides the indexing capability and thumbnail viewing of various file formats. In addition, it provides Virtual Profile Cards that show product data attributes and relationships, e.g., "Where Used" and "Composed Of."

a9 AppConnect for Aras Innovator – This component provides the functionality to access the database contents through the a9 Hub. It provides Out-of-the-Box (OOTB) classifications for the displays that can be configured to a user's specific requirements.

a9 Interface Embedded within Aras Innovator – This component allows users to trigger searching from <u>within</u> an Aras Innovator working session – *without a separate sign-on.* It provides access to all data stored in the Aras Innovator database, as well as that stored in other unstructured databases outside Aras Innovator.

Additionally, users can take advantage of the a9 Hub as a Web User Interface (UI) to search and retrieve all data stored inside <u>and</u> outside the Aras Innovator database. For example, some personnel may have critical information needs that must be satisfied immediately to make timely decisions, such as responding to a customer's field service problems or addressing quality corrective action plans.[5]

bundled solutions

This option is appropriate for users who work extensively with multi-CAD (computer-aided design) data. It includes the Base Module described above, and:

a9 CADViz – This functionality allows up- or down-stream users to find and visualize various CAD files/models, and to *analyze, annotate* and *markup* without dependence on the designer.   *It works with more than 15 different CAD solutions.[6]*

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[5] For more details, visit the a9 Hub videos at <u>www.alcove9.com</u>.
[6] For a list of these CAD packages, see <u>www.alcove9.com/product-solutions/a9-cadviz</u>

more key capabilities of the a9 products

Indexing – As data is created or modified, the search engine will automatically re-index any changes, thereby assuring that all retrieved data appearing on screen displays is up-to-date at all times. *The time interval for updating is user-defined.*

Security – The a9 products use the role-based definitions and access control lists (ACL) established for the Aras Innovator implementation.

Lightweight – The a9 Hub works with any standard browser, so *no client installation is necessary.*

Data Classification – As search results are revealed, the objects found are classified and counted to assist users in refining their search and swiftly retrieve the objects they are seeking.

Low-Disruption Implementation – **a9 AppConnect for Aras Innovator** is easily and rapidly embedded within Aras Innovator. Once initial indexing has been done, users can start searching – and generating benefits – with minimal training.

what's next

- An explanation of the many searching methods, ranging from Simple – for single objects – to the powerful a9 Global Search – for multiple objects.

- A presentation of the displays showing many search options – and the results – that assist users to find relevant data for timely decision-making.

A9 AppConnect for Aras Innovator – in Action

Preface

By deploying **a9 AppConnect for Aras Innovator**, users gain immediate access to all relevant product data required to make fully informed decisions. As a result, they can make significant progress towards eliminating wasteful search methods, thus, enhancing Lean Product Development and Design Re-use initiatives.

No more wasted time searching with no guarantee of success!

The **a9 AppConnect for Aras Innovator** provides a wide range of product data selecting and searching capabilities for:

Single objects – applying any of three methods:
1) Simple Search (supplied OOTB by Aras Innovator)
2) Advanced Search (supplied OOTB by Aras Innovator)
3) a9 Search

Multiple objects – applying a9 Global Search, a comprehensive, all-inclusive and in-depth approach to accessing and retrieving required data – well beyond naming conventions, object types, metadata and file attributes.

The following information will:
- Explain the Table of Contents (TOC) and Category Templates
- Describe the three single object search methods
- Explain the a9 Global Search function that takes advantage of a9's strength as a Search-based Application (SBA)

Table of Contents and Category Templates

The TOC, a menu of search choices, is pulled from Aras Innovator, as are the Category Templates. The TOC is the starting point for all searching activity.

A Category Template defines the individual object format that will appear in the main pane on the screen and applied when an object, for instance, Part or Document, is selected. Its OOTB classifications (column headings) can be configured to meet specific user needs. Typical TOCs and Category Templates are shown in figures 1 and 2.
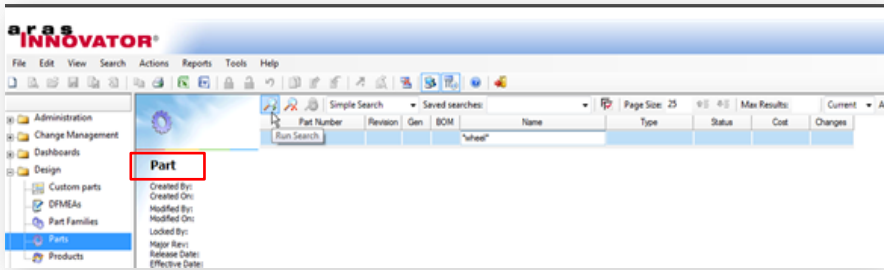
Figure 1: Screen Format – Part Object
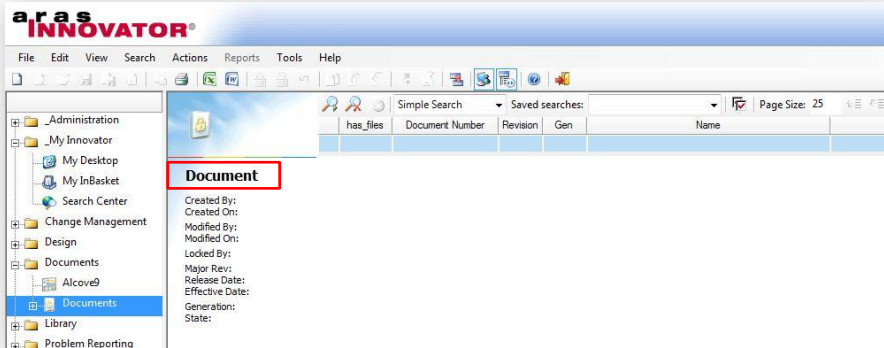
Figure 2: Screen Format – Document Object

single object searching methods

To illustrate a Category Template search, the Part folder, in Figure 1, has been selected. Searching continues with a search type selected from the Pull-Down list. Several types appear; three are relevant for further explanation:

Simple Search – Searches for and displays objects selected in the TOC pane. Searching is restricted to pre-configured properties when a search criterion is entered.

Advanced Search – Extends the Simple Search to all attributes; not limited to those in the table views.

a9 Search – Provides in-depth searching, beyond metadata and file attributes.

For these three search methods, results can be generated for any record with:

The exact search criteria – by entering one or more words   **OR**
A partial match of the search criteria – by entering the search criteria enclosed with asterisks.

The results are displayed in a table format.

simple and advanced search

These two search methods are from Aras Innovator. For example, applying the Simple Search choice on Part object for *wheel* gives a list of retrieved records, shown in Figure 3.

Figure 3: Simple Search – Applying Part Object Category Template

Advanced Search is the next level of capability after Simple Search and it extends to all properties within a single object. They are not limited to those in the table views.

Choosing Advanced Search, using the *wheel* search criteria and adding a second criteria of State = Preliminary, for instance, will produce a more refined display of the Part objects.

Item Type	Property	Operation	Criteria[...]
Part	Name	like	*wheel*
Part	State	=	Preliminary

By clicking the Run icon, the search results are narrowed down, as revealed in Figure 4.

Figure 4: Advanced Search – Applying Part Object Category Template

Figures 3 and 4 show product data based on the selection of a Part object. The results presented are valid, though limited; more relevant data may be vital to make fully informed decisions.

a9 search

A third search option is the a9 Search, which appears on the search Pull-Down menu. It also only executes within the scope of Aras Innovator. However, there are three significant new capabilities:

1. The a9 Search will display all records where property values match the search criteria, regardless of which property is associated with that particular object type. If there is a file associated with the object, a9 Search will seek the associated file, extending the search beyond metadata and file attributes. Search will now retrieve data from anywhere in the title or anywhere in the content of an attached document file. This is a significant capability, known as **"Full Text" search**.[7]

2. For those objects with attached files, the a9 indexing process will generate a **clickable preview version** for many file types (thumbnail view). It will present the thumbnail view of the attached file to further help users quickly find targeted data. Clicking it will bring up a full view.

3. The appearance of sub-classifications may change from those displayed before the search because of "filtering" during the retrieval process; those that are no longer valid are greyed out, as illustrated in Figure 5.[8]

Furthermore, the screen format for a9 Search will show these OOTB classifications: **Revision, Has Files, Type, Status, Changes and Generation**. Each classification lists individual sub-classification selections with numbers appearing after them. The numbers indicate the quantity of all object types or properties available for further exploration, helping the user to further refine the next search. The OOTB classifications are configurable to meet users' unique requirements for displaying their individual preferences.

Example: For a9 Search, applying a Category Template for Document and using a search criterion of "golf," reveals all documents with "golf" **anywhere in the title OR anywhere in the content** of an attached document file, as shown in Figure 5.
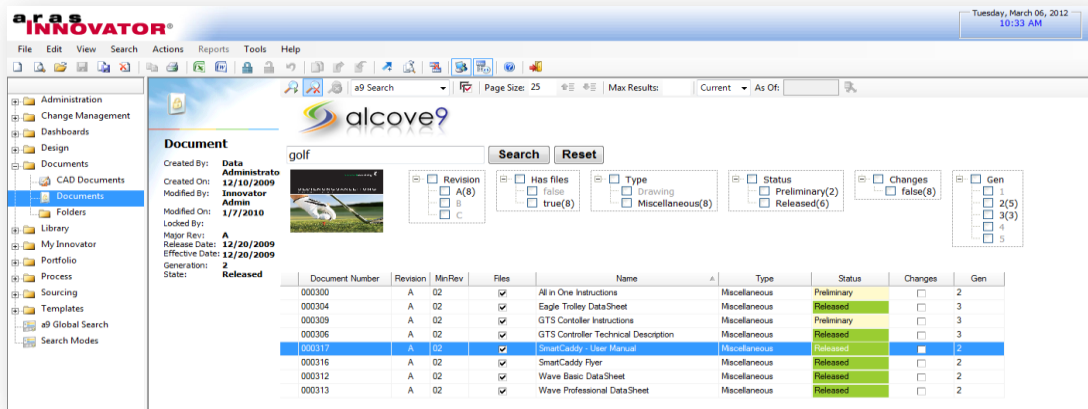
Figure 5: Results of a9 Search – Applying Document Object Category Template

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[7] Full text search is distinguished from searches based on metadata or on parts of the original texts represented in databases (such as titles, abstracts, selected sections or bibliographical references). In a full text search, the search engine examines all of the words in every stored document as it tries to match search criteria (e.g., words supplied by a user).

[8] Filtering is also known as "Faceted Search," a term that describes the sub-classifications in which objects have been placed.

multiple object search – a9 global search

The a9 Global Search provides expanded capability to access and retrieve all objects or file types stored and maintained in Aras Innovator and, additionally, those stored outside Aras Innovator in unstructured databases.[9] It is not limited. It is an all-inclusive and in-depth approach to accessing and retrieving needed data – well beyond naming conventions, object types, metadata and file attributes.

The TOC, in Figure 6, displays a Template (Category) that identifies a9 Global Search. When a user makes this selection, its capability is brought into play with a new screen format that consists of two new classifications (underlined) compared to the ones previously seen in the a9 Search. They are **Classification, Creator, Status, Revision and Generation**.

Like the a9 Search format, users can configure, as appropriate, the OOTB classifications. For a9 Global Search, however, they must be common across all object types included in a9 Global Search mode.
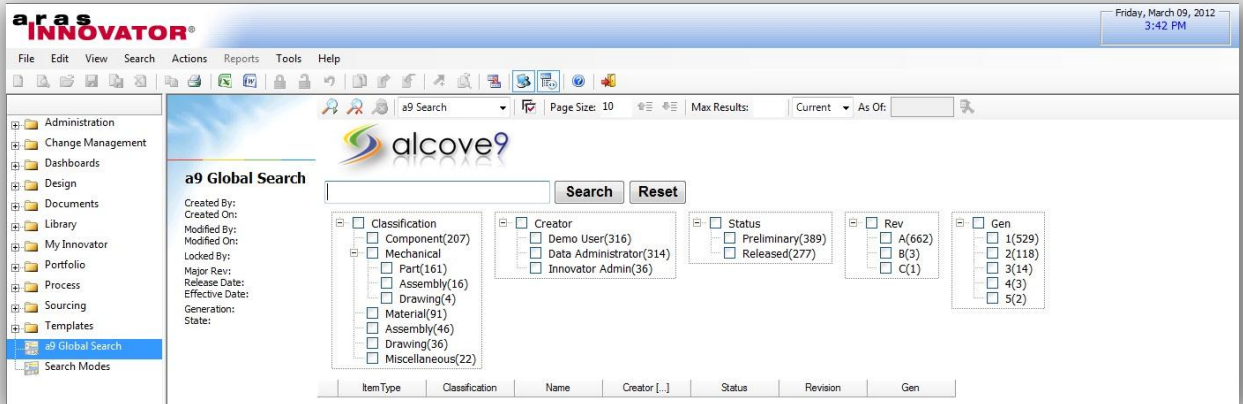

Figure 6: Format for a9 Global Search – Before Search Entry

When a user triggers a9 Global Search, it will search for all object types and properties that have been indexed, in order to present the desired search results. Another significant capability now stands out in the results table, as revealed in Figure 7: Under *Item Type*, one Document object and two CAD Document objects, as well as several Part objects, all appear in that column indicating a record match within a property for any of the aforementioned objects.

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[9] The **a9 AppConnect for Aras Innovator** is also capable of searching structured databases, e.g., ERP, outside of Aras Innovator provided the relevant a9 AppConnects are installed.
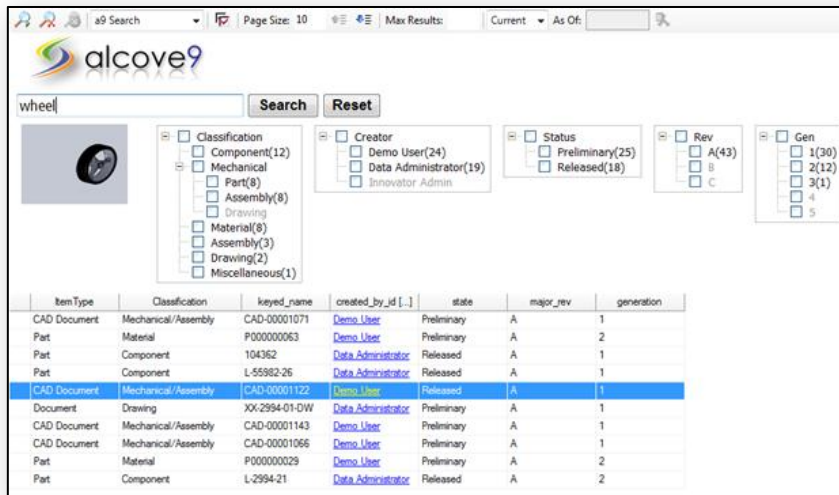
Figure 7: Results of First a9 Global Search

Moreover, to support a vigorous Design Re-use initiative, even more capabilities are available. In particular, for companies with inconsistent naming conventions and metadata formats, users can narrow more searching by:

1. Entering search criteria using Boolean logic with AND/OR/NOT operators, for instance, "wheel" AND "spokes."

2. Selecting one or more sub-classifications by checking the appropriate boxes, as shown in Figure 8.
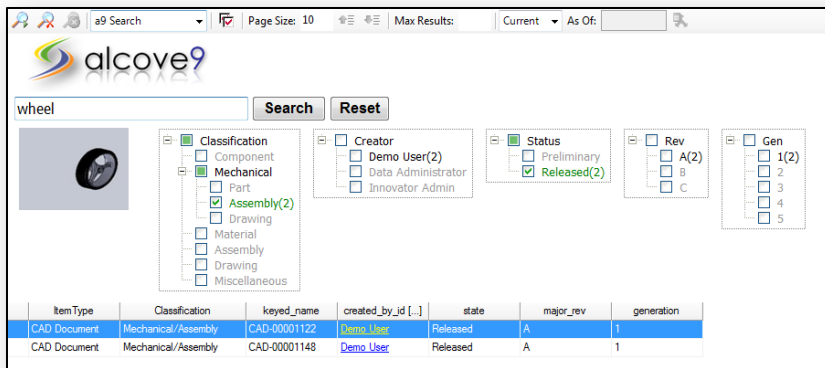
Figure 8: More Results of a9 Global Search

By right clicking any selected line from the search result table, the menu, in Figure 9, will present a full list of built-in choices from Aras Innovator, for further review and possible action. Users now have a wealth of choices to refine searches until their needs are fully satisfied. In this example the *Item View* will bring up an Aras Innovator Profile Card (not shown). A user may explore one or more Profile Cards until an appropriate course of action is determined.
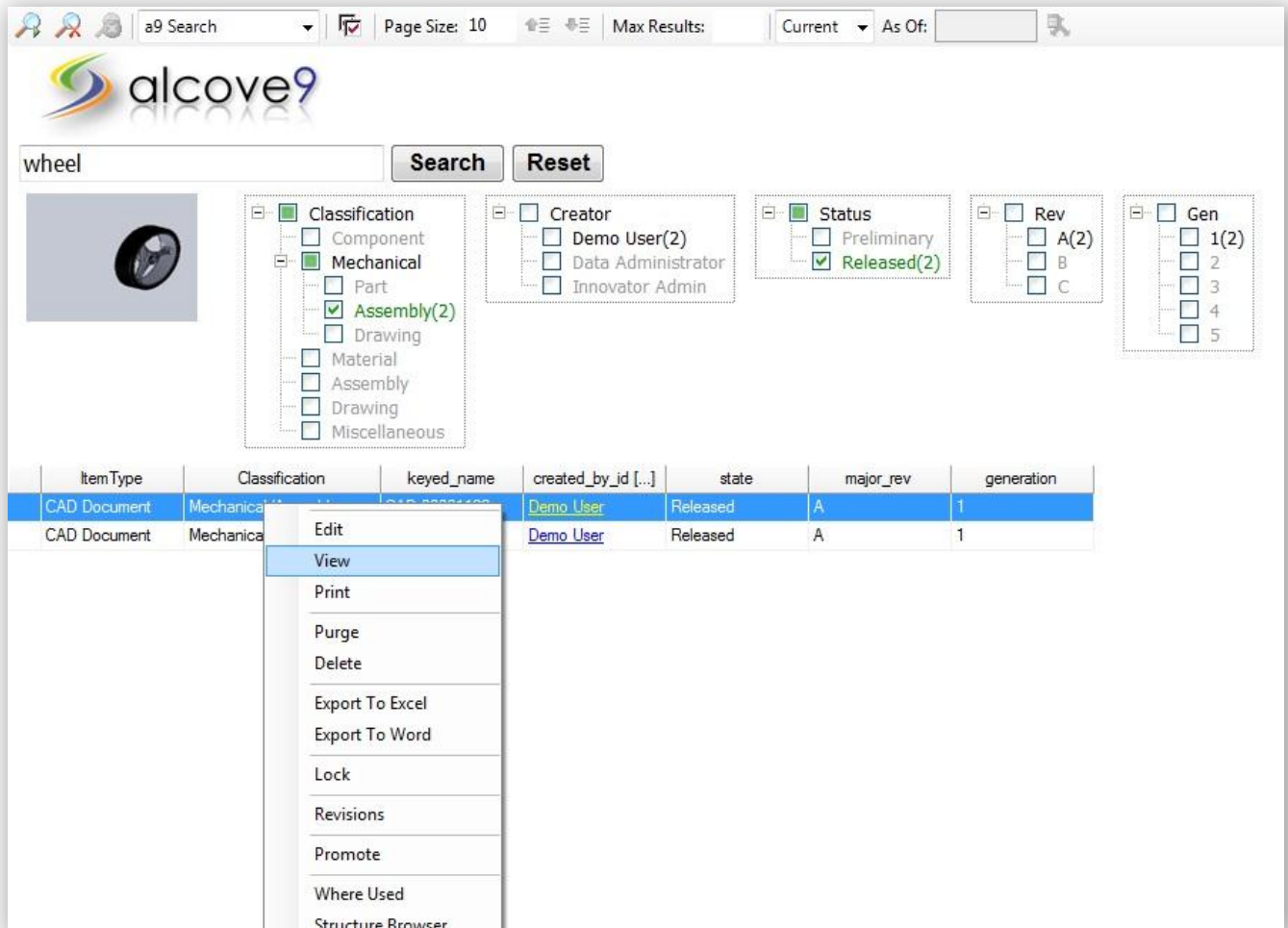
Figure 9: Functionality Choices for Further User Review and Action

In the **a9 AppConnect for Aras Innovator**, therefore, a9 Global Search's expanded capability encourages users to more thoroughly search for all relevant data; it enables well-informed decisions grounded on surfacing and analyzing the retrieved data. Users can be more productive utilizing the Aras Innovator system and, as a result, enhancing their company's product design abilities.

A9 Appconnect for Aras innovator — final thoughts

The above sequence explains the progression of capabilities from a Simple Search through the a9 Global Search. It explains the customizable options and the in-depth explorations the users will have to refine their searches and to access needed product data – **quickly and efficiently**.

Even so, finding the relevant product data is only the first step. To reap the rewards demands another essential step: users making timely, fully informed decisions by taking advantage of the search results from **a9 AppConnect for Aras Innovator**.

Moreover, eliminating the wasteful, often fruitless searching for product data, essential for effective Lean Product Development, will allow more thoughtful, complete Design Re-use efforts. The cumulative effect will help the company attain its top-level strategic objectives, such as the often-mentioned "Reduce Time-to-Market."

top 5 benefits of deploying a9 Appconnect for Aras innovator:

1. Saves time (therefore, money) by instantaneously finding data that's required – when required
2. Increases quality of decisions by having ALL the data needed to make informed decisions
3. Reduces costs and risks of design reconstruction because prior information couldn't be found
4. Cuts customer response times
5. Avoids costly re-purposing (or migrating) of existing data

To find more information about the a9 suite of products, please visit our web site at www.alcove9.com. To arrange a private demonstration of the Base Module and/or the Bundled Solution, or for questions about a trial period, please contact us at +1.248.287.1444.

About Alcove9

The Alcove9 suite of products provides on-premise advanced search solutions for engineering and manufacturing teams to resolve the daily challenges of product data accessibility. Since its initial release in the mid-2000s, it has helped more than 100 companies and 120,000 users quickly and easily find, view and use their data for timely decision-making and data reuse. Search-engine-like, browser-based and application-embedded interfaces enable users to search beyond naming conventions, metadata and file attributes. Search results include information from deep within each file, independent of its content, format or location. No data migration or client-side installation is required, negating costly implementations and disruptive deployments.

The a9 product suite is backed by a team of professionals with many years of experience in process designs for improving engineering product development, enterprise applications integration and workflow in the engineering to manufacturing continuum. Furthermore, an advisory board of several experts brings a broad industry prospective to the a9 team's on-going product development efforts. For more information, visit www.alcove9.com.

About Aras Corporation

Aras is the leading provider of enterprise open source Product Lifecycle Management (PLM) software solutions. Freedom from licensing eliminates up-front expenses and per user costs while superior technology makes Aras the most advanced enterprise PLM solution suite available. Customers include Motorola, Freudenberg, GE, Hitachi, Lockheed Martin, Rolls-Royce, Textron and TEVA Pharmaceuticals. Aras is privately held with global headquarters in Andover, Mass.

For additional information, visit www.aras.com.

Alcove9 LLC
15 East Burdick Street
Oxford, MI 48371
USA
Email: info@alcove9.com
Website: www.alcove9.com
Local: 1.248.287.1444
Toll free: 1.866.821.8346