

The WISEsearcher i2b2 Webclient Plugin v1.1.1

User Manual

Abstract: This plugin provides an easy & efficient way for a researcher to identify the subset of Workplace items (within the Workplace panel of the i2b2 webclient) that may be relevant to certain studies. It allows researchers to specify the keywords to search against the annotations and names of these items. In addition, researchers can also specify exclusion terms to further focus their searches. The resulting list / tabulation of such items (containing the specified keywords in their annotations) can be readily exported into an Excel spreadsheet or CSV (comma separated values) file for easy references.

When used appropriately, it should significantly help a researcher in narrowing down the subset of the Workplace items (queries, patient sets, etc.) that could be promising in furthering one's investigations.

Background

The following is excerpted from the MICARD (Massachusetts Integrated Clinical Academic Research Database) website (<http://micard.umassmed.edu/>):

MICARD is the UMass implementation of the i2b2 (<http://www.i2b2.org>) informatics platform for clinical research. MICARD helps researchers overcome one of the greatest problems in population-based research: Rapidly compile large groups of well-characterized patients. Qualified investigators may use the MICARD web-based query tool to determine the aggregate total number of patients at participating UMMHC hospitals who meet a given set of inclusion and exclusion criteria (currently demographics, diagnoses, medications, and laboratory values). Because counts are aggregate, patient privacy is protected.

These data will be most useful for investigators interested in:

- Generating new research hypotheses.
- Preparing grant applications that would benefit from pre-identification and/or characterization of a potential research cohort.
- Identifying potential cohorts for clinical trials.
- Identifying consented bio-samples from the UMMS Conquering Diseases Bio-repository.

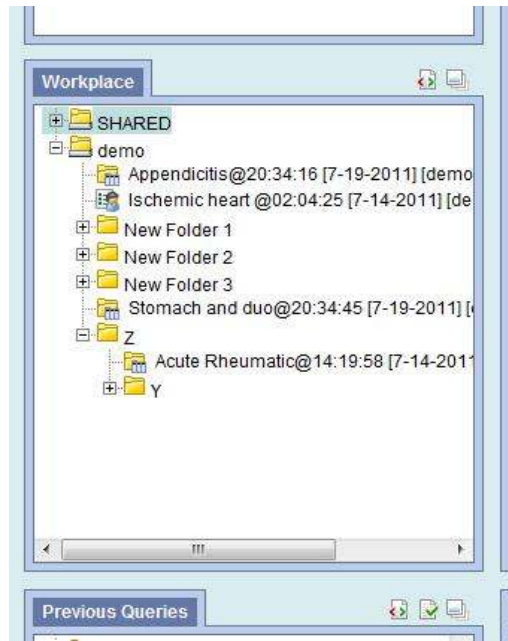
Through the years of its existence, i2b2 has been continuously proving its importance to the researchers as its user base grows.

At a high level, the i2b2 framework (that MICARD is based on) can be said as consisting of a hive of functional cells that manage, manipulate, and convey the payload biomedical data. As a user, a researcher relies on the i2b2 webclient to interface and specify queries to access the relevant data available.

As its name infers, the i2b2 webclient can be accessed using a web browser like Chrome, Firefox, Internet Explorer, and Safari, etc.

The i2b2 webclient contains panels for its users to issue queries through its handy drag-and-drop graphic user-interface (GUI). Users can drag and drop any queries they created into the

“SHARED” () folder of the Workplace panel, to share them with other researchers.



The i2b2 webclient also comes with a few “plugins” that are accessible under “Analysis Tools”.

Introduction

When too many researchers share their handy queries, the Workplace panel could wind up full of many such “shared” items. While thoughtful placements of these items within logical and hierarchical folder structures may help, manually combing through all the tree branches to try to locate or isolate all queries one may leverage off in certain studies may become somewhat of a daunting task. It is particularly difficult when certain queries may straddle multiple concepts.

Based on feedback from the users, it became obvious that some sort of tool to help searching these Workplace items is necessary.

The WISEsearcher Plugin

This plugin is part of the WISE (Workplace Items Sharing Enhancement) Tool Set developed as a result of feedback and suggestions from the i2b2 user community in the University of Massachusetts Medical School. As its name implies, the purpose of this tool set is to facilitate and enhance the sharing of the items or objects in the Workplace panel of the i2b2 webclient; to the extent that unnecessary repetitions of previous works can be prevented or minimized.

This plugin provides the following main functions:

1. Finds all Workplace items / objects (folders, queries, patient sets, etc.) containing the terms provided (in either their annotations or their names), in the condition selected.
2. Excludes any Workplace items containing the exclusion terms provided (in either their annotations or their names), per condition specified.
3. Tabulates such found items (with their corresponding icons) in the alphabetical order of their paths.

4. Optionally exports aforementioned tabulated data (without the item icons) into an Excel spreadsheet file or / and a CSV file conveniently.

The first function allows researchers to specify all the relevant search terms germane to their investigations at hand.

The second function enables researchers to exclude those workplace items that contain the exclusion terms that satisfy the given condition.

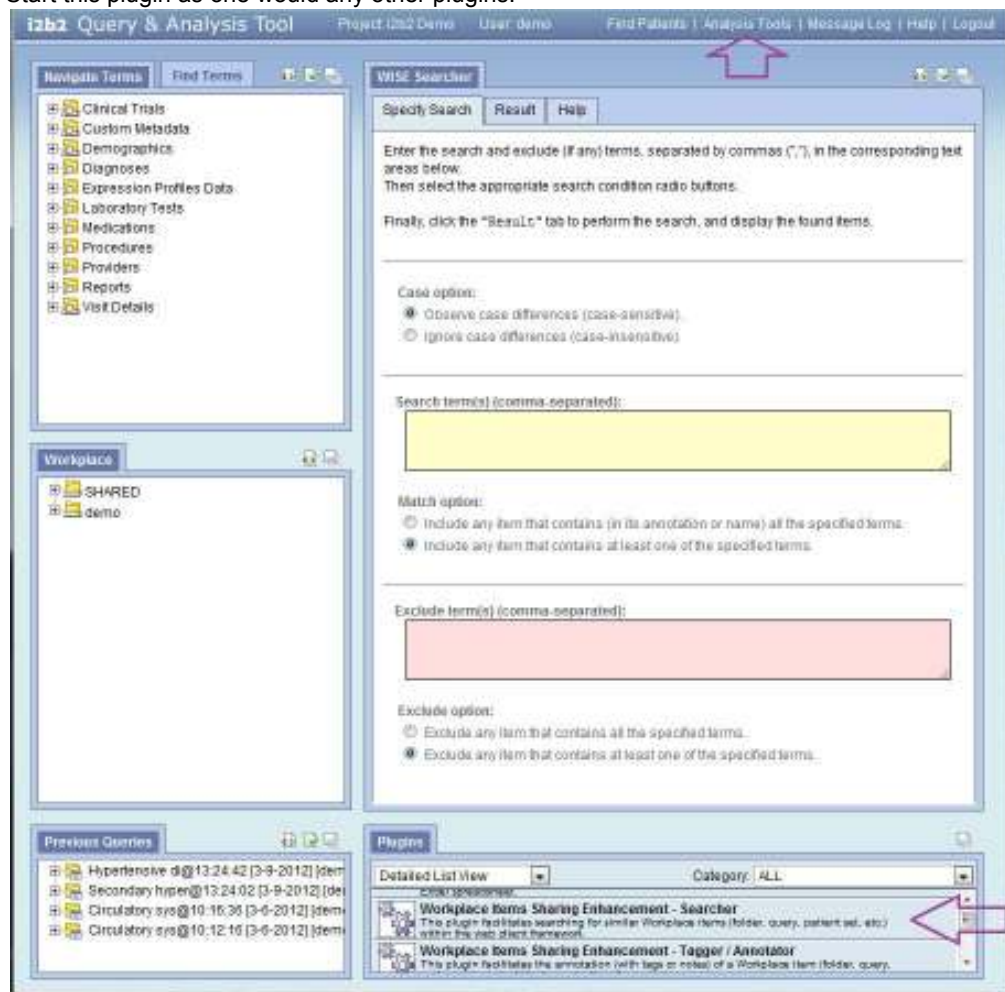
The third function provides researchers with detail tabulated search results that identify all the items that satisfy the search conditions. The search is carried out against both the annotation and the name of each item. These items are listed in the order of their paths (or tree branches), along with their appropriate icons, that closely resemble their presence in the Workplace panel tree, thus facilitating the accesses of those items.

The fourth function provides a convenient way for a researcher to save these data, for future references.

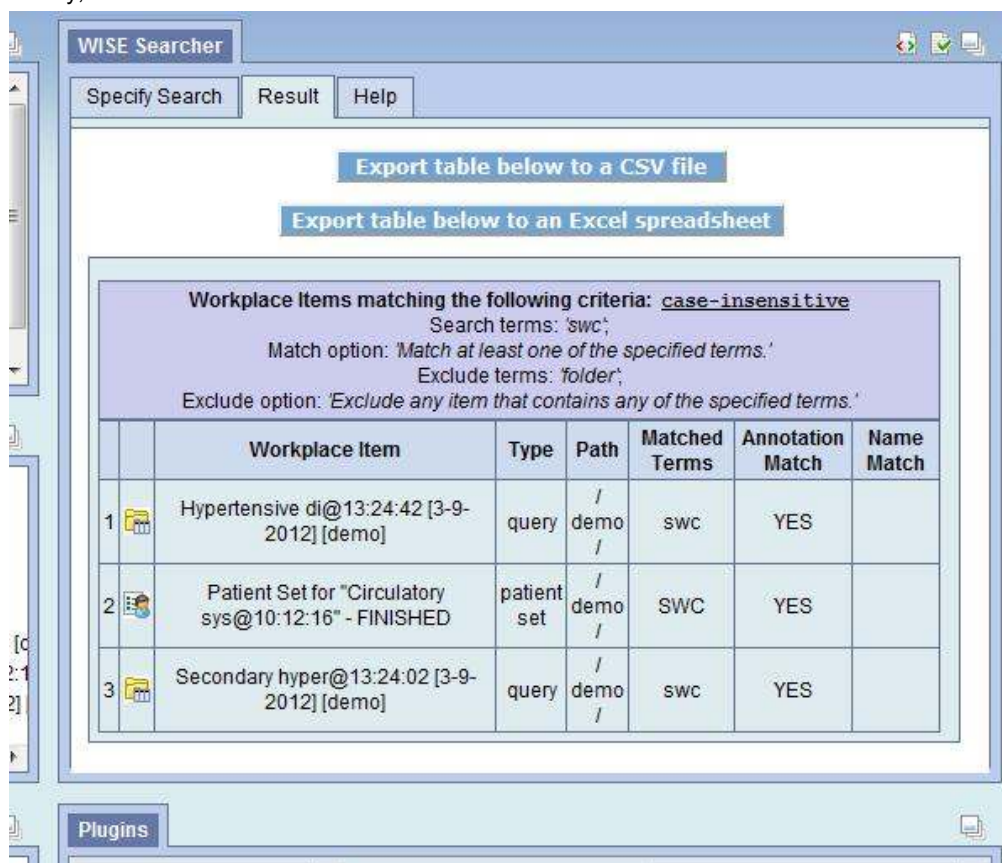
Usage Instructions

The high level navigational steps for using this plugin are as following:

0. Start this plugin as one would any other plugins.



1. Navigate to the "Specify Search" tab. Enter the comma-separated search terms into the input text area.
2. Select the appropriate *Case, Match, & Exclusion option* radio buttons.
3. Finally, click the "Result" tab to view the tabulated search result.



Now, to keep a record of this listing and move on to try something else, one can then export / download the table to an Excel spreadsheet or / and a CSV file.

Depending on the browser used, after clicking the "Export to Excel" button:

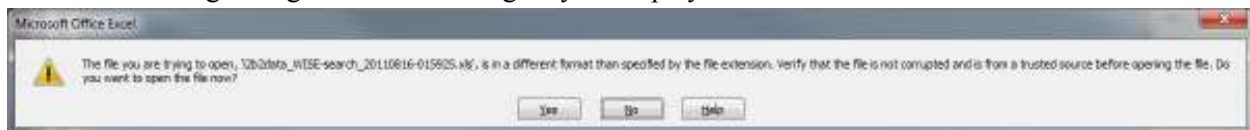
Export table below to an Excel spreadsheet

The user may be presented with dialogs to save the resulting spreadsheet; or, as in the case with Chrome (with certain settings), the spreadsheet with default name and unique time-stamp will be saved:

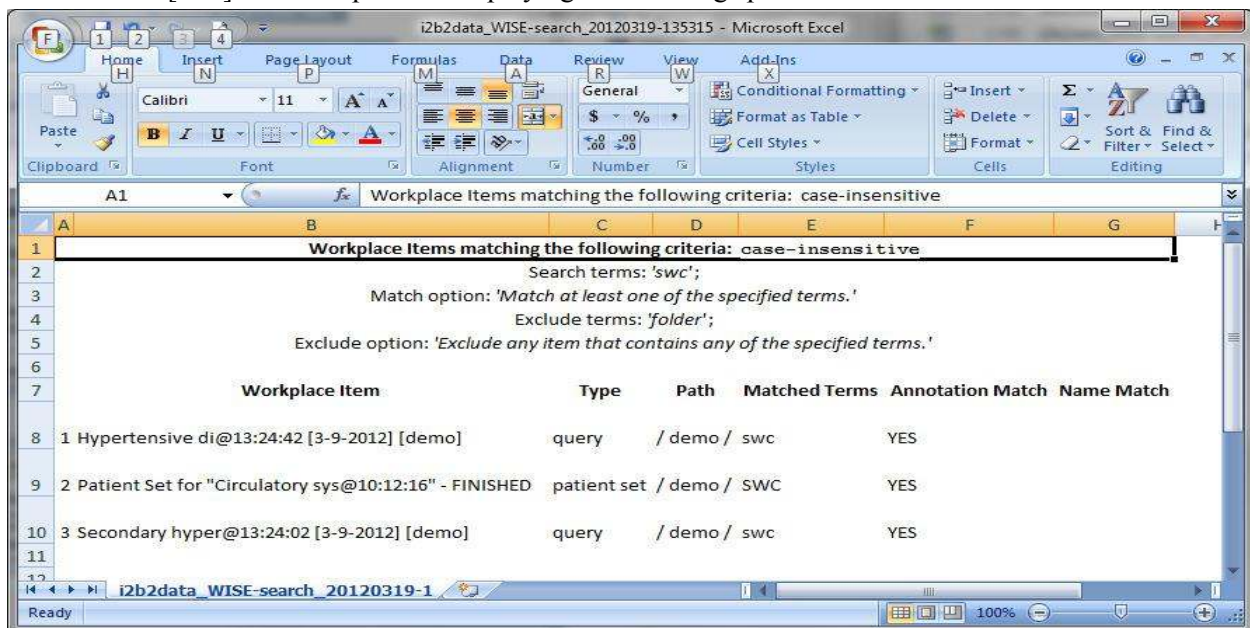


and can be readily accessed.

An Excel warning dialog like the following may be display:



Just click the [Yes] button to proceed displaying the resulting spreadsheet content:



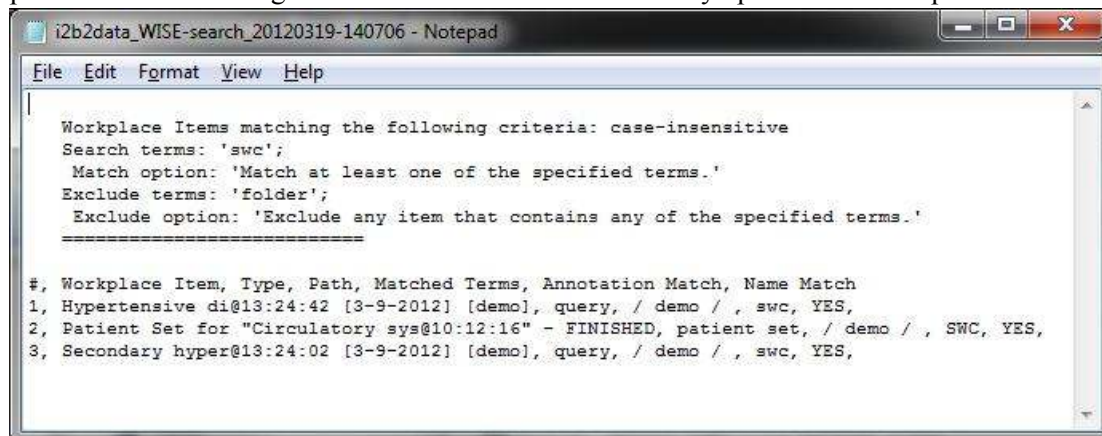
Similarly (again, depending on the browser type used), after clicking the “Export to CSV” button:

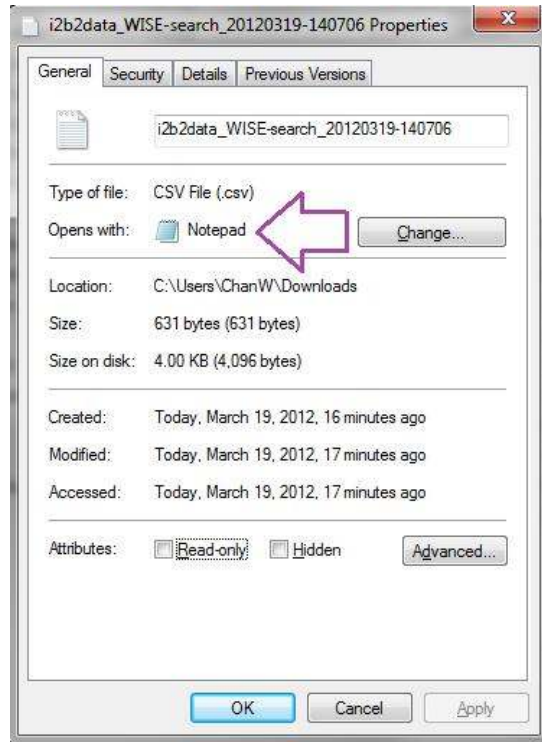
Export table below to a CSV file

The user may be presented with dialogs to save the resulting CSV file; or, as in the case with Chrome (with certain settings), the CSV file with default name and unique time-stamp will be saved:



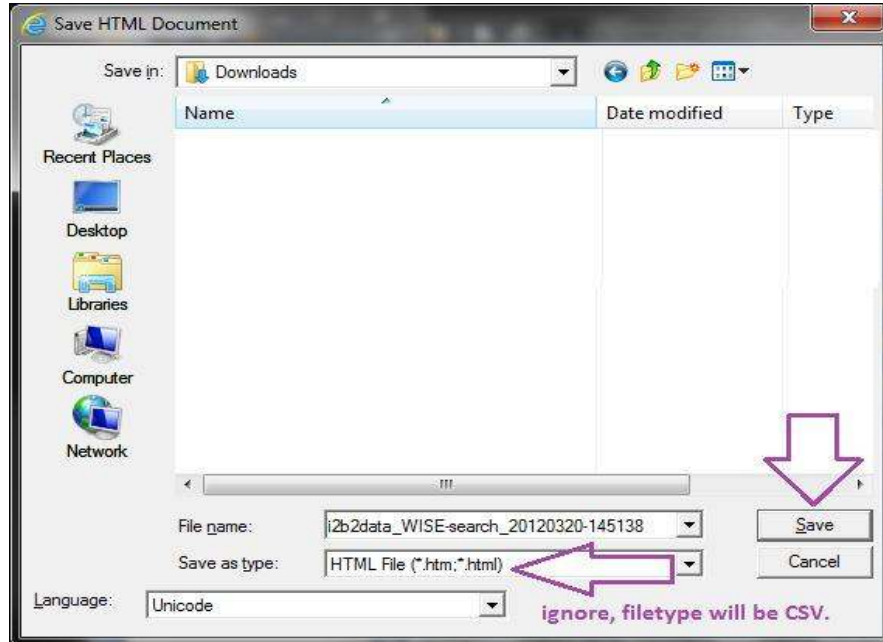
and can be readily accessed (NOTE: depending on one's Windows setting, one may have to edit the “Properties” of the resulting CSV file to have it be automatically opened with Notepad instead of Excel):





NOTE

When exporting to a CSV file on Internet Explorer, please ignore the “Save as type:” field content of the “Save . . . Document” dialog, as the resulting file will be saved as “.CSV” once the [Save] button is clicked:



Browser Compatibilities

- This plugin only works on the following browsers:
 - Firefox (v.4.0.1),
 - Chrome (v.12 – v.17),
 - Internet Explorer (v.8 & v.9), and
 - Safari (v.5.0.5).
- The i2b2 Web client itself does not work on the following browser:
 - Opera (v.11.50 or v.11.6.1).

i2b2 version compatibilities

This current version should be compatible with i2b2 v.1.3-1.7, and has been certified to be compatible with v.1.7.0.7.

Version History

1.0	Initial release By Wayne Chan, University of Massachusetts Medical School, Worcester, USA.	2011 Q3
1.1	Added supports for 'ignoring case', 'exclusion terms', & 'CSV export', etc.; updated both XLS & CSV exports to be independent of server php setting; & fixed the unscrollable panel problem, on IE, against i2b2 webclient v1.6.0.2. By Wayne Chan, University of Massachusetts Medical School, Worcester, USA.	2012 Q1
1.1.1	Updated "Installation Guide" to be compatible with the new Webclient Plugin Installer. By Wayne Chan.	2015 Q4

Terms of Use

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Conclusions

i2b2 has been and continue to be invaluable in expediting researches. Additional ongoing efforts to further assisting researchers to more efficiently identify their study cohorts are being pursued under the NIH CTSA Grant.

As a result, this webclient plugin, suitable for enhancing the i2b2 user experience and reducing the cohort-gathering cycle time, has been identified and developed for deployment.

The WISEsearcher provides a convenient but effective way for researchers to identify any Workplace items (shared by other researchers) that could be germane to their investigations.

This plugin is part of the tool set that targets the WISE (Workplace Items Sharing Enhancement) effort here in UMass Medical School, as well as throughout the world wide i2b2 user community. It should be an invaluable addition to an i2b2 user's toolkit. It should also contribute to further expanding the i2b2 user base.