LSN ADVANCED SEARCH

The LSN Advanced Search page allows users to fine-tune queries against the LSN knowledge base repository. The search page utilizes four (4) types of input fields:

- Keyword-based fields
- Date range-based fields
- Source filter-based fields
- Conceptual-based fields

Entering values in multiple fields has a cumulative effect, i.e., entering a title and a version indicates that only records that successfully match both criteria will be displayed in the results list.

The following table lists each of the Advanced Search form fields. Clicking a field name will provide further information on the field content; while clicking the field type link will provide further information on how to use the type of field input.

Field	Field Type
Title	Keyword
Dates	Date Range
Document Number	Keyword
Document Type	Keyword
Author Name	Keyword
Author Organization	Keyword
Addressee Name	Keyword
Addressee Organization	Keyword
Related Record Number	Keyword
Related Record Code	Keyword
LSN Accession Number	Keyword
Participant Accession Number	Keyword
Information Sources	Source Filter
Document Content	Conceptual
Version	Keyword
Traceability	Keyword
Descriptors	Keyword
Package Ids	Keyword
QA Record	Keyword
Non-Digital Media	Keyword
Access Controls	Keyword
Comments	Keyword

Keyword-Based Search Fields

Keyword-based search fields are used to provide search criteria against the knowledge base information provided by the LSN participants through their bibliographic headers.

Keyword-based searching allows the user to enter one or more meaningful words separated by spaces. The search algorithm looks at the appropriate field (Author Name, Title, Version, etc.) for any exact match for the words entered in the same order, or a match on a *stemmed* version of each word.

When a keyword phrase is entered in quotes, the search algorithm looks for an exact match with no additional words.

> Example: Entering [Nuclear Waste] into the Title field would return all documents with the term "nuclear waste" in their title. Entering ["Nuclear Waste"] would return documents that were titled "Nuclear Waste," a much smaller subset of the first search.

When keywords are entered into multiple fields, the criteria results are ANDed together. If any one of the fields fails to find a match, the entire query will fail.

> Example: Entering [Nuclear Waste] into the Title field and [Magoo] into Author Name would cause two criteria to be processed. The search engine would probably match the term in the title, but probably would not find a match for the Author Name. Therefore, no results would be displayed.

Wildcard, pattern matching, and Boolean functionality are NOT supported in the keyword-based search fields.

Date Range-Based Search Fields

Date range searching is based on the document date specified by the participant in their bibliographic headers.

You may use the following date options for your search:

- Leave both the "From" and "To" dates empty, indicating that you do not want to limit your criteria to a date range.
- Enter only the "From" date, meaning "include in the search results all documents with a date on or after the From date specified."
- Enter only the "To" date, meaning, "include in the search results all documents with a date before or equal to the To date specified."
- Enter both dates, meaning, "include in the search results all documents in the specified date range."

When entering dates, you must select the month from the drop-down list, type in the day, and type in the four-digit year. All of these fields must be entered in order for a valid search to occur. Any entered dates are validated before the query is submitted.

Source Filter-Based Search Fields

The information sources are separate storage locations within the LSN repository, with each storage location representing a specific LSN Participant Organization. By separating the documents into these storage locations, fine-tuning the search criteria can be readily accomplished.

By default, all information sources are selected. An information source may be included or excluded by placing, or removing, a check in the check box provided to the left of each source listing.

All information sources may be selected by clicking the **Select All** button.

All information sources may be deselected by clicking the **Deselect All** button.

NOTE: At least one (1) information source must be selected before a query can be submitted to the search engine.

Conceptual-Based Search Fields

Conceptual-based search fields provide an extremely flexible method of retrieving results from the knowledge base. All conceptual-based searches are conducted against the repository index, which is built using the actual document content, along with each of the fields provided by the participants through their bibliographic headers.

Mechanisms included in conceptual-based searching include:

- Natural Language Queries
- Boolean Queries
- Combined Operator Queries
- Exact Phrase Queries
- Proximity Queries
- Wildcard Queries

A general query is more likely to match a larger selection of documents. As the query becomes more specific, the number of documents selected will be reduced.

Natural Language Queries

Enter a phrase that describes what you want to find. Use specific, explanatory language to improve results.

Example: To locate articles about the wireless Internet, entering [wireless Internet] will provide more specific information to a search than just entering [Internet]. Using more words produces better results.

Boolean Queries

A Boolean search can be used to link two or more searches together. The query operators for Boolean searches include OR, AND, and NOT. They must be in *uppercase letters*. Parentheses can be used to group expressions in the query.

The operators and their uses are as follows:

AND will return all documents that contain the words specified in the search box.

> Example, entering [tuff AND water] will return all documents that contain both the words "tuff" and "water".

OR will return all documents that contain at least one of the words specified in the search box.

> Example: Entering [tuff OR water] will return documents that contain the word "tuff," the word "water,", or both.

By default, the search engine automatically assumes the multiple words entered in the search box are OR'd, so [tuff OR water] is equal to [tuff water]. In other words, OR need not explicitly be used; the search engine assumes it is there.

NOT will return all documents that contain the first word entered in the search box but not the second word entered.

> Example: Entering [tuff NOT water] will return documents that contain the word "tuff" but not the word "water".

Combined Operator Queries

Search operators can be combined to enhance a search. In these cases, the word or word strings must be enclosed in parentheses.

> Example: Entering [(water OR tuff) AND (mountain AND repository)] will return all documents meeting the two separate search criteria enclosed in parentheses. The result will be a list of all documents that contain either the word "tuff", the word "water", or both "tuff" and "water" plus the words "mountain" and "repository".

Exact Phrase Queries

Entering a query with double quotes around the words will result in a match with anything containing that exact phrase.

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Example: Entering ["Environmental Impact Statement for the Geologic Repository Operations Area"] will search for that exact word string. The same word string without the quotation marks will return a list of all documents that contain any of the words "environmental", "impact", "statement", "geologic", "repository", "operations", or "area" (which will be a much longer list).

Proximity Queries

Proximity queries seek the documents that contain the search terms by default within ten words of each other. The NEAR operator is used and it must be in uppercase.

Example, entering [Spencer NEAR Abraham] results in documents that contain the word "Spencer" within ten words of the word "Abraham." A user can also adjust this range, for example [Spencer NEAR4 Abraham] will return results for all documents that contain the word "Spencer" within four words of the word "Abraham".

Wildcard Queries

Wildcards can be used to aid in searching when a user does not precisely know how to spell a word or is looking for similarities. An asterisk (*) is used to replace any set of unknown letters in a search term.

Example: Entering [Cal*] would return any documents with words beginning Cal. This would include "Calcite," "calculate," "calibrate," etc.

A question mark (?) can also be used to replace a single unknown character.

Example: Entering [d?n] would return documents containing three-letter words beginning in d and ending in n; this would include "Dan," "den," "Don," etc.

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