



CATIES

END USER MANUAL

Phase 2 Version 2.0

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Version: caTIES v2.0

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Chapter 1 Introduction to the Manual

This User Manual was created to provide sites adopting the cancer Text Information Extraction System (caTIES) with information on how to query, browse and request annotated tissue data and physical material across the cancer Biomedical Informatics Grid (caBIG™). The audience for this document is the caTIES end user. This includes local administrators, honest brokers and researchers at adoption sites. Topics in this chapter include:

- Overview of caTIES Functionality
- Getting Started with caTIES
- Organization of the User Manual
- Document Text Conventions
- The caTIES User.

Overview of caTIES Functionality

caTIES focuses on two important challenges of bioinformatics:

1. Information extraction (IE) from free text
2. Access to tissue.

Regarding the first challenge, information from free-text pathology documents represents a vital and often underutilized source of data for cancer researchers. Typically, extracting useful data from these documents is a slow and laborious manual process requiring significant domain expertise. Application of automated methods for IE provides a method for radically increasing the speed and scope with which this data can be accessed.

Regarding the second challenge, there is a pressing need in the cancer research community to gain access to tissue specific to certain experimental criteria. Presently, there are vast quantities of frozen tissue and paraffin embedded tissue throughout the country, due to lack of annotation or lack of access to annotation these tissues are often unavailable to individual researchers.

caTIES has three goals designed to solve these problems:

1. Extract coded information from free text Surgical Pathology Reports (SPRs), using controlled terminologies to populate caBIG™ compliant data structures.
2. Provide researchers with the ability to query, browse and request annotated tissue data and physical material across a network of federated sources.
3. Pioneer research for distributed text information extraction within the context of caBIG™.

caTIES focuses on IE from SPRs because they represent a high-dividend target for automated analysis. There are millions of SPRs in each major hospital system, and SPRs contain important information for researchers. SPRs act as tissue locators by indicating the presence of tissue blocks, frozen tissue and other resources, and by

identifying the relationship of the tissue block to significant landmarks such as tumor margins. At present, nearly all important data within SPRs are embedded within loosely-structured free-text. For these reasons, SPRs were chosen to be coded through caTIES because facilitating access to information contained in SPRs will have a powerful impact on cancer research.

Once SPR information has been run through the caTIES Pipeline, the data may be queried and inspected by the researcher. The goal of this search may be to extract and analyze data or to acquire slides of tissue for further study.

caTIES provides two query interfaces, a simple query dashboard and an advanced diagram query builder. Both of these interfaces are capable of NCI Metathesaurus, concept-based searching as well as string searching. Additionally, the diagram interface is capable of advanced searching functionalities.

An important aspect of the interface is the ability to manage queries and case sets. Users are able to vet query results and save them to case sets which can then be edited at a later time. These can be submitted as tissue orders or used to derive data extracts. Queries can also be saved, and modified at a later time.

These interfaces and functions that are part of caTIES will be described in greater detail throughout this User Manual.

Getting Started with caTIES

It is recommended that new users review the **Organization of the User's Manual table** located below, in order to become oriented with the offerings available in this manual.

The first step for all potential caTIES users is to register a username and password with the Grid User Management Service (GUMS). After successful registration, potential users must contact their institution's local caTIES administrator to request access to their local caTIES node. The caTIES administrator will then create a user account based on the role(s) and protocol(s) for which the user has been given authorization by the Institutional Review Board (IRB).

For supplementary information on caTIES, you can find all caTIES documentation in CVS by following this [link](#).

Organization of the User Manual

<i>Chapter in caTIES User Manual</i>	<i>Chapter Contents</i>
Chapter 1	Introduction to the User Manual: This chapter orients the first time user to what is contained within the manual as well as provides a brief background of the software.
Chapter 2	Overview of the Software: This chapter gives a fairly high level overview of the application. It gives context for the problem that the application has been created to solve; components of the software, how it is intended to relate to or interact with the other informatics systems at a medical center and with other

	TBPT tools; and the features and functions of the application itself.
Chapter 3	User Interface: This chapter gives a general orientation to the look and feel of the application's user interface (UI). Included are overviews of the local administrative interface, the query interface and the order management interface as well as how to navigate through the UI.
Chapter 4	User Types and Workflows: This chapter describes the user roles for caTIES and their corresponding workflows. Each workflow is described with detailed step by step instructions. The detailed instructions and supplemental screenshots may be the most important aspect of this manual, as they explain how to accomplish each system task.
Chapter 5	Error Messages/Indicators and Problem Resolutions: This chapter addresses the common error messages a typical user might encounter and how to resolve the problem underlying the message. It also provides an FAQ to help users quickly find answers to Frequently Asked Questions.
Appendix A	Glossary: This appendix lists terms along with their definitions.
Appendix B	References: This appendix lists documents that were referred to in order to create this manual.
Appendix C	caTIES: How to Search: This appendix provides techniques for effectively searching when using caTIES.
Index	Full Index

Table 1.1 Organization of the User Manual

Document Text Conventions

Throughout this manual, boldface type is used to differentiate regular text from various user interface components. Buttons, icons, drop-down menu choices, dialog box choices, and menu tabs are all represented in bold.

The caTIES User

Some examples of potential caTIES users are:

- Attending physicians
- Fellows
- Department of Pathology Residents
- Translational researchers
- Oncologists
- Basic scientists
- Epidemiologists
- Molecular biologists
- Tissue Bank Personnel

Prerequisite skills for using the caTIES application will include a working knowledge of computers and familiarity with search interfaces such as those provided by PubMed (<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>) and Google (<http://www.google.com>).

Chapter 2 Overview of the Software

General Description and Scope of the System

The cancer Text Information Extraction System (caTIES¹) is a caBIG™ Gold compatible system for concept-based indexing and retrieval of surgical pathology reports. caTIES takes free-text pathology reports, breaks them into sections, maps free-text data within these sections to NCI Metathesaurus concepts, and stores these concepts and conceptual relationships. Researchers may query the indexed datastore to retrieve documents and order tissue through Honest Brokers.

Surgical Pathology reports provide a wealth of important data for cancer researchers, including the histological diagnosis, pathological stage, tumor grade, and values for prognostic factors, as well as results of molecular and immunohistochemical studies. For the most part, this information remains locked in free text within laboratory information systems. The caTIES system is designed to expose this data for use in caBIG™.

caTIES focuses on two important challenges of bioinformatics:

Information extraction from free text

Information from free-text pathology documents represents a vital and often underutilized source of data for cancer researchers. Data related to clinical course and outcomes are often required for correlational purposes in translational and clinical cancer research. Typically, extracting useful data from these documents is a slow and laborious manual process requiring significant domain expertise. Application of automated methods for IE provides a method for radically increasing the speed and scope with which this data can be accessed. Although caTIES focuses on one particular type of clinical document (Surgical Pathology Reports), extraction of information from free text could be used in many other capacities within the caBIG™ project.

Access to tissue

There is a pressing need in the cancer research community to acquire tissue specific to certain experimental criteria. Vast quantities of paraffin embedded tissue, which may be used for a variety of experimental methods, are available in paraffin archives within Surgical Pathology Departments throughout the country. In general, these paraffin embedded tissues have little or no associated annotation information that could be used to provide access, even internally. Frozen tissue is typically available only through tissue banks. Tissue available through tissue banks are generally manually annotated, to varying degrees. Individual tissue banks typically maintain these annotations in one or more datastores, which are often unavailable to individual researchers.

¹ This software is being developed by the caTIES development team at the University of Pittsburgh Medical Center.

caTIES has three goals designed to solve these problems:

Extract coded information from free text Surgical Pathology Reports (SPR), using controlled terminologies (EVS including SNOMED) to populate caBIG™ compliant data structures.

Provide researchers with the ability to query, browse and request annotated tissue data and physical material across a network of federated sources. By using caTIES, the SPR acts as a locator for tissue resources.

Pioneer research for distributed text information extraction (IE) within the context of caBIG™. caTIES modules have been developed as generalized components available on the caBIG™, in order to facilitate reuse by other caBIG™ projects requiring tissue IE.

System Overview

caTIES provides the functionality required for:

organizations to de-identify and concept code a corpus of free-text SPRs and to create a data service which manages this information

organizations to provide role-based access to caTIES data

authorized users to create queries of the caTIES datastores and retrieve reports that fit these criteria

authorized users to submit requests for tissue (orders) which will be filled by Honest Brokers.

De-Identification and Automated Coding of Free-Text SPRs

SPRs represent a high-dividend target for automated analysis. This is because there are millions of SPRs in each major hospital system, and SPRs contain important information for researchers. Unfortunately, nearly all important data within SPRs are embedded within loosely-structured free-text.

De-Identification

caTIES uses a de-identification system which can remove HIPAA identifiers from free-text. This version of caTIES uses De-ID from the DE-ID Data Corporation.

Automated Coding

This list includes some of the many entities discoverable in the SPR:

organ, body part, and tissue represented in the associated materials (e.g., “breast”)

anatomic site of the procedure (e.g., “right upper quadrant”)

surgical procedure (e.g., “needle biopsy”)

histologic diagnoses (e.g., “invasive mammary carcinoma”)

supporting findings (e.g., “associated widespread DCIS”)

presence, absence and values of important prognostic features (e.g., “Nottingham Score = 7”)

ancillary study results like molecular markers and immunohistochemistry (e.g., “tumor cells are strongly estrogen receptor and progesterone receptor positive”) SPRs also act as tissue locators by indicating the presence of tissue blocks, frozen tissue and other resources, and by identifying the relationship of the tissue block to significant landmarks such as tumor margins.

IE from pathology reports is complex. Prevalent problems include the following:

SPRs contain multiple sections such as Final Diagnosis, Gross Description, and Comment. Successful identification of these sections can facilitate text processing; however, SPR sections often vary in narrative structure and uniformity.

There is institutional variation in reporting practices (e.g., differences in the keywords that delimit important sections of the report).

SPRs contain negative as well as positive findings and diagnoses. Identifying the scope of a negative word or phrase is a relatively difficult text processing problem.

The text IE component of caTIES are organized using a pipeline design pattern.

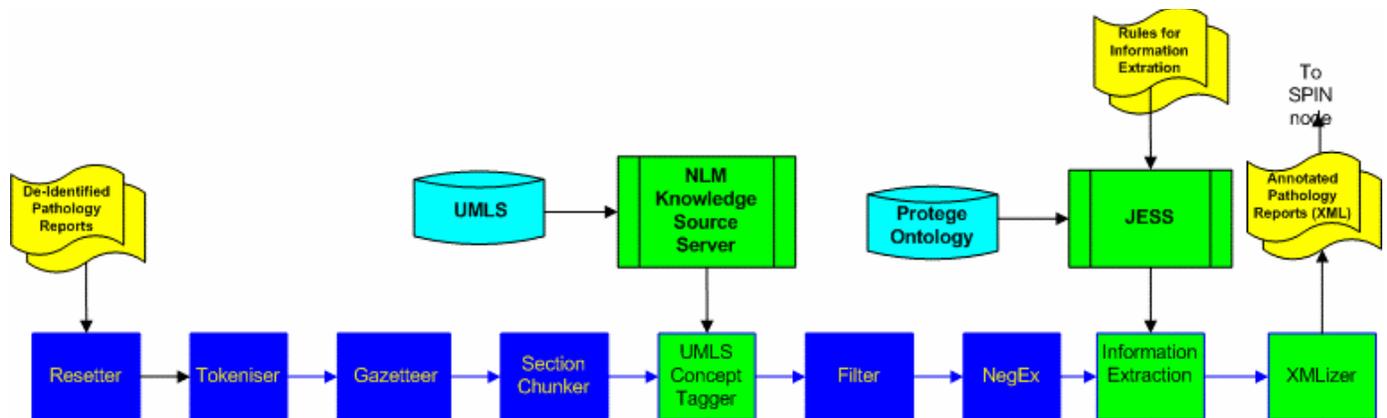


Figure 2.1 SPIN Pipeline

Figure 2.1 shows one configuration of the Shared Pathology Information Network (SPIN) pipeline. This architecture is implemented with the General Architecture for Text Engineering (GATE) 3.0. The pipeline accomplishes the automated sequential processing of SPRs from free-text to coded data using the following modules:

Resetter:	Clears document, deletes existing annotations
Tokenizer:	Tokenizes words, numbers, punctuation, and spaces
Gazetteer:	Contains pre-negation, post-negation, pseudo-negation, stop words, and irrelevant terms
Chunker:	Parses reports into sections, parts, sentences, and phrases
Spell Checker:	Identifies erroneous spelling and suggests frequency based correction
RegEx (Regular Expression Extraction):	Annotates pre-defined set of attribute and value pairs such as tumor grade and stage
Vocabulary Concept Tagger:	Annotates fragments of free text to associated concepts using controlled terminology
Semantic Type Filter:	Removes concepts associated with unwanted semantic types
NegEx (Negation Detection) :	Implements NegEx algorithm, tags negated concepts
Semantic Type Categorization:	Extracts organs, procedures, and diseases; infers topology of concept relationships

Table 2.1 Configuration of the SPIN pipeline

The NCI Metathesaurus is used as the vocabulary concept tagger.

Exercising the caTIES pipeline on an SPR will produce visible annotations for the following elements of an SPR (Figure 2.3 shows an example):

- concept, negated concept
- diagnosis, negated diagnosis
- organ
- procedure
- section, part, sentence, phrase.

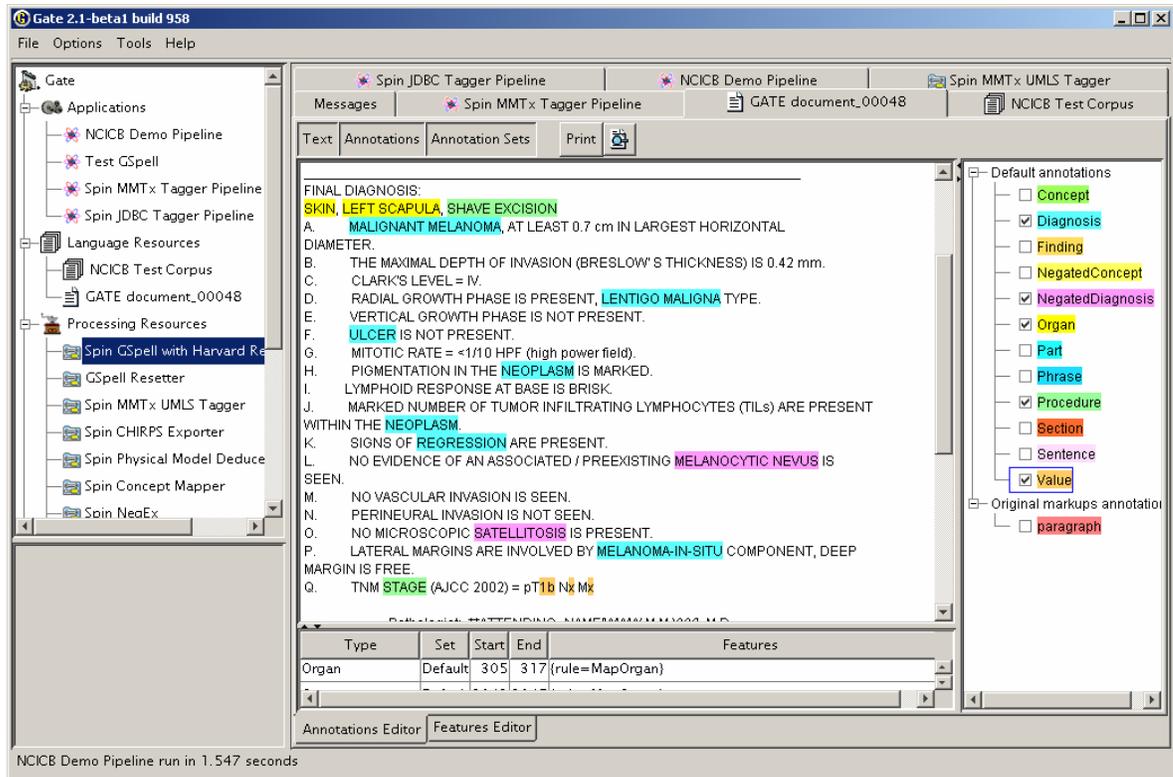


Figure 2.2 Annotations for a Melanoma SPR in GATE

In addition to coding concepts, caTIES attempts to reconstruct a representation of the relationships between these concepts, which validates against the SPIN Consented High-Performance Indexing and Retrieval of Pathology Specimens (CHIRPS) XML schema. Although this will not be directly used by the caTIES user interface (UI), this richer representation as well as the GATE binary is programmatically available through the API.

In Figure 2.2, for example, the absence of *ulcer* should be associated with the melanoma. The relationship between concepts is expressed in a relational structure. The first caTIES output is a report submission request as XML. Figure 2.3 shows XML submission information for a prostate adenocarcinoma SPR.

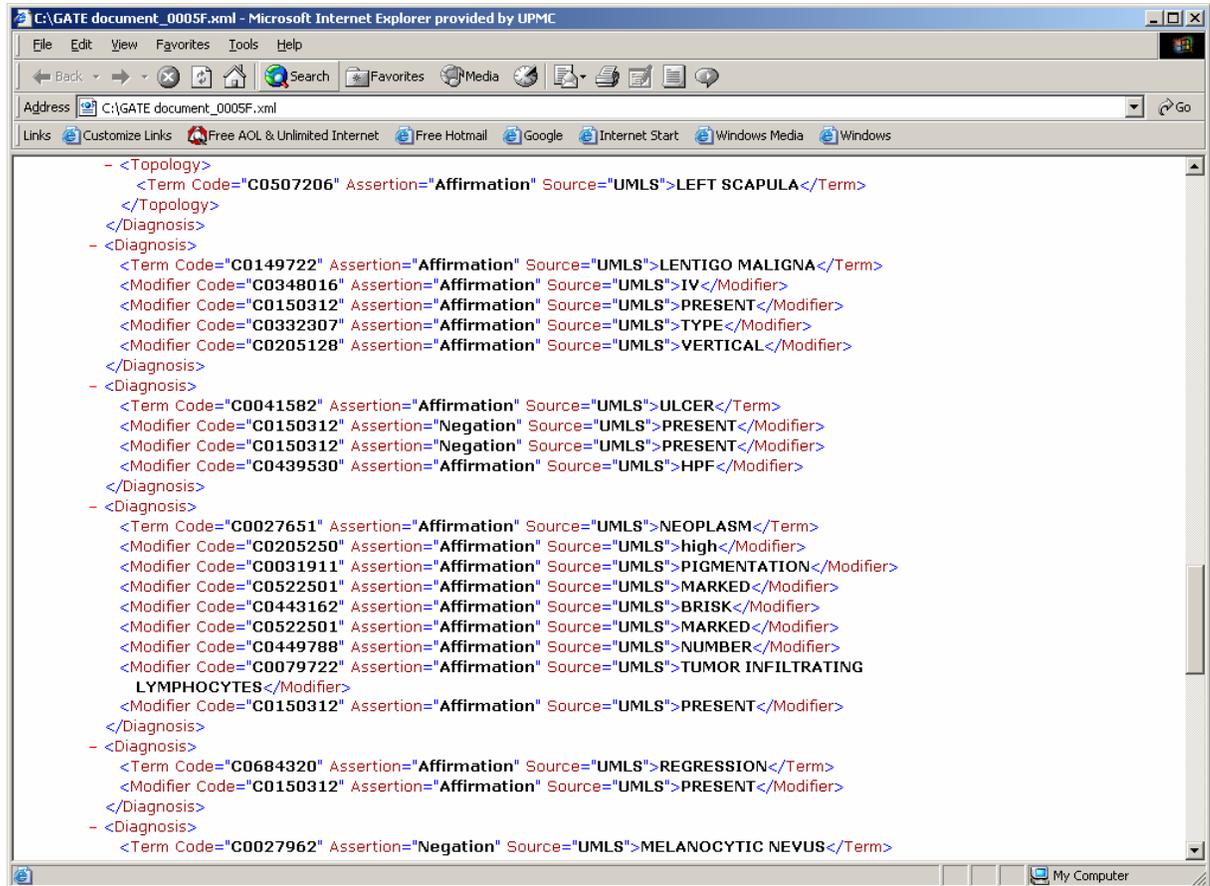


Figure 2.3 XML Submission Information for a Prostate Adenocarcinoma SPR

Concepts, fragments of text that generated these concepts, and related information will be available to query through the caTIES interface. Additionally demographic data will also be available to query through the caTIES interface.

Features and Functions of caTIES

The following features and functions of caTIES will be explained below:

- Role-based access to caTIES
- Query of datastore by authorized users
- Ordering

Role-Based Access to caTIES

The caTIES client is provided as a Web-deployed application outside each organization's firewall. (Identified data will be maintained behind the firewall.) The client application is available to users through four *UI perspectives*, each of which provides access to the functionality required by a certain type of user, where users may be Local Administrators, Honest Brokers, or Researchers as follows:

<i>UI Perspective</i>	<i>Available to...</i>	<i>Provides...</i>
Authentication	All users	Access to one of the perspectives
Administrator	Users who authenticate as caTIES local administrators	Management of local user accounts
Honest broker	Users who authenticate as honest brokers	Ability to search for identified data and process tissue orders
Researcher	Users who authenticate as cancer researchers	Ability to search for de-identified data, create case sets, and submit orders

Table 2.2 *UI Perspective*

Prior to getting access to caTIES, each user must obtain a certificate from the NCI Center for Bioinformatics (NCICB) GUMS server and register with the GUMS administrator. Those activities are outside the scope of caTIES but are described here because they are prerequisites for using caTIES. It is expected that a technically sophisticated user from each organization will register with the GUMS Administrator and subsequently will register other people at the same organization who want access to caTIES (and to the caGrid in general). That technically sophisticated user is identified in this document as the *caTIES Local Administrator*.

Once a user has registered with the GUMS Administrator, the user can apply to the central caTIES system administrator at the University of Pittsburgh (Pitt) Cancer Institute (UPCI) for access to caTIES as a Local Administrator. The caTIES system administrator is the only user who can create an account with the local administrator role. It is anticipated that Local Administrators will be authorized by their organizations to grant accounts only to other users at the same organization. These individuals should also be trained to verify that users who request accounts have the appropriate credentials from the local Institutional Review Board (IRB) to access de-identified data. Alternatively they may work with those who have an Honest Broker role in their organization to verify proper IRB approval.

The caTIES Local Administrator at each organization is authorized to create accounts for Honest Brokers and cancer Researchers at that organization.

Query of Datastore by Authorized Users

Users of the caTIES software will be able to create queries based on demographic constraints, concept searches, or free-text searches and then retrieve reports which meet these criteria. The goal of this search may be to extract and analyze data or to acquire slides or tissue for further study.

caTIES provides two query interfaces, a simple query dashboard and an advanced query builder. Both of these interfaces will be capable of NCI Metathesaurus, concept-based search as well as string search. However, only the advanced interface will permit more complex constructions.

Ordering

The caTIES software supports the ordering of tissue. Users will be able to select cases that they wish to obtain tissue from and submit this request to the Honest Broker through the caTIES system. The Honest Brokers can then update the availability status of the order after considering factors such as the following:

- Researcher is affiliated with the same organization as the Honest Broker
- Researcher is affiliated with an organization with which the Honest Broker's organization has a materials transfer agreement
- Researcher has appropriate IRB approval
- Tissue being requested is available for distribution
- Tissue being requested fits constraints of existing guidelines or work processes (e.g., approval by the Tissue Utilization Committee).

After looking at the updated availability status of Order Items, the Researcher can decide to confirm the Order for shipping or modify the Order and resubmit.

The system will support ordering of tissue across multiple organizations. It will not, however, make any guarantees of actual tissue being delivered to the Researcher. The final control of distribution of tissue lies with the organization's Honest Brokers. Orders to outside organizations may be hidden during early phases of the project until appropriate institutional agreements and processes are in place.

Background of the application

On caBIG™

The **cancer Biomedical Informatics Grid**, caBIG™, is a three-year effort sponsored by the National Cancer Institute and managed by Booz Allen Hamilton. caBIG™'s charter is to create a World Wide Web of Cancer Research. caBIG™ seeks to leverage state of the art technology to facilitate information exchange between cooperating research groups. caBIG™ applications will share a common infrastructure within a GRID computing environment. The caBIG™ infrastructure is built upon a single object model that is comprised of standard data elements and controlled terminologies. caBIG™ curators harmonize data representations to fulfill the requirements of a diverse user community. This expressiveness combined with the interoperability of GRID computation promises great dividends for cooperative research.

On SPRs

Surgical Pathology Reports represent a high-dividend target for automated analysis. This is because there are millions of SPRs in each major hospital system, and SPRs contain important information for researchers. Unfortunately, nearly all important data within SPRs are embedded within loosely-structured free-text. SPRs also act as tissue locators by indicating the presence of tissue blocks, frozen tissue and other resources, and by identifying the relationship of the tissue block to significant landmarks such as tumor margins.

Information Extraction from pathology reports is complex. Common problems include the following:

- SPRs contain multiple sections such as Final Diagnosis, Gross Description, and Comment. Successful identification of these sections can facilitate text processing; however, SPR sections often vary in narrative structure and uniformity.

- There is institutional variation in reporting practices (e.g., differences in the keywords that delimit important sections of the report).

- SPRs contain negative as well as positive findings and diagnoses. Identifying the scope of a negative word or phrase is a relatively difficult text processing problem.

On the Evolution of caTIES from SPIN

caTIES leverages technologies that were developed as part of the Shared Pathology Information Network (SPIN) initiative. SPIN is an ongoing effort with high-level goals closely aligned to those of caTIES. The key differences between the software UPCI develops for caBIG™ and the software we have developed for SPIN are the following:

- caTIES seeks full integration with caBIG™ architecture and common object representation

- caTIES uses the NCI Enterprise Vocabulary System instead of the UMLS utilized by SPIN. The NCI Metathesaurus contains the current version of the UMLS, but also contains other source vocabularies including terms from the NCI Thesaurus

- caTIES will initially be concerned with the covered-site capability of accessing data and tissue internally

- SPIN's initial focus has been distributed query of aggregate data. caTIES expects to address aggregation of data across institutions in later stages as the caBIG™ architecture matures

- caTIES has the additional goal of paving the way for configurable TIES in the context of caBIG™. This requires us to develop our text processing components in ways that are architecturally compatible with caBIG™ and may be reused under the caBIG™ charter.

Despite these differences, it is hoped that caTIES Grid Services and SPIN nodes can someday interact productively as both projects evolve. It will be a low priority requirement in the early phases of caTIES to favor SPIN-compatible design decisions when these decisions do not negatively impact our ability to fulfill our primary caTIES requirements.

caBIG™ compatibility level

The **cancer Biomedical Informatics Grid**, or **caBIG™**, is a voluntary network or grid connecting individuals and institutions in order to enable the sharing of data and tools, thus creating a World Wide Web of cancer research. The software systems that operate on the GRID need to adhere to certain compatibility guidelines in order to be syntactically and semantically interoperable with other systems. Interoperability can be defined as the ability of a system to access and use the parts of another system. These compatibility guidelines provide a high-level description of the decisions made to date

with respect to requirements for interoperability. The original caBIG™ compatibility guidelines can be viewed at :

https://cabig.nci.nih.gov/guidelines_documentation/caBIG_Compatibility_Document

Based on extensive feedback from the caBIG™ user community, Revision 2 of the caBIG™ compatibility guidelines is available at

https://cabig.nci.nih.gov/guidelines_documentation/caBIG_Compat_Guide_Rev2_DRAFT4-2.pdf

The different degrees of interoperability of systems can be qualified by different maturity levels. The caBIG™ compatibility guidelines are organized into four levels of maturity: Legacy, Bronze, Silver and Gold. (For more details, please refer to the caBIG™ compatibility guidelines document). The current version of caTIES (v2.0) is designed to be **caBIG™ Gold-level compatible**.

The maturity level for an application is derived based on four criteria. To examine if the current version of caTIES is gold-level compatible, it is evaluated against these criteria.

Programming and Messaging Interfaces: The Surgical Pathology Reports (SPRs) after passing through the caTIES pipeline are output as a report submission request in XML format. caTIES XML submission information carry additional caBIG™ metadata. Ultimately, the data populate caBIG™ data structures and become available for general GRID consumption. These data objects can be accessed using well-defined APIs. Also, XML technologies are and will be used extensively to integrate caTIES to caBIG™ and provide loose coupling of caTIES interfaces.

Vocabularies and Ontologies: caTIES uses the NCI's Enterprise Vocabulary Services (EVS) for all aspects of the caTIES text-processing, and code-based query components. The NCI MetaThesaurus is used to code concepts and the NCI Thesaurus is used to make relational inferences among concepts. As caTIES continues to evolve, if EVS resources are found to be lacking with respect to the application, the caTIES team will request enhancements via the caBIG™ Vocabulary and Common Data Elements Working Group (V/CDE). This also satisfies the caBIG™ gold-level compliance requirements for vocabularies and ontologies used by an application.

Common Data Elements: The caTIES object model is merged into the caBIG™ distributed object model that is represented in the caDSR. Thus all data stored and distributed by caTIES has and will have a metadata description rooted in caDSR common data elements and classification hierarchies. The CDEs have been developed using the EVS terminologies and have been validated by the V/CDE workspace.

Information Models: Information models describing the caTIES system have been created in UML and have been reviewed and evaluated by the V/CDE workspace and have been deposited in CVS. These information models are class, sequence, package and/or other relevant UML diagrams. Thus caTIES satisfies the necessary condition for gold-level compliance. The UML models can be viewed as an Enterprise Architect Project file at :

<http://cabigcvs.nci.nih.gov/viewcvs/viewcvs.cgi/caties/Application/caTIES/caTIES.EAP>

or in the caTIES design document at:

http://cabigcvs.nci.nih.gov/viewcvs/viewcvs.cgi/caties/caTIES_design_v1.2-withDataDict.doc

caTIES also displays:

OGSA-DAI Compliance: The distributed components of caTIES (De-ID, GATE components, etc.) are represented as Open Grid Service Architecture - Data Access Interface (OGSA-DAI) Grid Services which is the chosen architecture for caBIG™ compliant applications. It is an extension of the core functionality of the Globus Toolkit. The Globus Toolkit is a reference implementation of the Open Grid Service Infrastructure specification. OGSA allows developers to create GridServices and deploy them for consumption on the web. GridServices are stateful Webservices that provide more functionality than the basic webservices upon which they are built. In addition to providing a distributed computing platform, OGSA promotes modular, reusable design patterns by dictating that remote service interfaces be separated from their underlying implementations. OGSA-DAI is a collection of OGSA Grid Service extensions that grid-enable a relational database management system (RDBMS) interface powered by Java Database Connectivity (JDBC). caTIES will be implemented as a collection of proprietary grid services along with DAI configurations.

In addition, caTIES is committed and working towards integration with other business logic components of caBIG™ such as caTISSUE Core and the clinical trials initiatives such as caSPR and caPRI.

Chapter 3 User Interface

This chapter describes the caTIES User Interface (UI). Explanation of common features and navigation procedures are provided.

Topics in this chapter include the four caTIES UI perspectives:

- Authentication Perspective
- Local Administrator Perspective
- Researcher Perspective
- Honest Broker Perspective.

Authentication Perspective

On invoking the caTIES application on your desktop, the caTIES logo appears as shown in Figure 3.1



Figure 3.1 caTIES logo

and the Login screen will be displayed as shown in Figure 3.2.

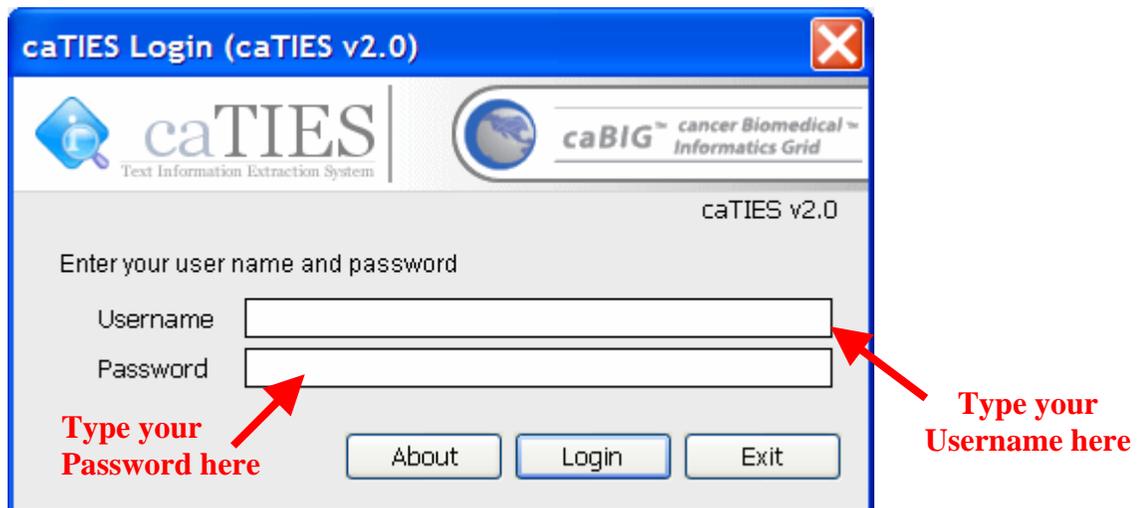


Figure 3.2 caTIES Login screen

Enter your Username and Password into the fields provided and then click the Login button.

On successful log-in, the role selection window will open as displayed in Figure 3.3.

Local Administrator Perspective

For Local Administrator functions, select the role (Administrator) and click on **OK** to open the caTIES administrator interface.

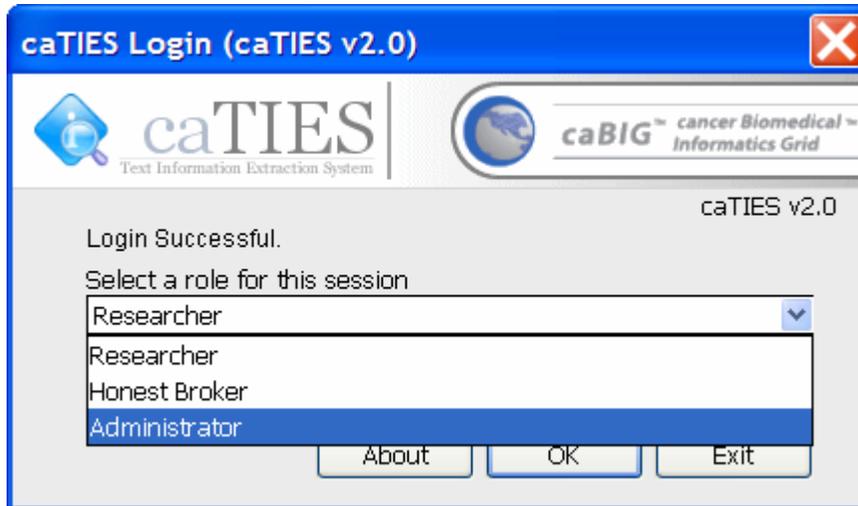


Figure 3.3 Login - Select Administrator role

The administrator interface is shown in Figure 3.4.

It has the Menu tabs at the top left corner.

The Administrator manages accounts and can create a new user by clicking on the **New User** button. The **New Protocol** button next to it is for starting a new protocol.

Below these two buttons on the left panel is the list of active users. The user selected will have his/her account details displayed in the center panel.

The Administrator can change any of the following fields and save the changes (details in next chapter):

- Login information showing the Distinguished name (from GUM)
- User Information
- Roles assigned and their expiration dates
- Protocols assigned to the selected user.

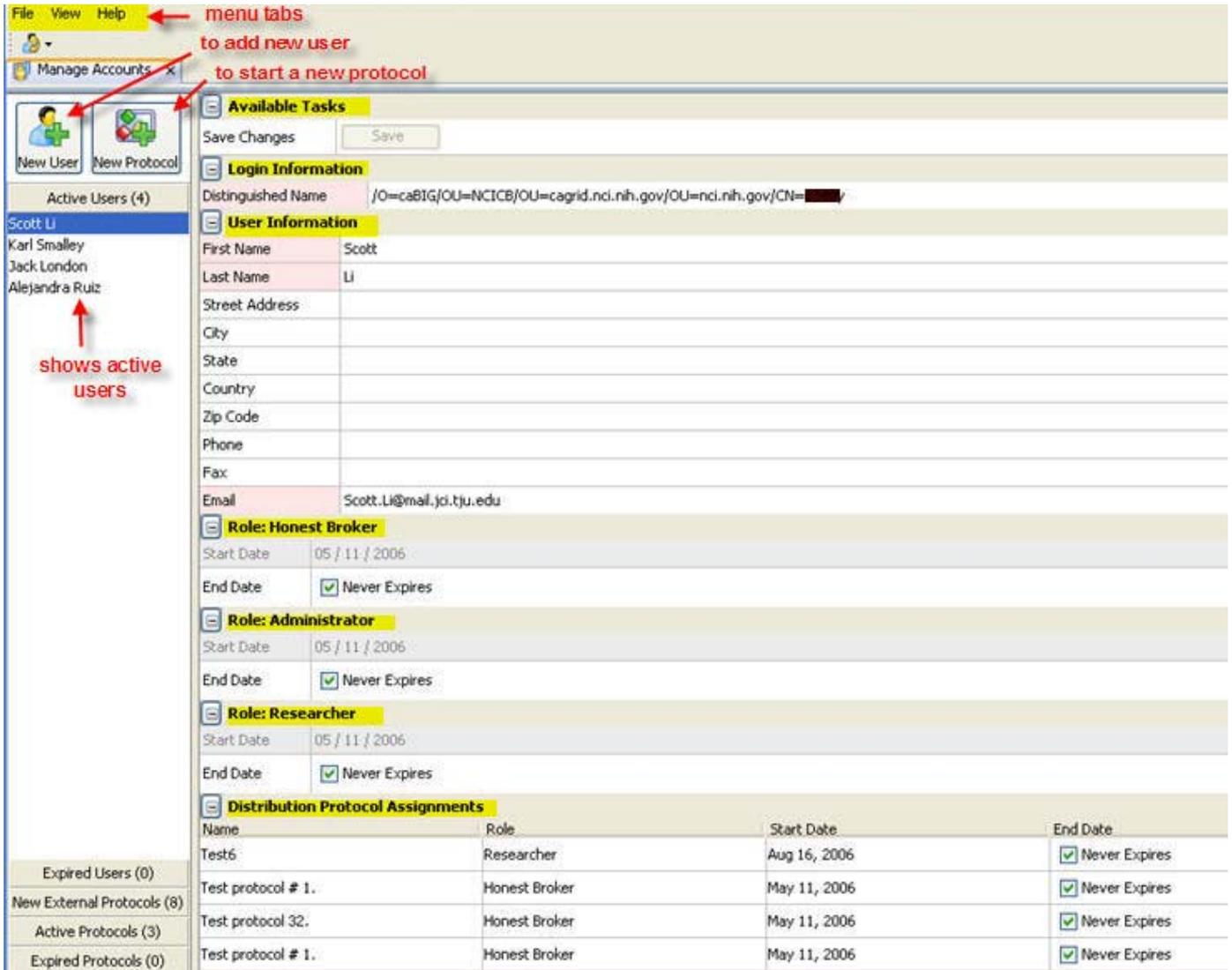


Figure 3.4 Administrator Interface

On clicking the **New User** button the **Add New User** window will be displayed as shown in Figure 3.5. The Administrator can then add a new user by entering the required user information into the fields provided:

- Distinguished Name (from GUM)
- User's first and last name
- User's email
- Assign user role.

Once all information is entered, click **OK** to complete the process.

Figure 3.5 Add New User window

To start a new study or protocol, clicking on the **New Protocol** button will open the Create New Study window as shown in Figure 3.6.

Figure 3.6 Create New Study window

The following details must be provided in order to create a new protocol:

- Abbreviated Name of the protocol

- IRB Approval Number

- IRB Title

- Expiration date (The administrator may select to enter a date into the field provided, or click on the checkbox to indicate that the study has no expiration date)

- Organization's role.

After providing the relevant information, click **OK** to proceed or **Cancel** to terminate the process.

Researcher Perspective

After logging in, select the Researcher role (see Figure 3.7) following the log-in to open the caTIES researcher interface.

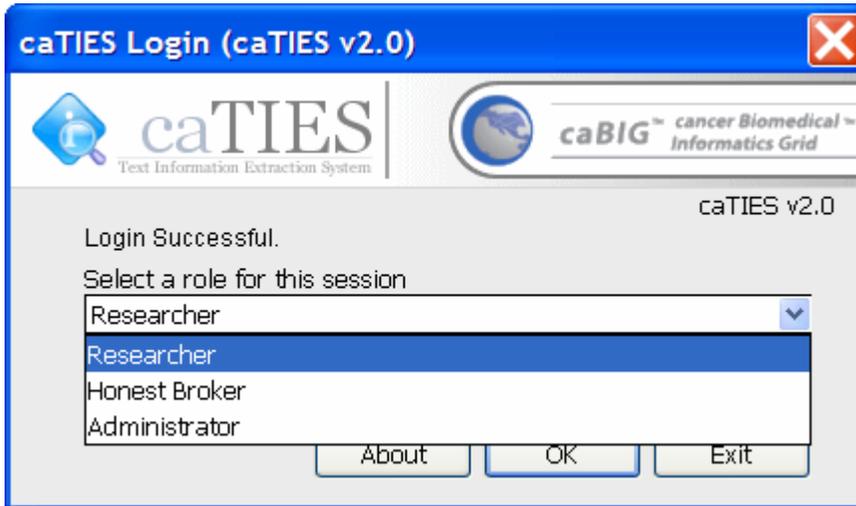


Figure 3.7 Login – Select Researcher role

The caTIES researcher interface, as shown in Figure 3.8, has the following features:

Tabs on the top left of the window have menu options for:

File

View

Help

Three Buttons for opening:

A new query

An old query

Saving a query

Three Panels:

Left Panel- displays query parameters

Center Panel - displays a tree view of search results (grouped by institution and patient)

Right Panel - displays query status and details for a selected record indicated in the center panel.

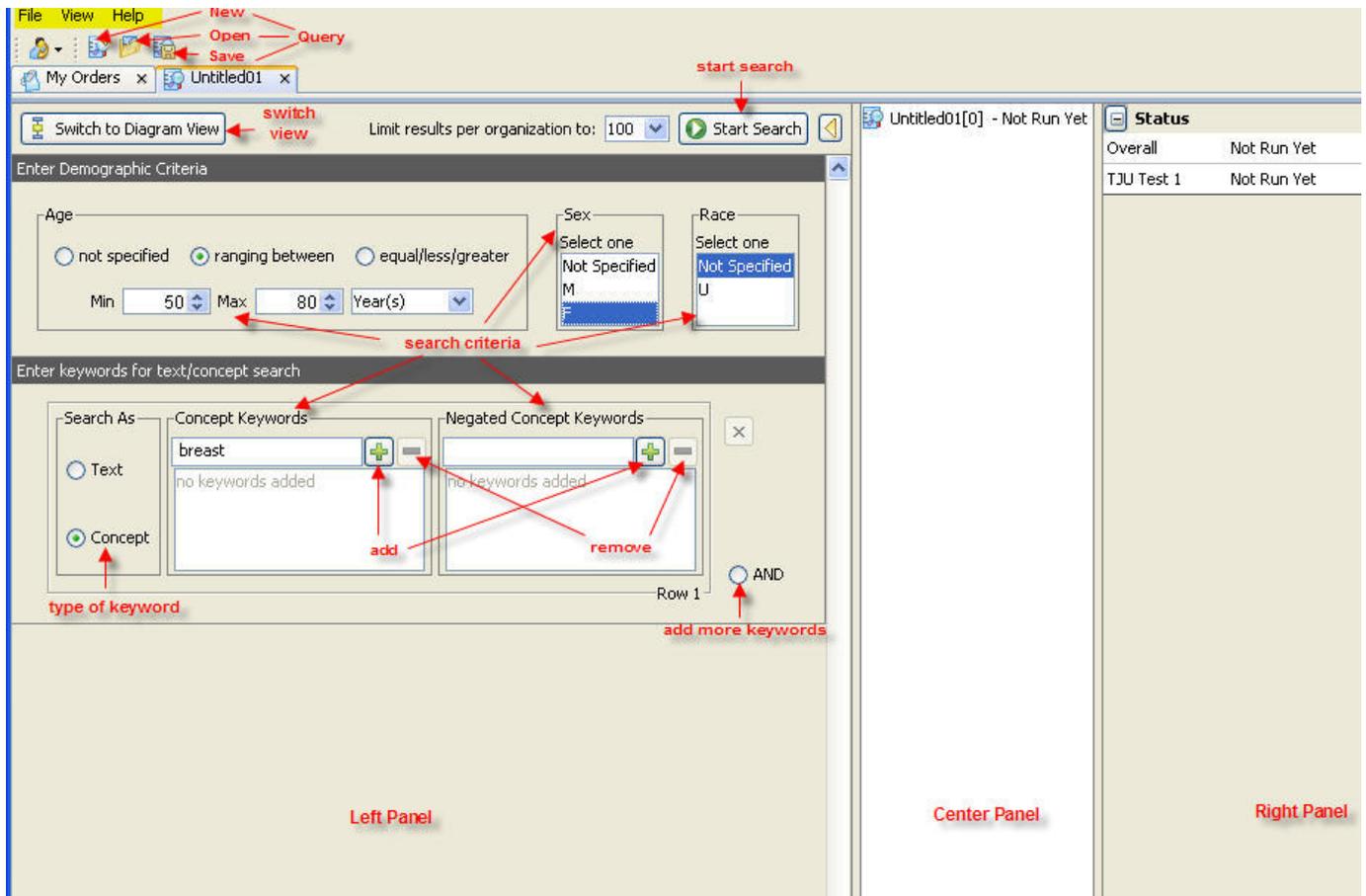


Figure 3.8 Researcher Interface

Clicking on the **File** tab at the top left of the window (as shown in Figure 3.9), displays the following menu options:

New Query - This option resets the page and allows a user to enter new query parameters.

Open Query... - This option allows a user to open a previously saved query.

Save Query - This option allows a user to store the current query details.

Save Query As... - This option allows a user to specify where the query details should be stored.

Switch Role - This option allows a user to toggle between different views/functions for each role.

Note: A user must be assigned more than one role for this option to be active.

Switch Protocol - This option allows a user to select to view a different protocol's details.

Exit - This option logs the user out of the system and ends the session.

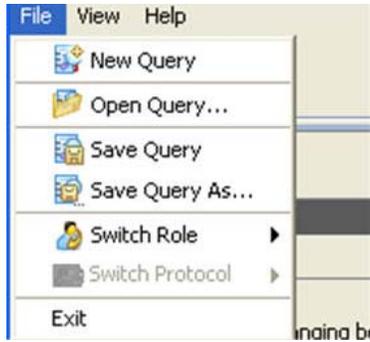


Figure 3.9 File Menu

The **View** menu (as shown in Figure 3.10) allows a user to select the tab for opening the query view or the My Orders view.

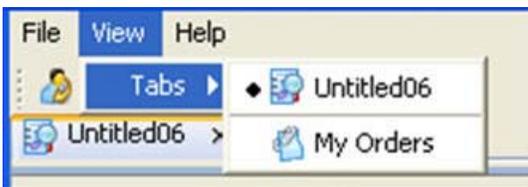


Figure 3.10 View Menu

The **Help** menu (as shown in Figure 3.11) allows a User to select the About caTIES option which will display information regarding the current application.

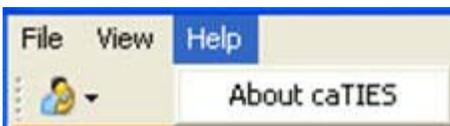


Figure 3.11 Help Menu

The default view of the caTIES interface is the Dashboard view displayed in Figure 3.12. This can be changed by clicking on the **Switch to Diagram View** button as shown in the top left corner of the window.

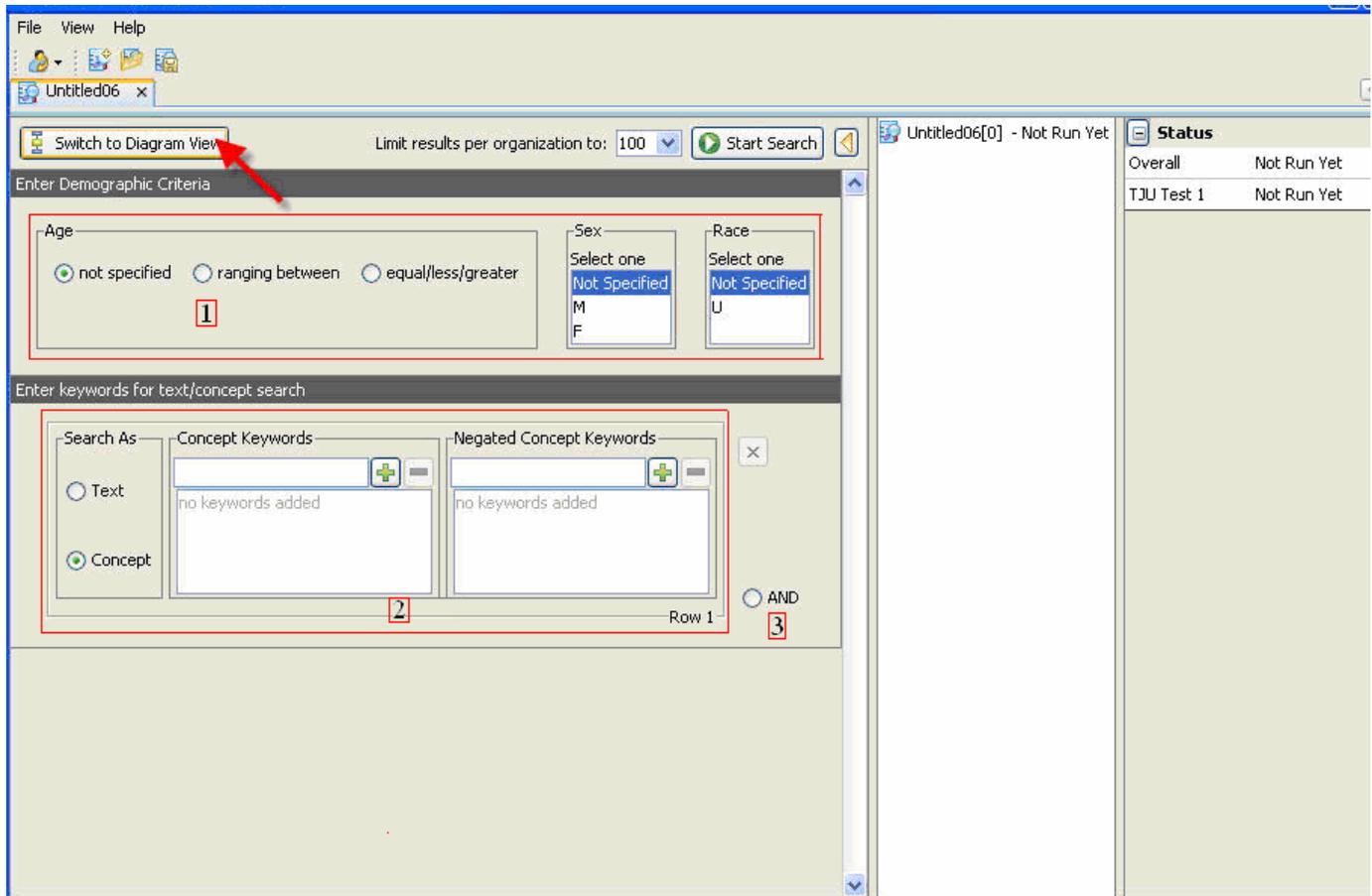


Figure 3.12 Three Sections of Dashboard View

The left panel of the Dashboard View consists of the following sections:

Section 1: Contains entry fields for demographic criteria

- Age
 - If **ranging between** radio button is selected, additional entry fields will be displayed for entry of a min/max number.
 - If **equal/less/greater than** radio button is selected, additional entry fields will be displayed for selection of equal/less/greater along with a box for entry of a numeric value
- Sex
- Race

Section 2: Contains radio buttons to indicate text or concept search on keywords. This section also allows a user to enter negated concepts into the search criteria.

Note: If more than one text/concept key word is entered into the same box, an OR relationship is assumed.

Section 3: Clicking on this radio button prompts the system to display an additional entry field for AND condition text/concept parameter.

The Diagram View is displayed in Figure 3.13:

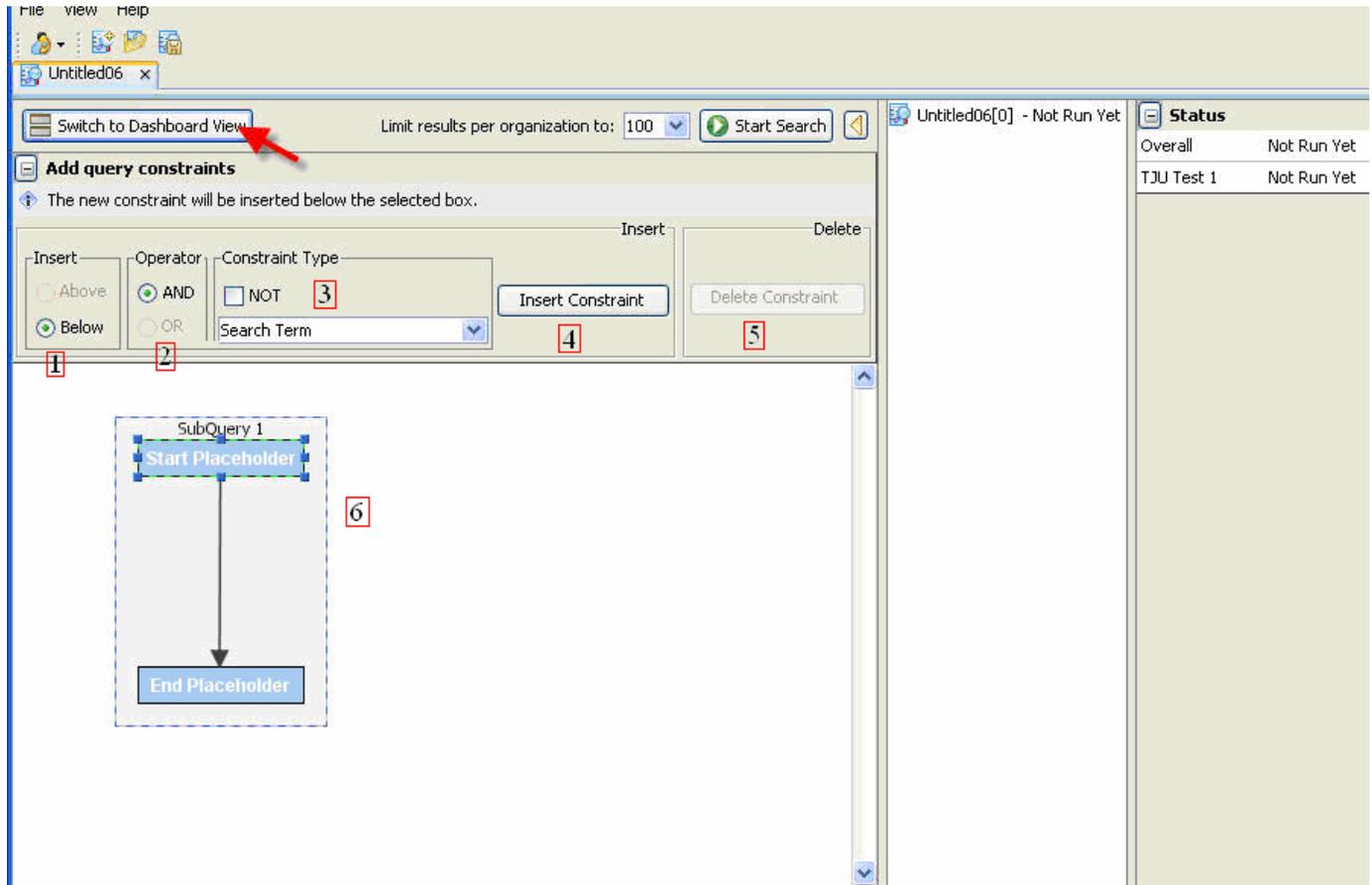


Figure 3.13 Six Sections of Diagram View

The left panel of the Diagram View allows for the user to build a query and view it as a diagram.

Section 1: Indicates radio buttons for a user to insert a search constraint above or below a selected placeholder in the diagram.

Section 2: Allows a user to select the operator for a relationship between query constraints.

Note: Selecting the **AND** operator indicates that all items must be present. Selecting the **OR** operator indicates that any one but not all items must be present.

Section 3: Allows a user to select the type of constraint to be added:

- Search Term
- Concept
- Age
- Sex
- Race

Note: Checking the **NOT** box, indicates that the selected constraint should not be included in the query results.

Section 4: Indicates the **Insert Constraint** button

Section 5: Indicates the **Delete Constraint** button. This is only active if an established constraint is selected in the diagram.

Section 6: Indicates the Diagram View. Items in the view can be selected in order to add additional AND/OR constraints or they can be repositioned by clicking on them and dragging them in the view.

To insert a constraint, the point of insertion and the constraint type must be selected. Then the **Insert Constraint** button must be clicked. Figure 3.14 illustrates this process.

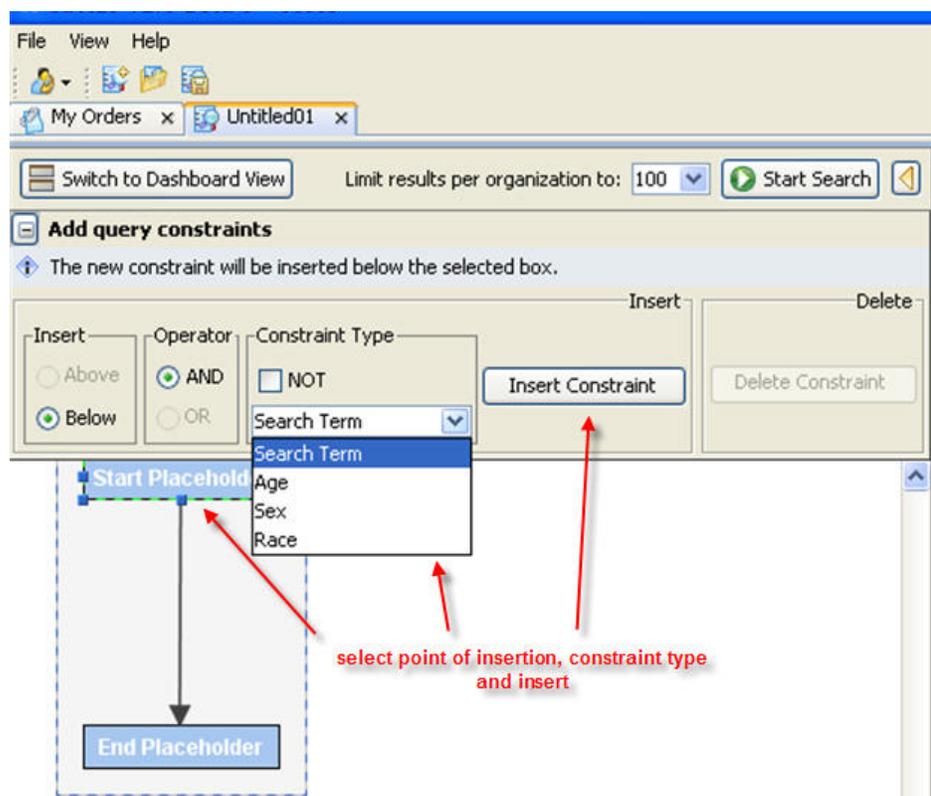


Figure 3.14 Insert Constraint button on the Diagram View

When selected, the **Search Term** constraint can be further specified and indicated if **Text** or a **Concept** term as shown in Figure 3.15.

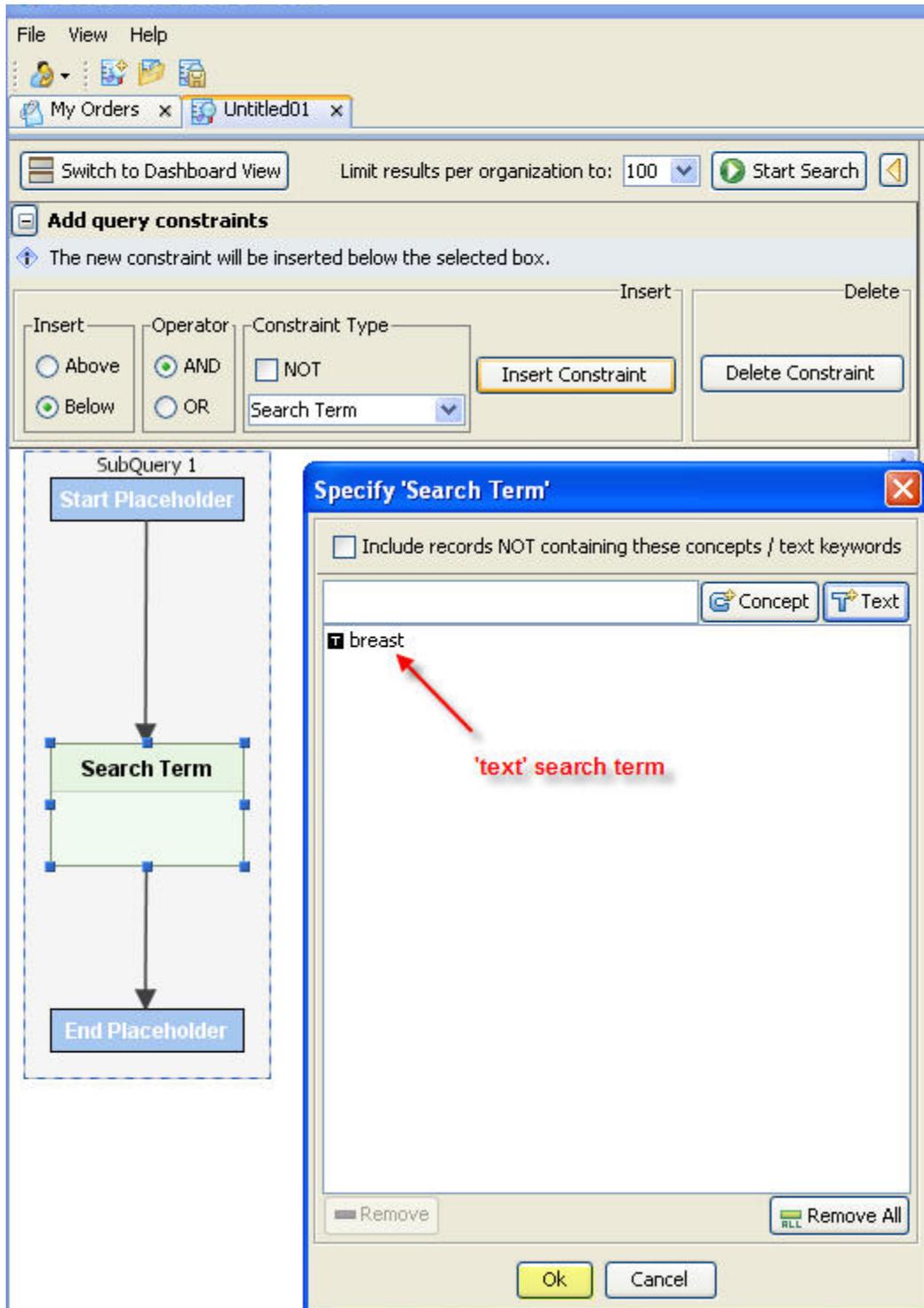


Figure 3.15 Specify 'Search Term' window

More constraints can be added similarly as shown in Figure 3.16.

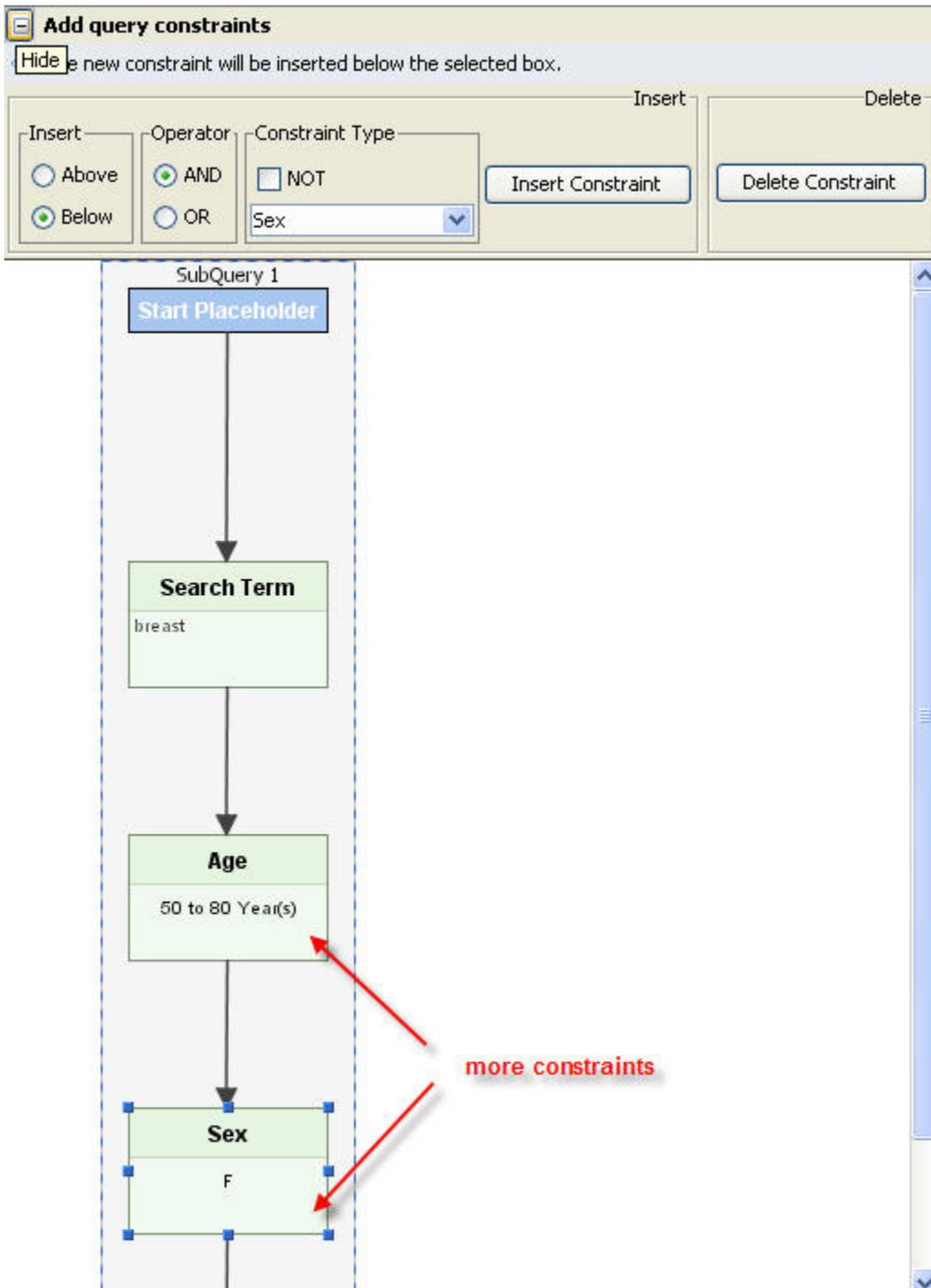


Figure 3.16 Add Query Constraints panel

Figure 3.17 shows the middle and right panels prior to a search being conducted.

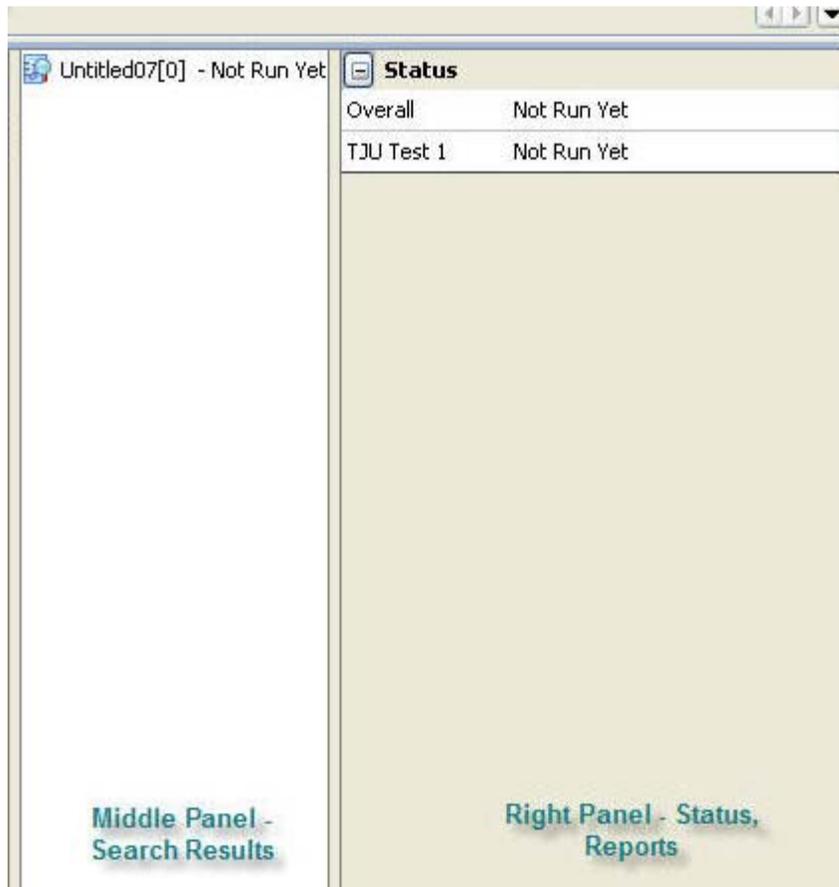


Figure 3.17 Search Results and Status panels

Figure 3.18 shows the middle panel displaying the search results. Results are grouped based on institution and patient.

The right panel has three sections:

Available tasks: (Details in Chapter 4)

Order tissue - Clicking the add button will add the current specimen to the user's My Orders page.

Print - Prints the de-identified data contained in the report.

Export - Allows a user to copy data from the caTIES system to an external file.

Request a review - Allows a user to flag a report and request that a record be reviewed by an administrator.

Quarantine a report - Allows a user to take a report out of view (possibly due to it not being properly de-identified). Quarantined reports will not be available to query on until they have been reviewed/released by an administrator.

Report Information - Provides descriptive information for the report being viewed.

De-identified Pathology Report - Displays the de-identified report details.

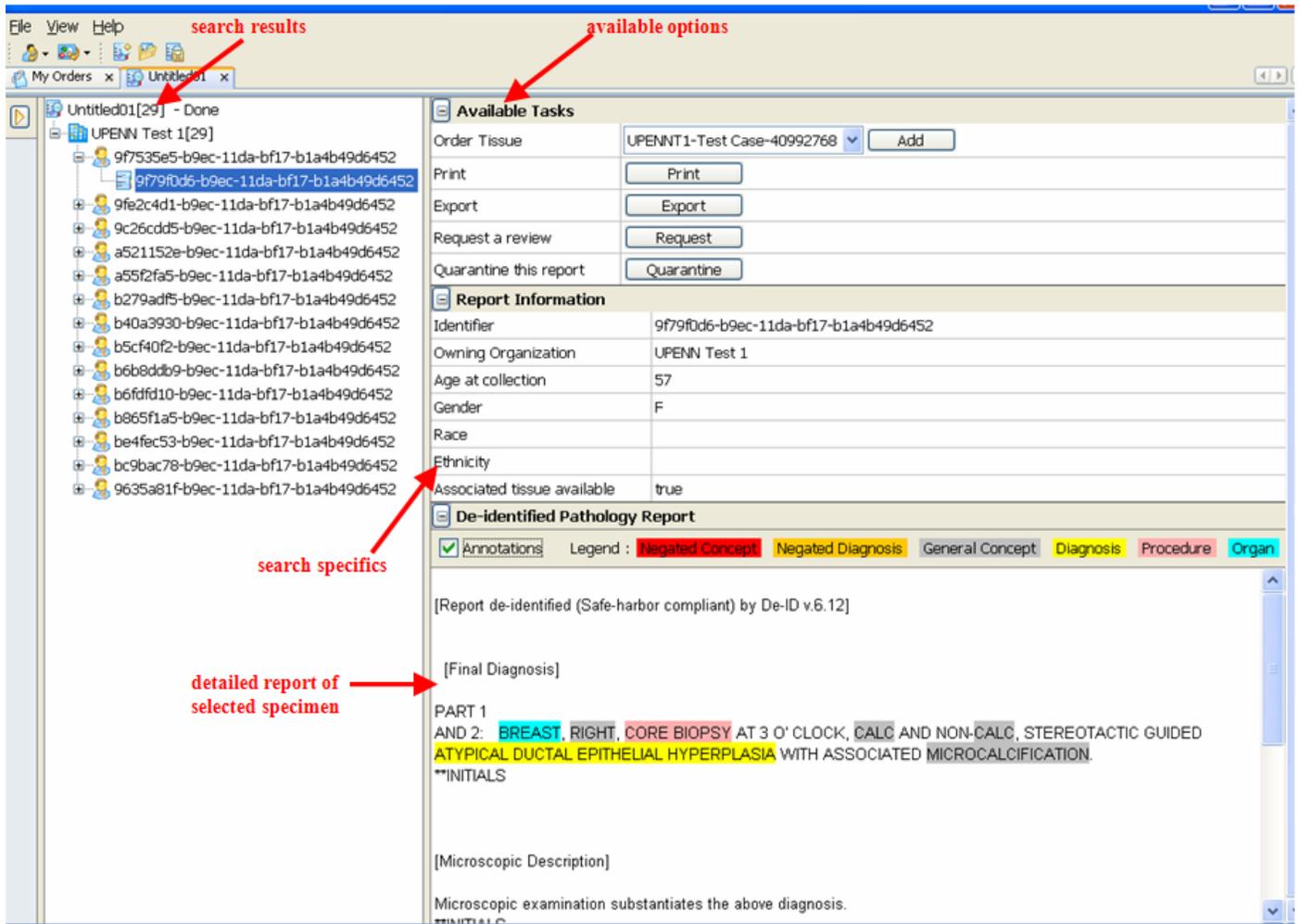


Figure 3.18 Search results and report details displayed

Honest Broker Perspective

After logging into the system, select the Honest Broker role (see Figure 3.19) from the drop down list.

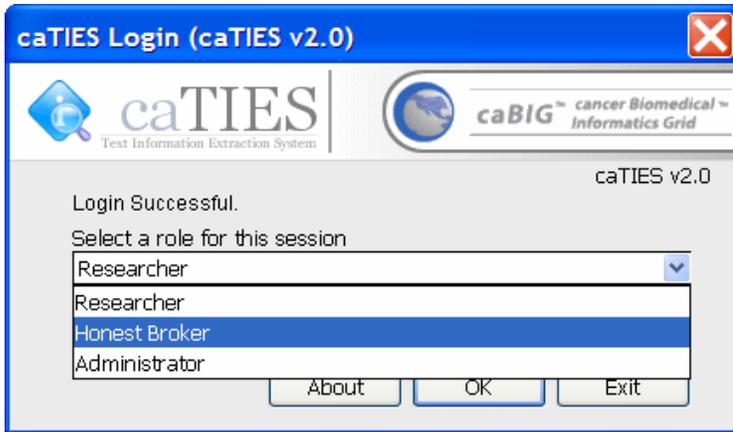


Figure 3.19 Login – Select Honest Broker role

The caTIES query screen for the Honest Broker (shown in Figure 3.20) looks and functions similar to that for a Researcher with options to start and save queries, enter search criteria in either Dashboard or Diagram View and conduct searches.

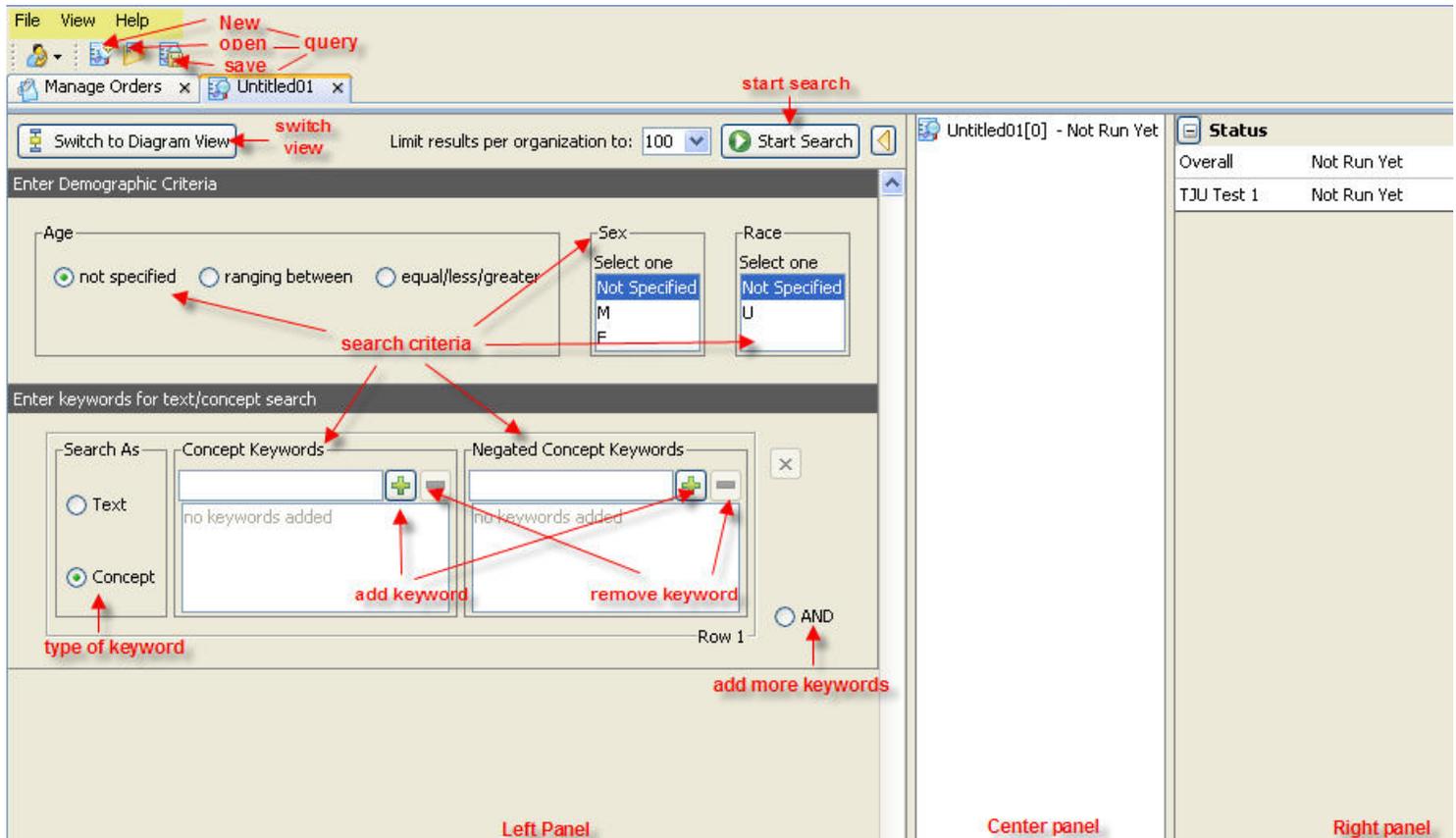


Figure 3.20 Honest Broker view

This Honest Broker results view (shown in Figure 3.21) is also similar to the Researcher view. The Honest Broker is allowed to add comments for the report being viewed and they are also able to see identifiable information, which is restricted for the Researcher.

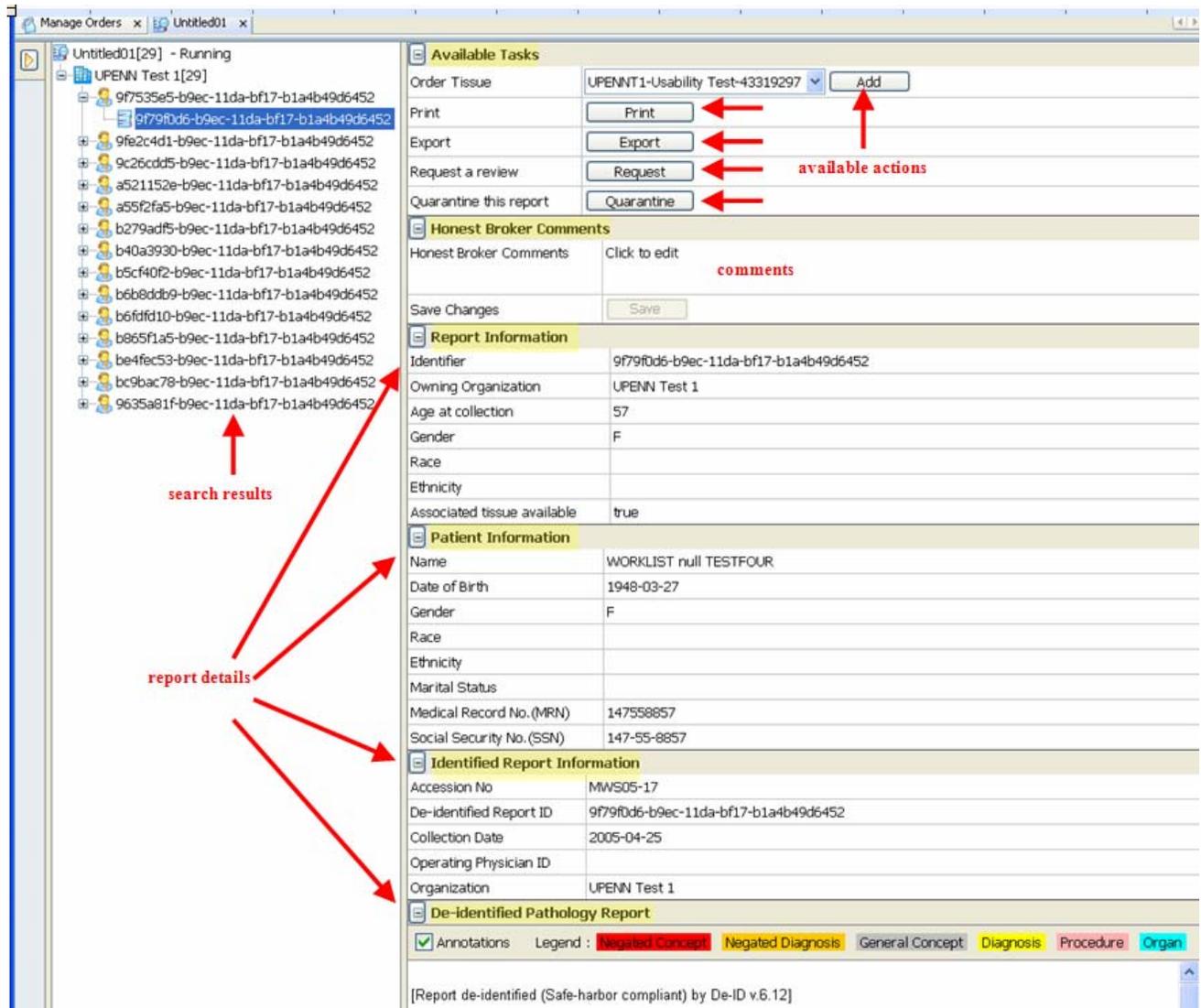


Figure 3.21 Search results and report details displayed

The search results are displayed in the center panel.

The Honest Broker can enter comments by clicking on the **Click to edit** text in the **Comments** box, typing in their comment and then clicking on the **Save** button.

On selecting the **Manage Orders** tab (shown in Figure 3.22) from the top left of the Honest Broker interface the **Manage Orders** view (shown in Figure 3.23) is displayed.



Figure 3.22 Manage Orders tab

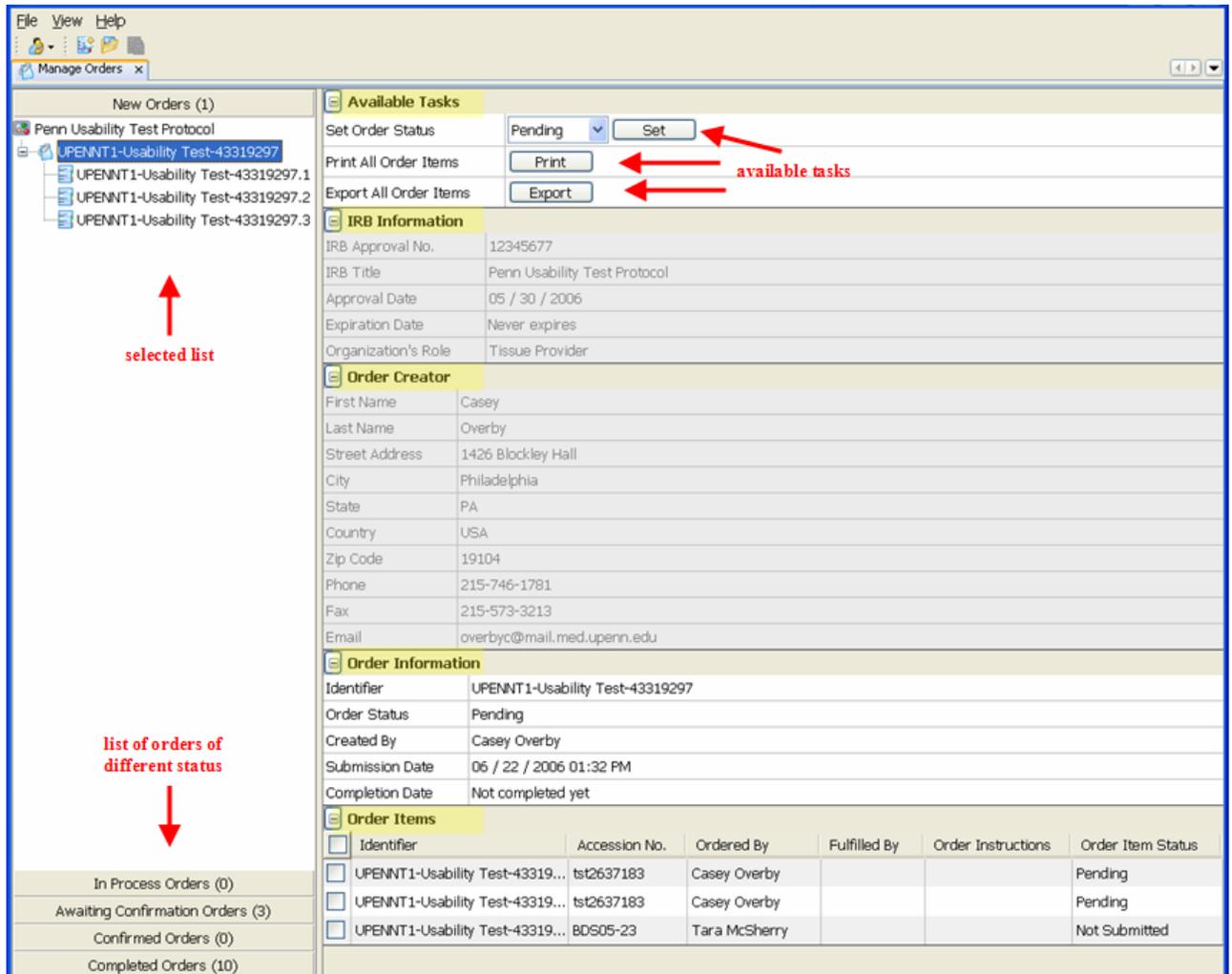


Figure 3.23 Honest Broker Perspective – Manage Orders view

The left panel displays all Orders in the Honest Broker's queue. The Order hierarchy in the Manage Orders view has three levels:

- The Protocol Name
- The Order Identifier
- The Order Item Identifier

At the bottom of the left panel are tabs containing Orders by status with the number of

Orders indicated in parenthesis ():

- **In Process Orders**
- **Awaiting Confirmation Orders**
- **Confirmed Orders**
- **Completed Orders**

To view a list of Orders, click on the desired horizontal tab.

The right panel has the following sections used by the Honest Broker to fill an Order (see Chapter 4 for details):

Available Tasks:

- **Set order status** – Allows the honest broker to select if the Order is active, pending etc.
- **Print all order items** – This option prints all Orders in the current section.
- **Export all order items** – This option exports details for all Orders in the current section.

IRB Information – This section displays all related IRB details.

Order Creator - This section displays information regarding the originator of the Order.

Order Information - This section displays Order details.

Order Items - This section displays a tabular list of all line items in the current Order.

The checkboxes located to the left of each Order Item allow a user to select certain items in the list or select all by clicking on the **All** checkbox located at the top of the Order Item section.

Chapter 4 User Types and Workflows

Organization of Privileges and Workflow

User Roles

caTIES differentiates privileges through the application of user roles. The following three roles are defined in the application: Local Administrator, Honest Broker and Researcher. The table below describes each of the predefined caTIES roles.

<i>Role</i>	<i>Description</i>
Local Administrator	<ul style="list-style-type: none"> • Role assigned to a technically sophisticated user who is responsible for administering all caTIES datastores (see caTIES System Administration Guide for details) and creating and managing local user and protocol accounts. • Authorized to grant Honest Broker and Researcher roles on the local caTIES node. • Must ensure that all organizational policies are followed and appropriate credentials are provided, such as IRB approval, before granting access to caTIES.
Honest Broker	<ul style="list-style-type: none"> • Role assigned to an IRB-sanctioned individual who is responsible for processing tissue requests/orders for specific protocol(s) at the local organization. • Permitted to perform all query functions and view identified data for assigned protocols. • Permitted to obtain materials under safe harbor and forward de-identified materials to Researchers.
Researcher	<ul style="list-style-type: none"> • Role assigned to user who has the required credentials/IRB approval to search for de-identified data, create case sets and order tissue. • If order request is approved, permitted to obtain tissue for research.

Table 4.1 User Roles

Workflow Modules

The workflow of caTIES can be divided into three modules: Administrative Functionality, Query Functionality and Order Management Functionality. The purpose of the remainder of this chapter is to provide an understanding of the tasks supported by these caTIES workflows. The following topics will be described for each task for all of the aforementioned modules:

- Purpose of task
- Prerequisite information
- Step by step instructions.

Administrative Functionality

Overview of Administrative Tasks

caTIES supports the following administrative functions:

- Login to Gain Access to the caTIES User Interface
- Add a caTIES User
- Edit a caTIES User
- Add a caTIES Protocol
- Edit a caTIES Protocol
- Add a User Role Assignment
- Edit a User Role Assignment
- Add a Distribution Protocol Assignment
- Edit a Distribution Protocol Assignment.

Each of the above tasks will be discussed in detail in this section.

Login to Gain Access to the caTIES User Interface

Purpose of Task

This task allows all registered caTIES users to gain access to the caTIES system.

Prerequisite Information

User has registered, been approved, and the user account has been activated.

Step by Step Instructions

Step 1. User double clicks on the Java Web Start icon titled **caTIES Version 2**. (See Figure 4.1.)



Figure 4.1 caTIES Java Web Start Icon

Login dialog box is initialized and displayed as shown in Figure 4.2.

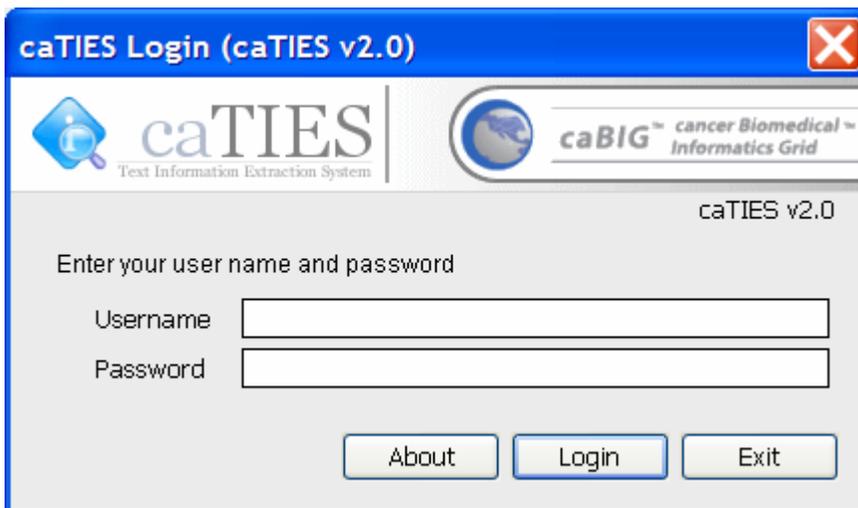


Figure 4.2 Login Dialog Box

Step 2. User enters **GUMS Username**.

Step 3. User enters **GUMS Password**.

Step 4. User clicks on **Login** button.

System contacts GUMS server for validation of the user's credentials.

System displays message "Logging In..."

Note: If User selects the **Exit** button, the session is terminated

Once the user is validated, the system displays message “Login Successful” and displays drop down lists for selection of **Role** and **Distribution Protocol** as shown in Figure 4.3.

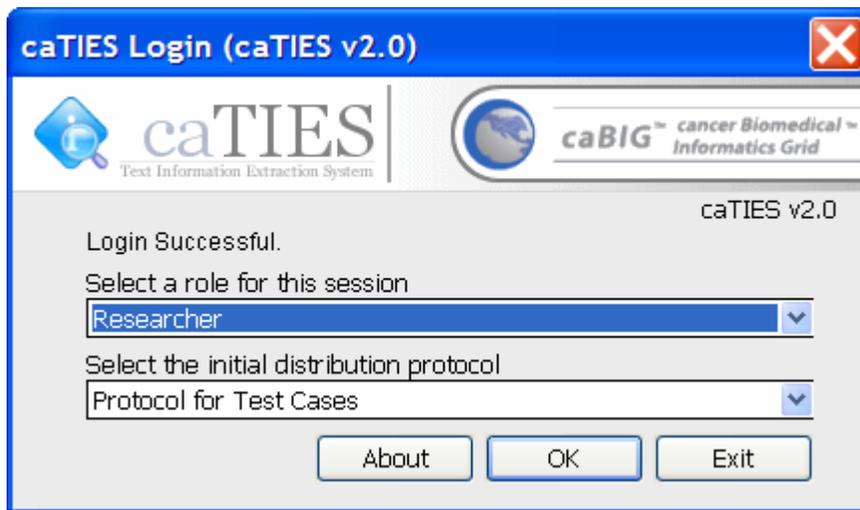


Figure 4.3 Successful Login

Step 5. User selects **Role** from drop down list.

Only Roles to which User has been assigned should be included in the drop down list.

Step 6. User selects **Distribution Protocol** from drop down list. (Only applies to Researcher role.)

Only Protocols to which User has been assigned should be included in drop down list.

Step 7. User clicks **OK** button.

System displays message “Loading User Interface...”

System displays appropriate interface depending on User’s role.

Add a caTIES User

Purpose of Task

This task allows a caTIES Administrator to add a user to the system.

Prerequisite Information

Distinguished Name was provided to Administrator.

Distinguished Name was added to grid map.

User has successfully logged in as Administrator.

Step by Step Instructions

Step 1. Click **+ New User** button. (See Figure 4.4.)

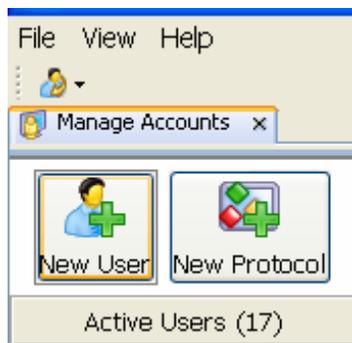


Figure 4.4 New User button

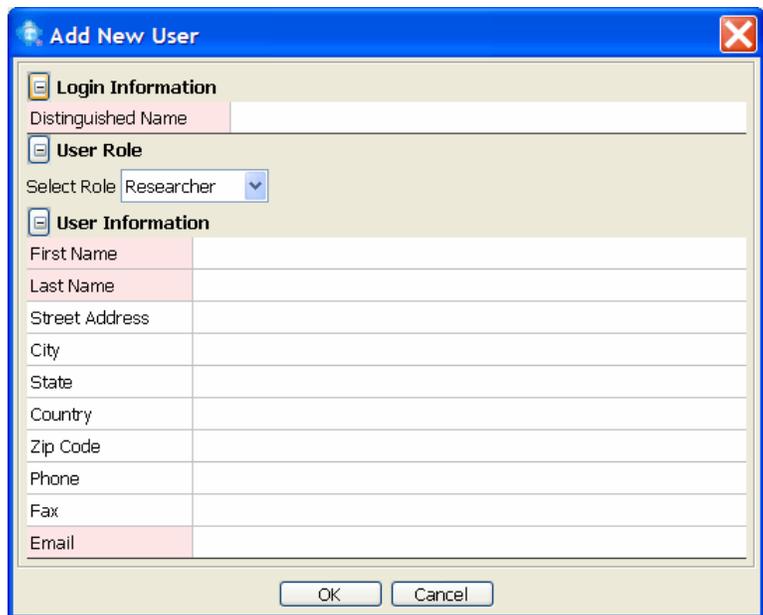


Figure 4.5 Add New User window

(Figure 4.5 illustrates Steps 2-14.)

Step 2. Enter **Distinguished Name**.

Step 3. Choose **Role** from the drop down list.

Note:

If **Administrator Role** is selected, User will be granted administrative privileges over the local organization's caTIES node.

If **Honest Broker Role** is selected, User will be granted honest broker privileges over the local

organization's caTIES node.

If **Researcher Role** is selected, User will be granted access to de-identified/public data (as per User's specific IRB protocol or exemption) on the caTIES system.

Step 4. Enter **First Name**.

Step 5. Enter **Last Name**.

Step 6. Enter **Street Address**.

Step 7. Enter **City**.

Step 8. Enter **State**.

Step 9. Enter **Country**.

Step 10. Enter **Zip Code**.

Step 11. Enter **Phone Number**.

Step 12. Enter **Fax Number**.

Step 13. Enter **Email Address**.

Step 14. Click **OK** button.

User should be successfully added and visible under **Active Users** in the UI.

Note: Additional configuration files need to be modified by your System Administrator to allow the new user to access the system. This information is contained in the [caTIES Installation and Administration Manual](#).

Edit a caTIES User

Purpose of Task

This task allows a caTIES Administrator to edit a user in the system.

Prerequisite Information

User has successfully logged in as Administrator.

The user account to be edited exists in the system.

Step by Step Instructions

Step 1. Click on the **Active Users** tab in the left-hand pane of window. (See Figure 4.6.)

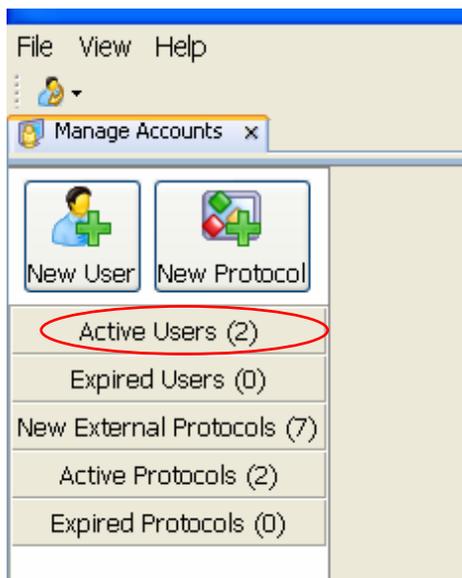


Figure 4.6 Manage Accounts view

Step 2. Select the name of the user you want to edit from the list of **Active Users**.

As shown in Figure 4.7 all information pertaining to the selected user is displayed in the right-hand pane of the window.

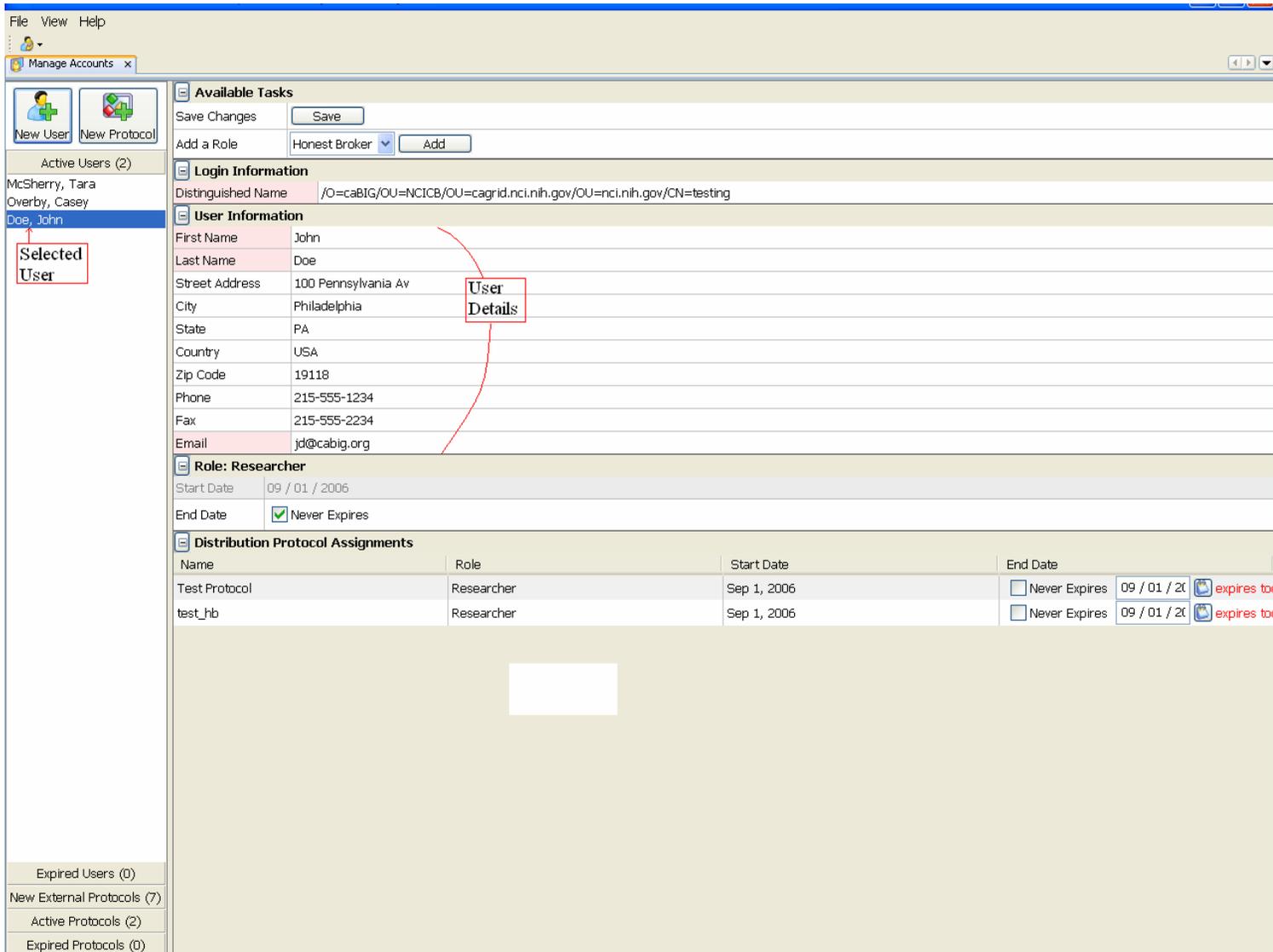


Figure 4.7 Active Users tab

Any combination of Steps 3-13 is permissible.

Under Login Information:

Step 3. Enter the modified **Distinguished Name**.

Under User Information:

Step 4. Enter the modified **First Name**.

Step 5. Enter the modified **Last Name**.

Step 6. Enter the modified **Street Address**.

Step 7. Enter the modified **City**.

Step 8. Enter the modified **State**.

Step 9. Enter the modified **Country**.

Step 10. Enter the modified **Zip Code**.

Step 11. Enter the modified **Phone Number**.

Step 12. Enter the modified **Fax Number**.

Step 13. Enter the modified **Email Address**.

Step 14. Click the **Save** button located under **Available Tasks**.

The User account should now be successfully modified and all changes saved in the system.

Add a caTIES Protocol

Purpose of Task

This task allows a caTIES Administrator to add a protocol to the system.

Prerequisite Information

User has successfully logged in as Administrator.

Step by Step Instructions

Step 1. Click + **New Protocol** button. (See Figure 4.8.)



Figure 4.8 Manage Accounts view

System displays **Create New Study** Form as shown in Figure 4.9.

Protocol Information	
Abbreviated Name	

IRB Information	
IRB Approval No.	
IRB Title	
Approval Date	09 / 01 / 2006
Expiration Date	<input checked="" type="checkbox"/> Never Expires
Organization's Role	Data Consumer

Figure 4.9 Create New Study form

Under Protocol Information:

Step 2. Enter **Abbreviated Name**.

Under IRB Information:

Step 3. Enter **IRB Approval No.**

Step 4. Enter **IRB Title**.

Step 5. If Protocol has an expiration date:

- a) Uncheck **Never Expires** check box. (See Figure 4.10.)
- b) Click on **Calendar** icon (displayed only if the Never Expires checkbox is not selected).
- c) Select **Expiration Date** using the calendar displayed or enter a date directly into the field provided. (See Figure 4.11.)

Create New Study

Protocol Information

Abbreviated Name

IRB Information

IRB Approval No.

IRB Title

Approval Date: 09 / 01 / 2006

Expiration Date: Never Expires | 09 / 01 / 2006 expires today

Organization's Role: Data Consumer

Figure 4.10 Create New Study form – Expiration Date

Select Date

September 2006 Today

S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

Select Cancel

Figure 4.11 Calendar pop-up

Step 6. Select **Organization's Role** from pull down list as shown in Figure 4.12.

Protocol Information	
Abbreviated Name	

IRB Information	
IRB Approval No.	
IRB Title	
Approval Date	09 / 01 / 2006
Expiration Date	<input type="checkbox"/> Never Expires 09 / 01 / 20 expires today
Organization's Role	Data Consumer (selected) Data Consumer Tissue Consumer

OK Cancel

Figure 4.12 Create New Study form – Organization's Role

Step 7. Click **OK** button.

The new Protocol should now be successfully added and visible in the UI.

Edit a caTIES Protocol

Purpose of Task

This task allows a caTIES Administrator to edit a protocol.

Prerequisite Information

User has successfully logged in as Administrator.

The protocol to be edited exists in the system.

Step by Step Instructions

Step 1. Click on the **Active Protocols** tab in the left-hand pane of window as shown in Figure 4.13.



Figure 4.13 Manage Accounts view

Step 2. Select the name of the Protocol you want to edit from the list of **Active Protocols**.

All information pertaining to the selected Protocol is displayed in the right-hand pane of the window. (See Figure 4.14.)

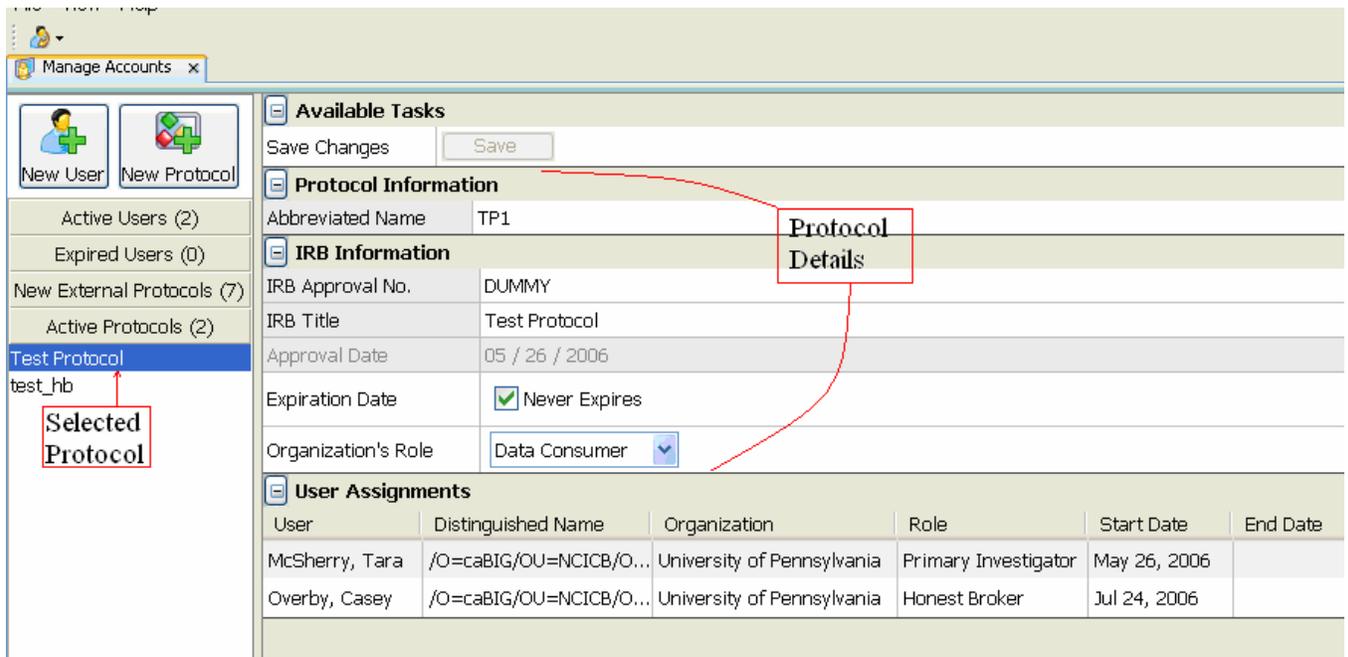


Figure 4.14 Active Protocols tab

Any combination of Steps 3-7 is permissible

Under Protocol Information:

Step 3. Enter the modified **Abbreviated Name**.

Under IRB Information:

Step 4. Enter the modified **IRB Approval No.**

Step 5. Enter the modified **IRB Title**.

Step 6. Enter the modified **Expiration date**.

Step 7. Enter the modified **Organization's Role**.

Step 8. Click **Save** button located under **Available Tasks**.

Protocol should now be successfully modified and all changes saved in the system.

Add a User Role Assignment

Purpose of Task

This task allows a caTIES Administrator to add a new Role to an active caTIES user account.

Prerequisite Information

User has successfully logged in as Administrator.

The account to which a new role will be added exists in the system.

Step by Step Instructions

Steps 1-5 are illustrated in Figure 4.15.

Step 1. Click on the **Active Users** tab in the left-hand pane of window.

Step 2. Select the name of the user you would like to add a role to from the list of **Active Users**.

All information pertaining to the selected user is displayed in the right-hand pane of the window.

Under Available Tasks:

Step 3. Choose a new **Role** from the drop down list.

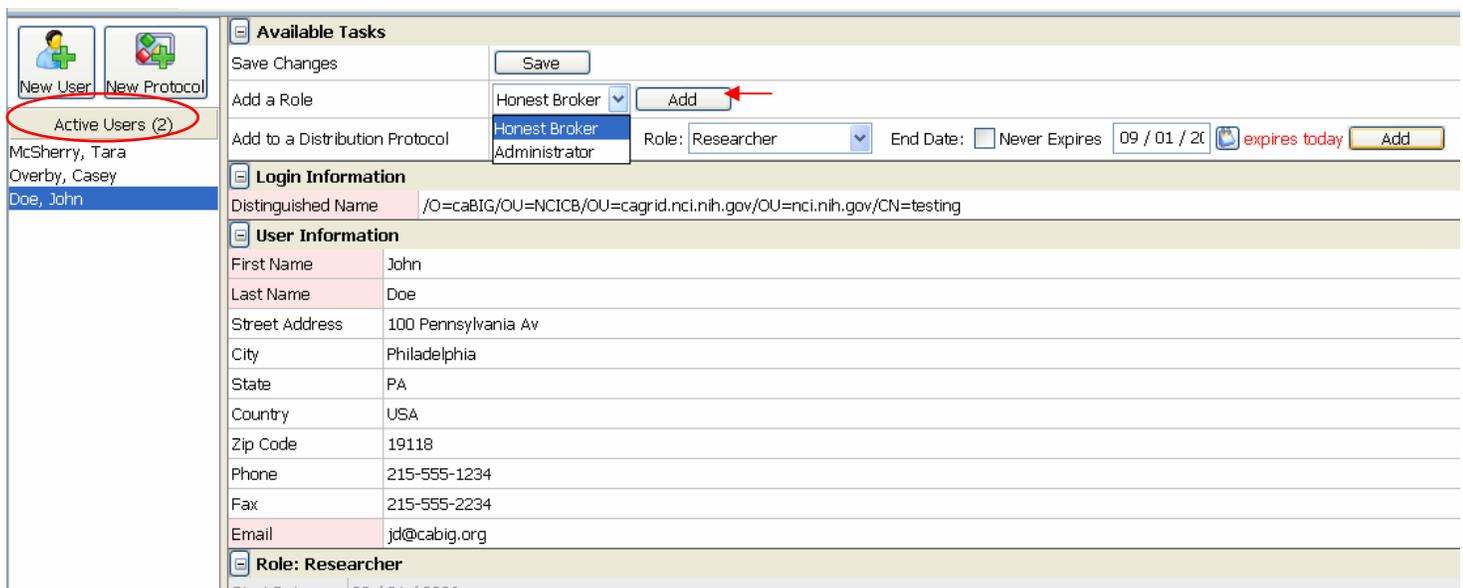


Figure 4.15 Active Users tab – Add a Role

Step 4. Click on the **Add** button to add the role to the user account.

Step 5. Click the **Save** button located under **Available Tasks**.

Role should now be successfully added and visible in the UI.

Edit a User Role Assignment

Purpose of Task

This task allows a caTIES Administrator to edit the Role of an active caTIES user.

Prerequisite Information

User has successfully logged in as Administrator.

The account to have a role edited was previously created.

Step by Step Instructions

Steps 1-6 are illustrated in Figure 4.16

Step 1. Click on the **Active Users** tab in the left-hand pane of window.

Step 2. Select the name of the user you would like to edit from the list of **Active Users**.

All information pertaining to the selected user is displayed in the right-hand pane of the window.

Under Role:

Step 3. Uncheck the **Never Expires** check box for the role you want to modify.

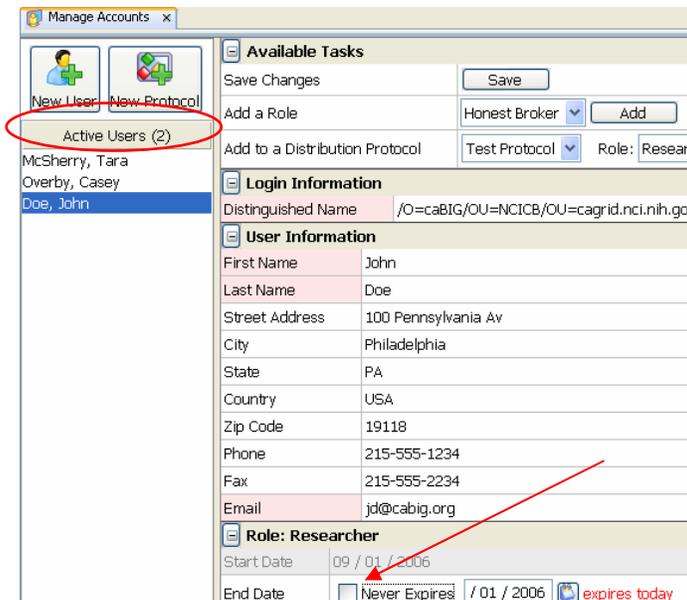


Figure 4.16 Active Users tab – End Date

Step 4. Click on the **Calendar** icon.

Step 5. Select a new **Expiration Date** on the calendar, or enter a date directly into the field provided.

Step 6. Click **Save** button located under **Available Tasks**.

Role should now be successfully modified and all changes saved.

Add a Distribution Protocol Assignment

Purpose of Task

This task allows a caTIES Administrator to add an active user to a caTIES Distribution Protocol.

Prerequisite Information

User has successfully logged in as Administrator.

The user account and protocol related to the assignment have previously been created.

Step by Step Instructions

Step 1. Click on the **Active Users** tab in the left-hand pane of window.

Step 2. Select the name of the user you want to add to a Distribution Protocol from the list of **Active Users**.

All information pertaining to the selected user is displayed in the right-hand pane of the window as shown in Figure 4.17.

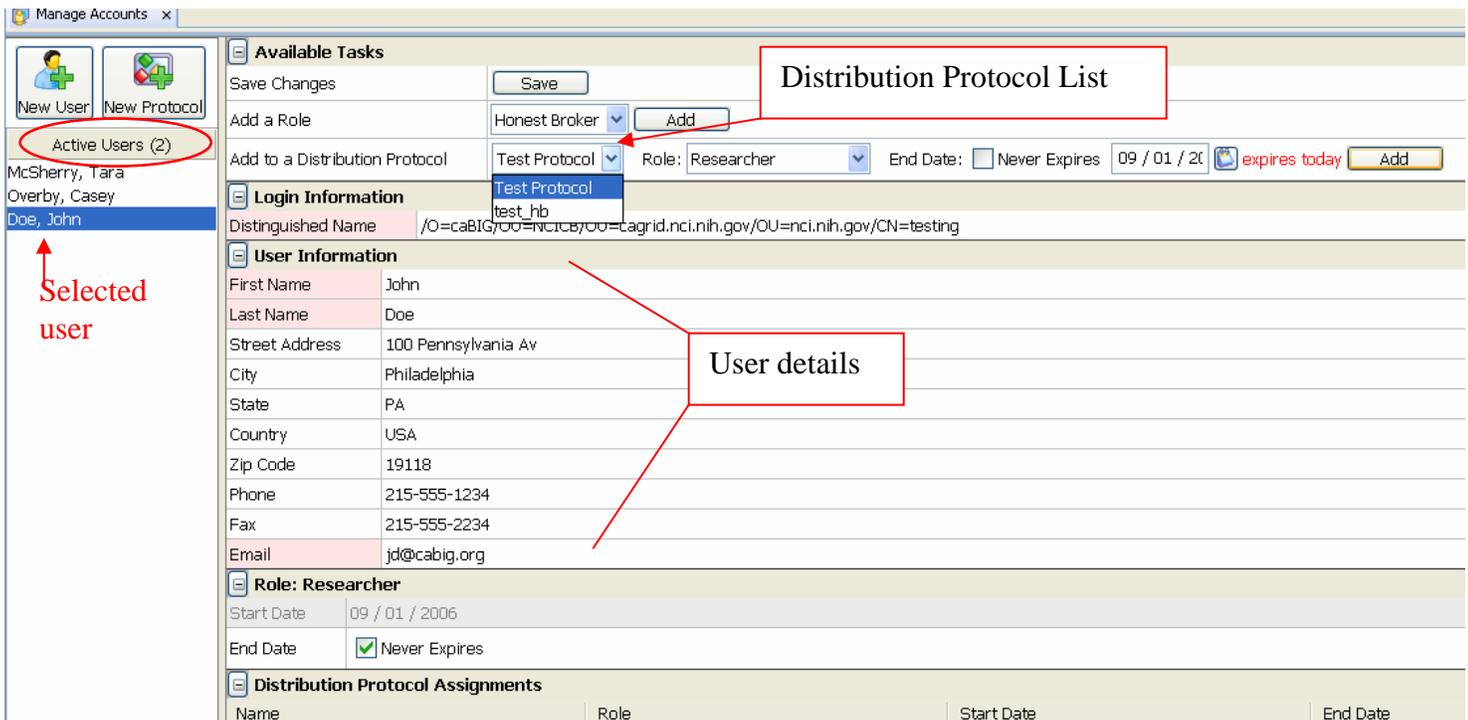


Figure 4.17 Active Users tab – Add to a Distribution Protocol

Under Available Tasks:

Step 3. Choose a different **Distribution Protocol** from the drop down list.

Step 4. Choose the **Role** for this Protocol from the drop down list.

Step 5. If there is an **Expiration Date**:

- a) Uncheck the **Never Expires** check box.
- b) Click on the **Calendar** button.
- c) Select **Expiration Date** using the calendar or enter a date directly into the field provided.

Step 6. Click **Add** button to add role to user account.

Step 7. Click **Save** button located under **Available Tasks**.

User is successfully assigned to the chosen protocol.

Edit a Distribution Protocol Assignment

Purpose of Task

This task allows a caTIES Administrator to edit the Distribution Protocol Assignment of an active user.

Note: Only the Expiration Date is modifiable.

Prerequisite Information

User has successfully logged in as Administrator.

The user account and protocol related to the assignment have previously been created.

Step by Step Instructions

Step 1. Click on the **Active Users** tab in the left-hand pane of window.

Step 2. Select the name of the user you would like to edit from the list of **Active Users**.

All information pertaining to the selected user is displayed in the right-hand pane of the window as shown in Figure 4.18.

Under Distribution Protocol Assignments:

Step 3. Uncheck the **Never Expires** check box for the **End Date** you want to modify.

The screenshot shows the 'Active Users' tab selected in the left-hand pane. The user 'Doe, John' is selected. The right-hand pane displays the following information:

- Available Tasks:** Save Changes (Save button), Add a Role (Honest Broker dropdown, Add button), Add to a Distribution Protocol (test_hb dropdown, Role: Researcher dropdown, End Date: Never Expires, Add button).
- Login Information:** Distinguished Name: /O=caBIG/OU=NCICB/OU=cagrid.nci.nih.gov/OU=nci.nih.gov/CN=testing
- User Information:**
 - First Name: John
 - Last Name: Doe
 - Street Address: 100 Pennsylvania Av
 - City: Philadelphia
 - State: PA
 - Country: USA
 - Zip Code: 19118
 - Phone: 215-555-1234
 - Fax: 215-555-2234
 - Email: jd@cabig.org
- Role: Researcher:**
 - Start Date: 09 / 01 / 2006
 - End Date: Never Expires
- Distribution Protocol Assignments:**

Name	Role	Start Date	End Date
Test Protocol	Researcher	Sep 1, 2006	<input checked="" type="checkbox"/> Never Expires

Figure 4.18 Active Users tab – End Date

Step 4. Click on the **Calendar** button.

Step 5. Select a new **Expiration Date** using the calendar (see Figure 4.19) or enter a date directly into the field provided.

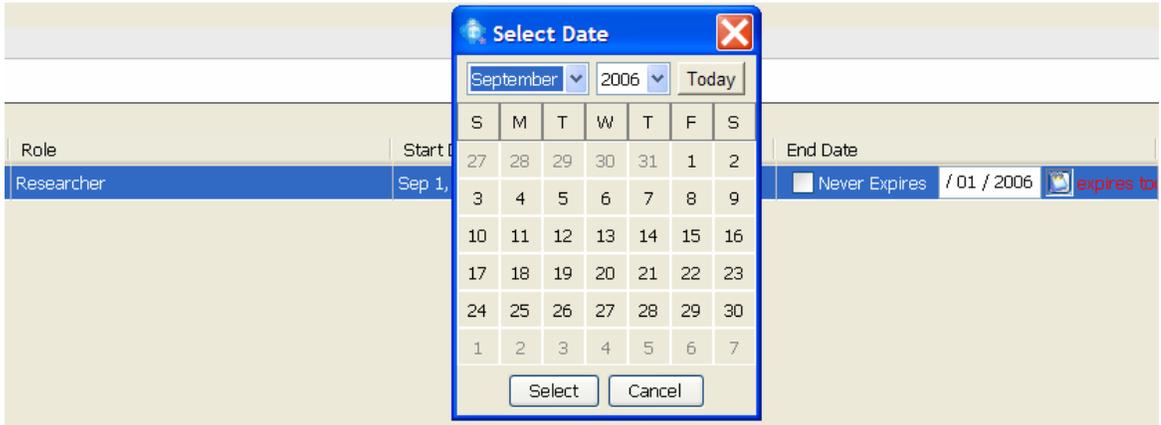


Figure 4.19 Calendar pop-up

Step 6. Click **Save** button located under **Available Tasks**.

Distribution Protocol Assignment should now be successfully modified.

Query Functionality

Overview of Query Tasks

caTIES supports the following query functions:

- Create a Query
- Save a Query
- Open a Saved Query
- View Query Results
- Print a Query Result
- Export a Query Result
- Request Review/Quarantine a Query Result.

Each of the above tasks will be discussed in detail in this section.

Create A Query

caTIES users have the option of using two different views to construct queries, the Dashboard View and the Diagram View. The Dashboard View allows for the creation of simple queries while the Diagram View is a more advanced interface that allows for construction of more complex queries. All queries constructed in the Dashboard View can be viewed graphically in the Diagram View, however not all advanced queries constructed in the Diagram View are able to convert back to a simplistic representation in the Dashboard View.

caTIES also provides the capability of two different types of searching in each of the query views, text searching and concept searching. Performing a text search is the more simplistic option. Using the text search option will return query results that contain the exact term or phrase entered as the search criteria. A concept search is a more advanced method of searching. Performing a concept search allows users to enter strings that are mapped to EVS concepts. Using the concept search option will return query results that contain the exact term or phrase and also other concepts that are synonyms of the term or phrase entered as the search criteria. For more information about text and concept searching, as well as tips for effectively searching using caTIES, please refer to [caTIES Searching Techniques](#) in the Appendix.

The tasks in this section provide detailed examples of how to represent all four types of query construction:

- A Text Search in the Dashboard View
- A Concept Search in the Dashboard View
- A Text Search in the Diagram View
- A Concept Search in the Diagram View.

Purpose of Task

This task allows caTIES users to search for cases/SPRs that are relevant to their research interests.

Prerequisite Information

User is logged in as Researcher or Honest Broker.

Step by Step Instructions

Text Search in the Dashboard View

Problem Statement:

Perform a text search for cases of 46 year old males that do not mention the term metastasis but involve the skin, and that involve Basal Cell Carcinoma or Melanoma

Step 1. Make sure you are in the Dashboard View. This is the default view when the Query Interface is opened. (See Figure 4.20.)

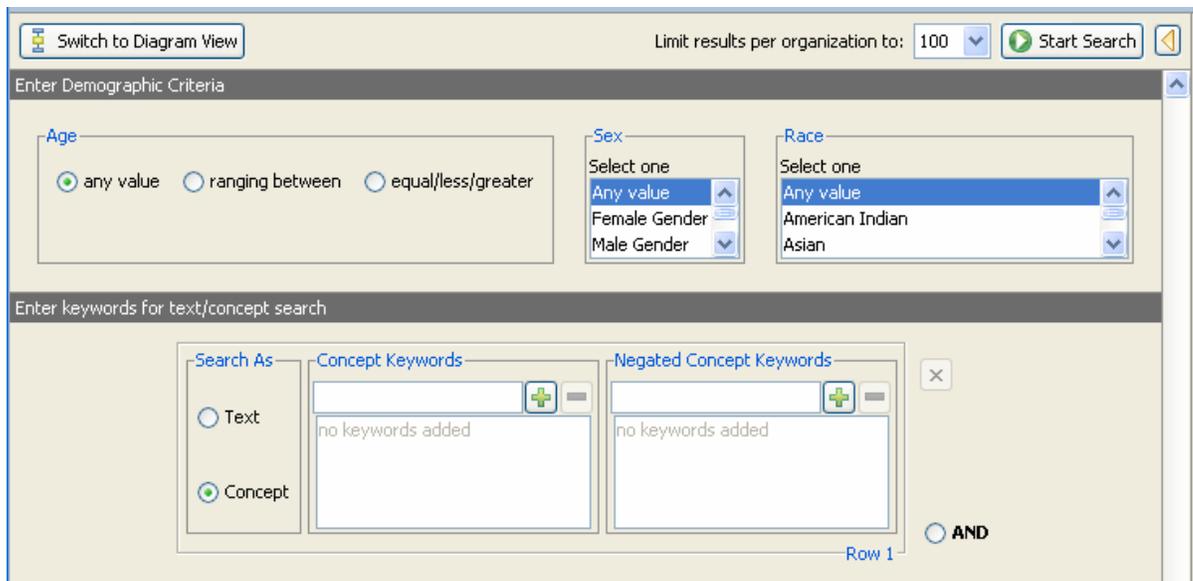


Figure 4.20 Dashboard View

Steps 2-5 are illustrated in Figure 4.21.

Step 2. Select the **Age** radio button named **equal/less/greater**.

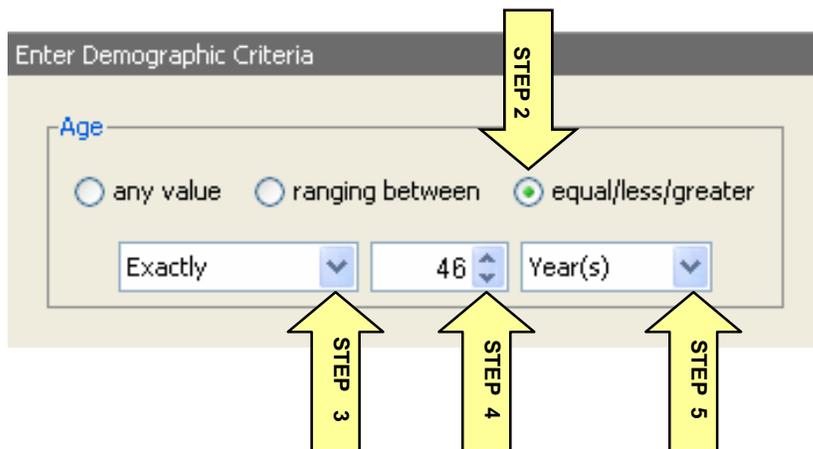


Figure 4.21 Dashboard View - Age radio button

Step 3. Select **Exactly** from the drop-down menu. (This is the default.)

Step 4. Adjust the Age value to **46** by clicking on the up and down arrows.

Step 5. Select **Year(s)** from the drop-down menu. (This is the default.)

Steps 6-7 are illustrated in Figure 4.22.

Step 6. Select the **Sex** list box value of **Male Gender**.

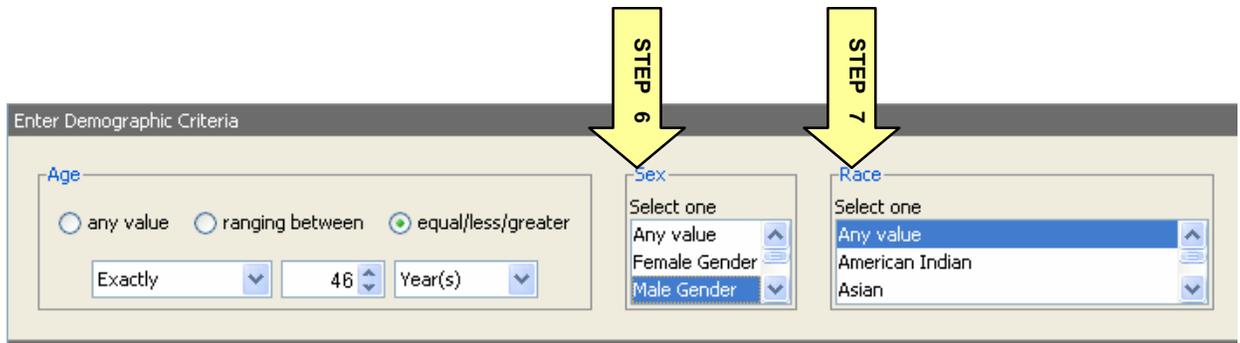


Figure 4.22 Dashboard View - Sex and Race list boxes

Step 7. Select the **Race** list box value named **Any Value**.

Steps 8-10 are illustrated in Figure 4.23.

Step 8. Select the **Search As** radio button for **Text**.

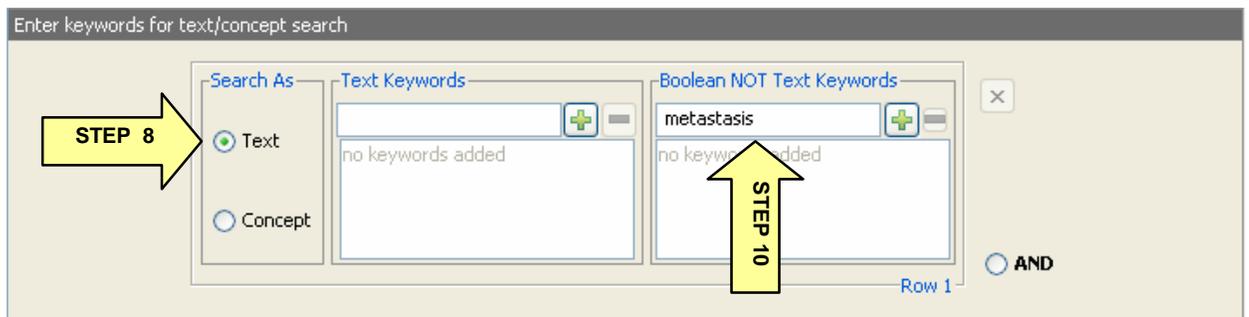


Figure 4.23 Dashboard View - Search As Text radio button and Boolean Not Text Keywords text box

Step 9. Click in the text box named **Boolean NOT Text Keywords** to enter criteria to exclude from your search.

Step 10. Type “metastasis” into the **Boolean NOT Text Keywords** text box.

Step 11. Click the “+” button to add “metastasis” as criteria to exclude from your search. (See Figure 4.24.)

Notice that “metastasis” has moved from the text box to the “entered criteria box”.

Notice that the message “no keywords added” disappeared.

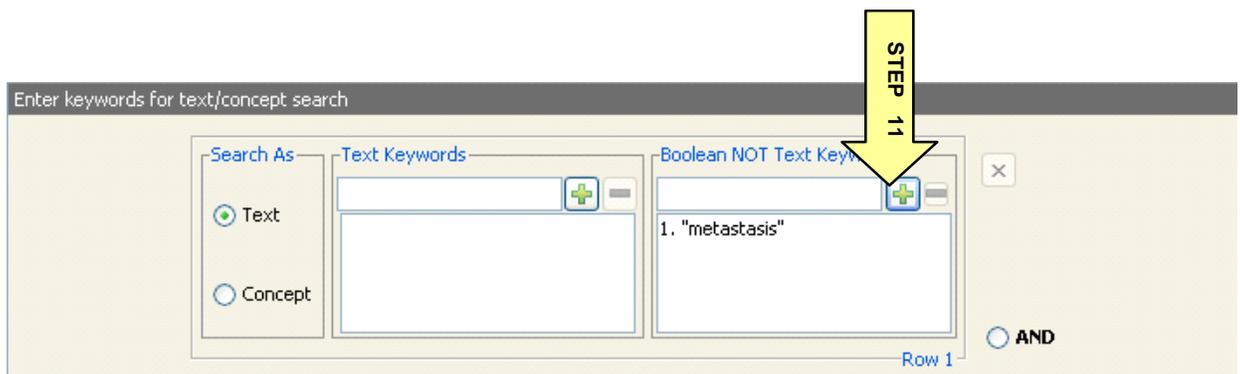


Figure 4.24 Dashboard View - Add Boolean NOT text keyword to search criteria

Step 12. Click in the text box named **Text Keywords** to enter searching criteria.

Step 13. Type “**skin**” into the **Text Keywords** text box.

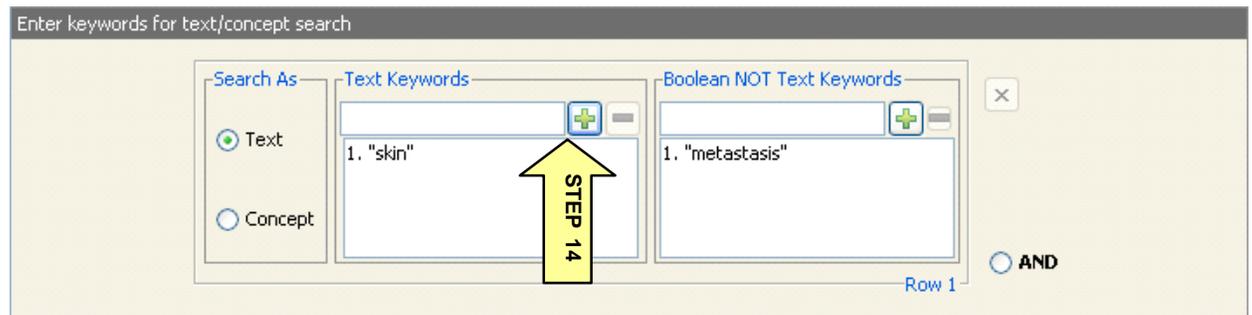


Figure 4.25 Dashboard View - Add text keyword to search criteria

Step 14. Click the “+” button to add “**skin**” as criteria for your search. (See Figure 4.25.)

Steps 15-19 are illustrated in Figure 4.26.

Step 15. Select the **AND** radio button in order to add the Boolean operator AND to add additional search criteria.

Step 16. Select the **Search As** radio button labeled **Text**.

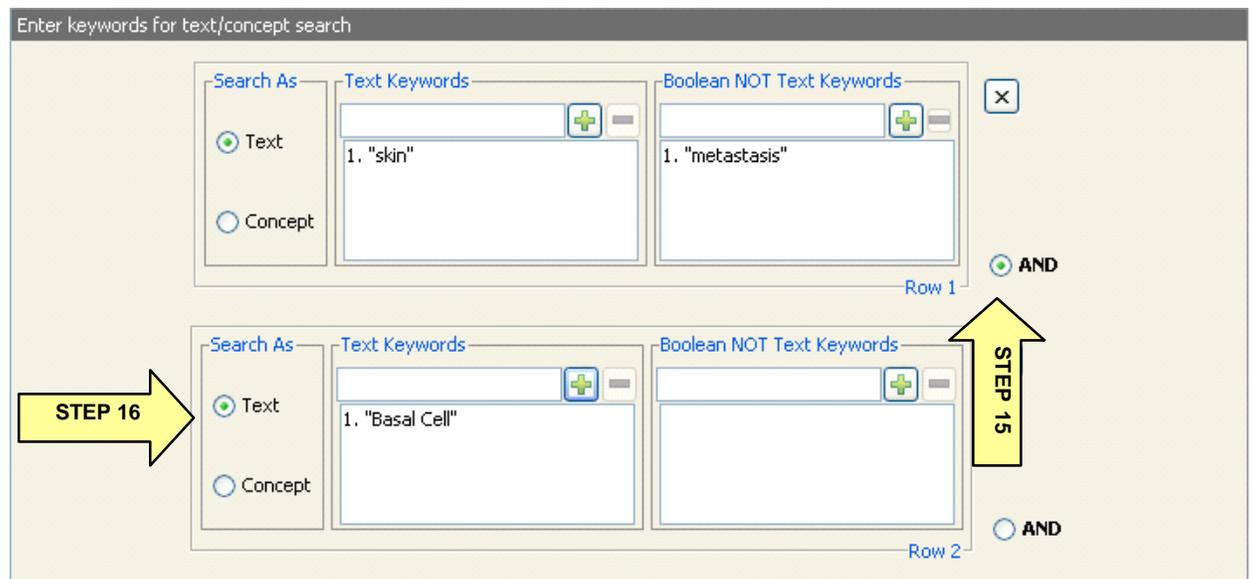


Figure 4.26 Dashboard View - Add text keyword as an ANDed constraint,

Step 17. Click in the text box labeled **Text Keywords** to enter searching criteria.

Step 18. Type “**Basal Cell**” into the **Text Keywords** text box.

Step 19. Click the “+” button to add “**Basal Cell**” as criteria for your search.

Steps 20-23 are illustrated in Figure 4.27.

Step 20. Click again in the text box labeled **Text Keywords** to enter additional searching criteria that will be combined with the already entered criteria with a Boolean OR operator.

Step 21. Type “**Melanoma**” into the **Text Keywords** text box.

Step 22. Click the “+” button to add “Melanoma” as criteria for your search.

The screenshot shows a search interface with the following sections:

- Top Bar:** Includes a "Switch to Diagram View" button, a "Limit results per organ" field, a yellow arrow labeled "STEP 23" pointing to a "Start Search" button.
- Enter Demographic Criteria:**
 - Age:** Radio buttons for "any value", "ranging between", and "equal/less/greater" (selected). Below are dropdowns for "Exactly", a numeric input "46", and "Year(s)".
 - Sex:** "Select one" dropdown with options "Any value", "Female Gender", and "Male Gender".
 - Race:** "Select one" dropdown with options "Any value", "American Indian", and "Asian".
- Enter keywords for text/concept search:** A table with two rows:
 - Row 1:** "Search As" (Text selected), "Text Keywords" (1. "skin"), "Boolean NOT Text Keywords" (1. "metastasis").
 - Row 2:** "Search As" (Text selected), "Text Keywords" (1. "Basal Cell" OR, 2. "Melanoma"), "Boolean NOT Text Keywords" (empty).

Figure 4.27 Start Search from Dashboard View

Step 23. Click the **Start Search** button to submit search criteria to the system and perform the search.

Concept Search in the Dashboard View

Problem Statement:

Change what you have from the previous Text Search to perform a Concept Search to find all cases involving Invasive Mammary Carcinoma that specifically state there is no Invasive Ductal Carcinoma.

Step 1. Click the “X” button to delete entire 2nd row. (See Figure 4.28.)

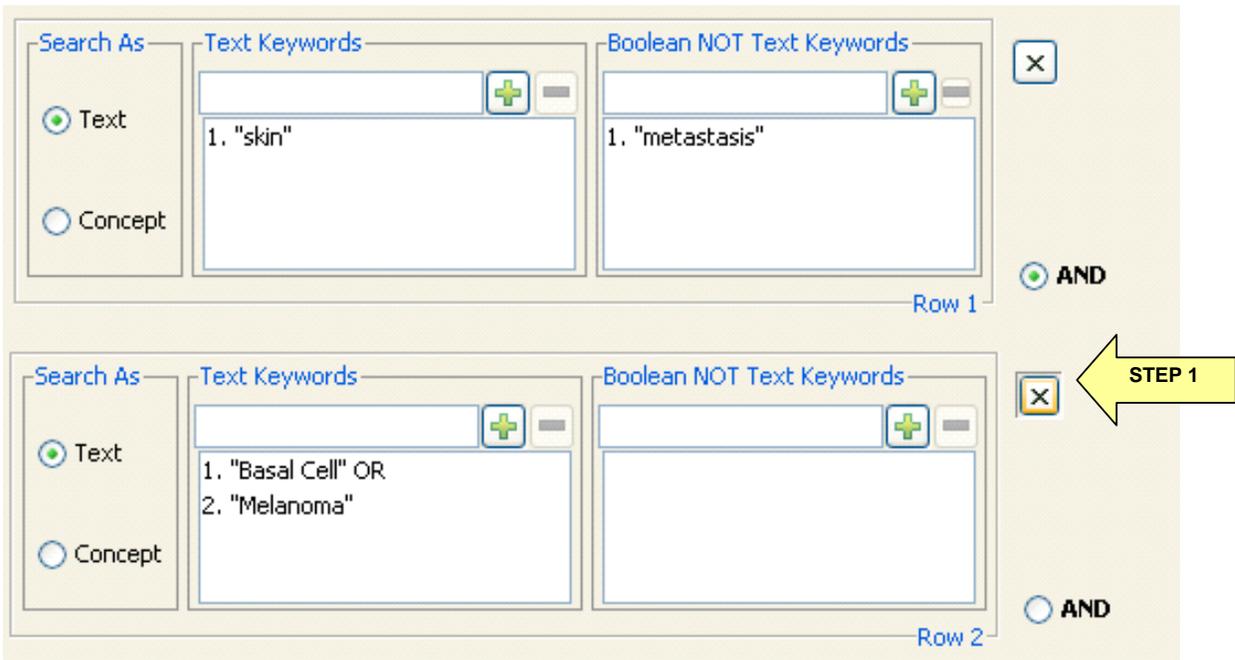


Figure 4.28 Dashboard View - Delete row



Figure 4.29 Dashboard View - Confirm Row Delete pop-up

Step 2. Click the **Yes** button in the **Confirm Row Delete** pop up box. (See Figure 4.29.)

Step 3. Select “skin” in the box titled **Text Keywords**.

Step 4. Click the “-” button to delete “skin” as criteria for your search. (See Figure 4.30.)

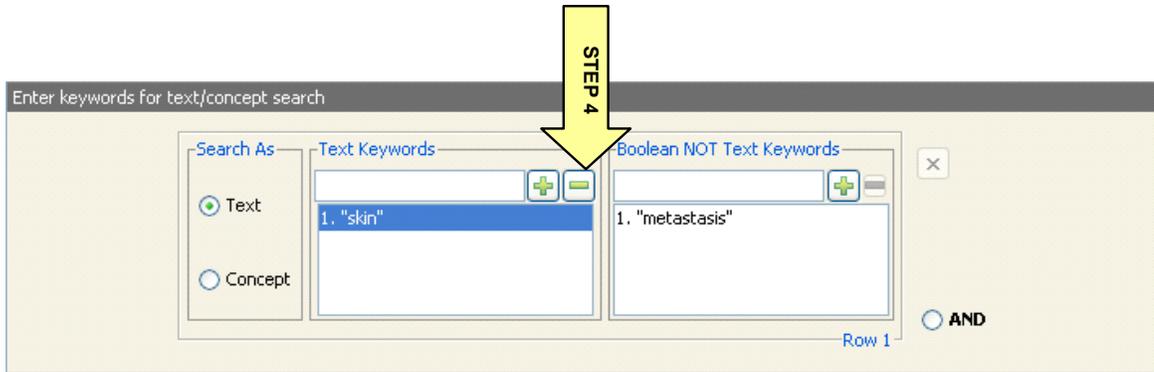


Figure 4.30 Dashboard View - Remove text keyword

Step 5. Select “metastasis” in the box titled **Boolean NOT Text Keywords**.

Step 6. Click the “-” button to delete “metastasis” as criteria for your search. (See Figure 4.31.)

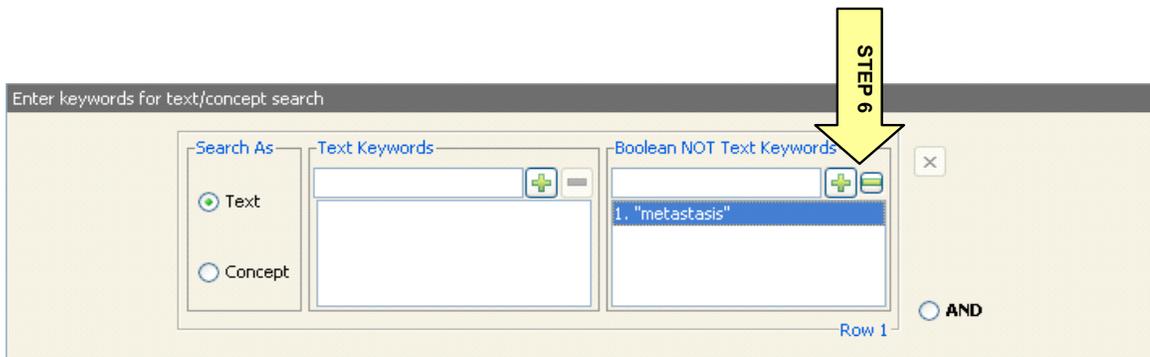


Figure 4.31 Dashboard View - Remove Boolean NOT text keyword

Step 7. Select the **Age** radio button titled **Any value**.

Step 8. Select the **Sex** list box value titled **Any value**.

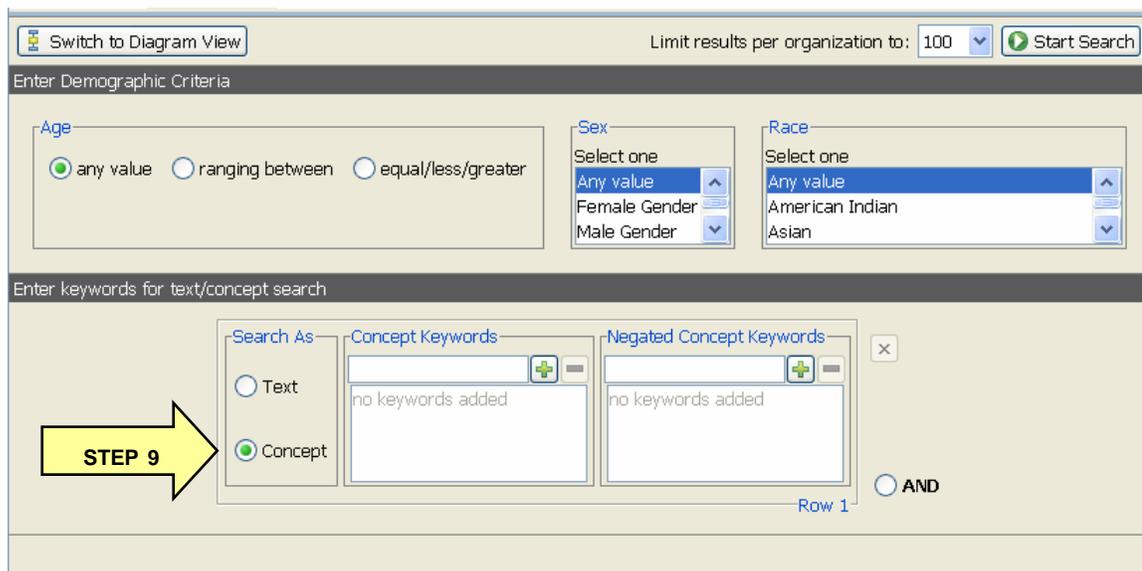


Figure 4.32 Dashboard View - Search As Concept radio button

- Step 9.** Select the **Search As** radio button labeled **Concept**. (See Figure 4.32.)
- Step 10.** Click in the text box labeled **Concept Keywords** to enter searching criteria.
- Step 11.** Type **“Invasive Mammary Carcinoma”** into the **Concept Keywords** text box.

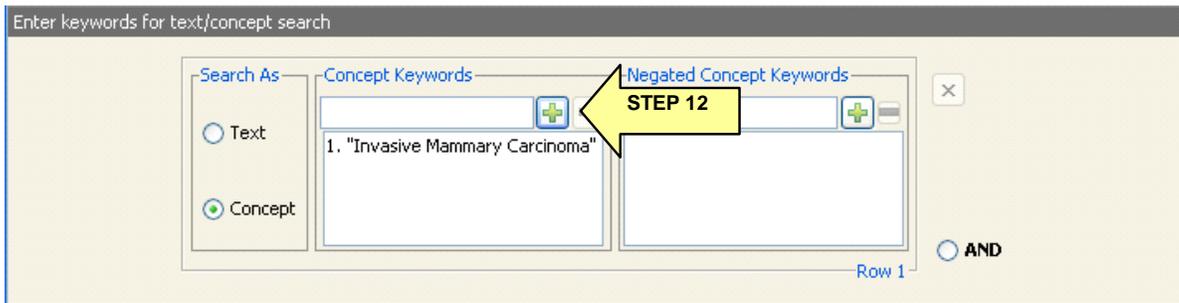


Figure 4.33 Dashboard View - Add concept keyword to search criteria

- Step 12.** Click the **“+”** button to add **“Invasive Mammary Carcinoma”** as criteria for your search. (See Figure 4.33.)
- Step 13.** Click in the text box titled **Negated Concept Keywords** to enter criteria on which to perform a negated search.
- Step 14.** Type **“Invasive Ductal Carcinoma”** into the **Negated Concept Keywords** text box. Steps 15-16 are illustrated in Figure 4.34.
- Step 15.** Click the **“+”** button to add **“Invasive Ductal Carcinoma”** as criteria for a negated search.

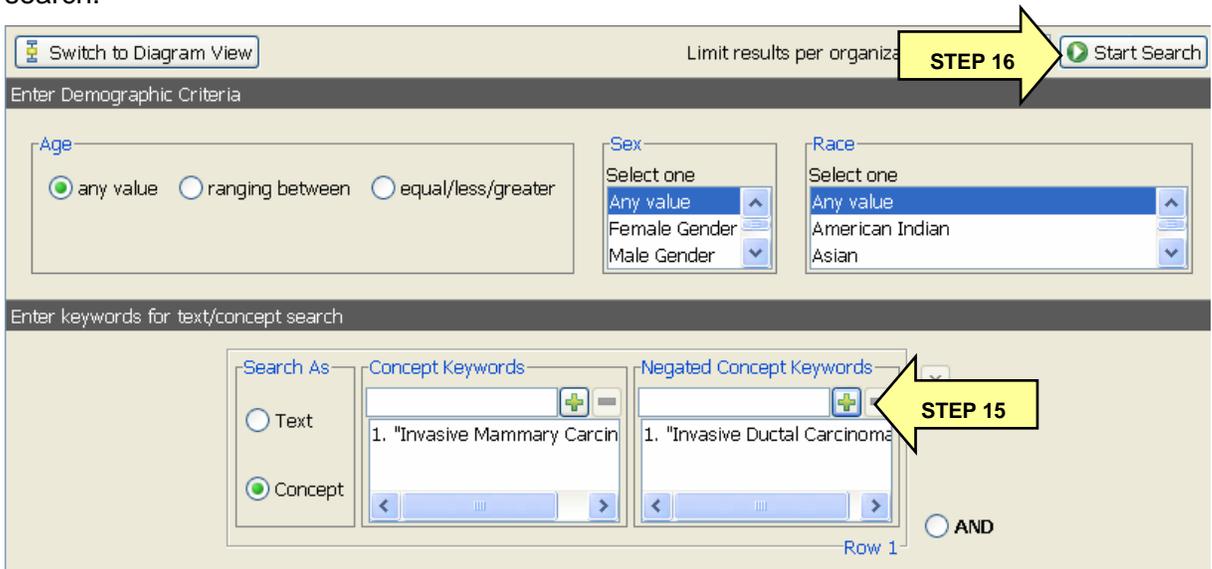


Figure 4.34 Dashboard View - Add negated concept keyword, Start search from Dashboard view

- Step 16.** Click the **Start Search** button to submit search criteria to the system and perform the search.

Text Search in the Diagram View

Problem Statement:

Perform a text search to find female patients of age either between 10 and 30 or greater than 60 with biopsies of DCIS.

Step 1. Click the **Switch to Diagram View** button in the top left-hand corner of the “Query Builder” pane of the Query window. (See Figure 4.35.)

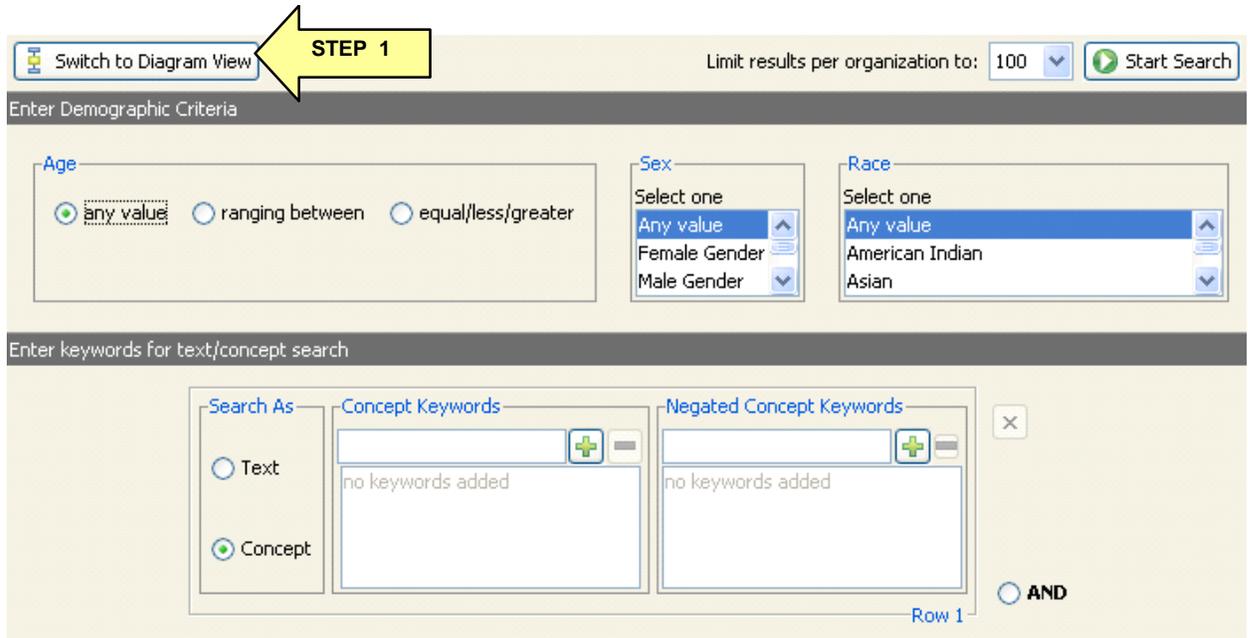


Figure 4.35 Switch to Diagram View button

Steps 2-3 are illustrated in Figure 4.36.

Step 2. Right click on the line under the **Start Placeholder** box.

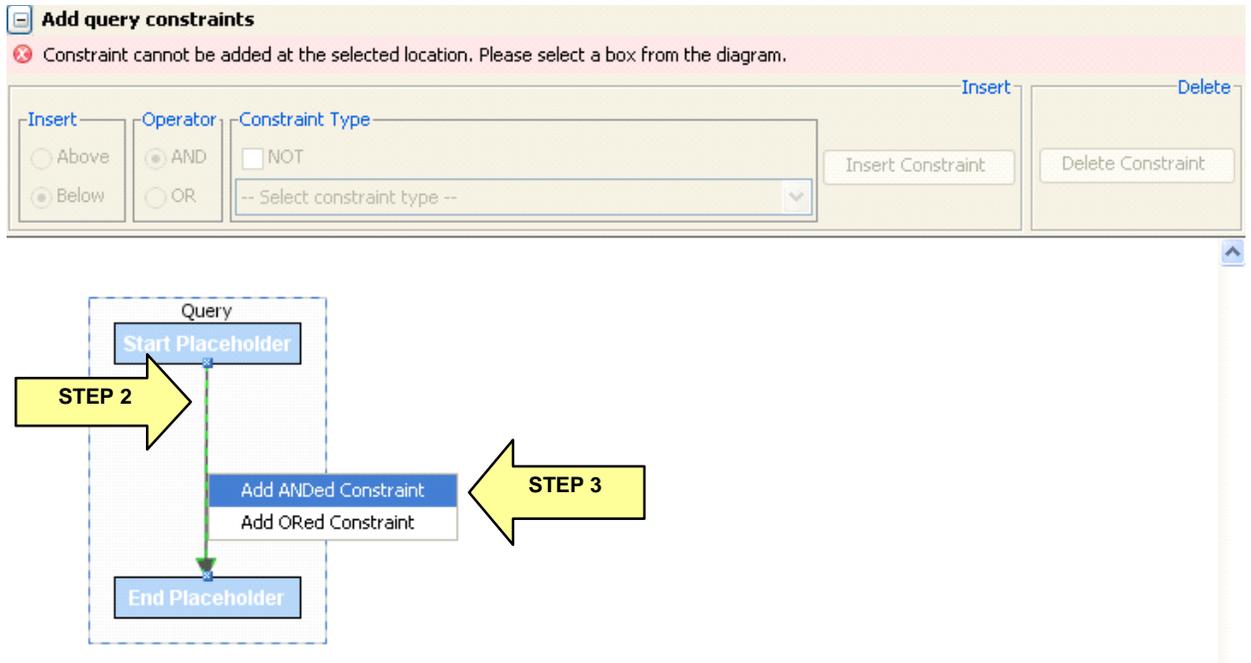


Figure 4.36 Diagram View - Add ANDed Constraint

A box with constraint choices pops up.

Step 3. Select the **Add ANDed Constraint** choice in the pop up box.

A box titled **Select Constraint** pops up as shown in Figure 4.37.

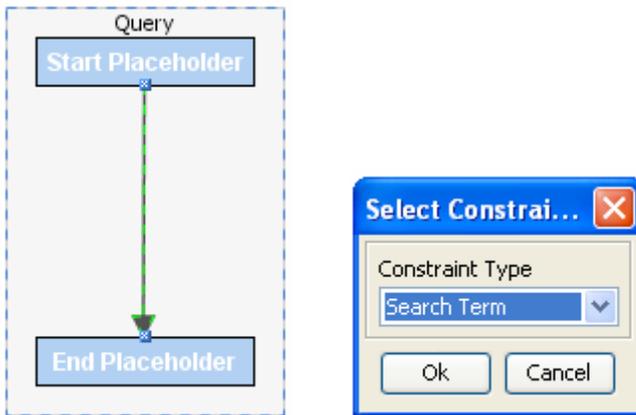


Figure 4.37 Diagram View – Select Constraint pop up

Step 4. Select **Sex** as the **Constraint Type** from the drop- down menu. (See Figure 4.38.)

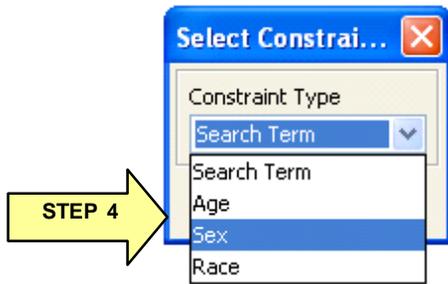


Figure 4.38 Diagram View – Select Sex constraint type

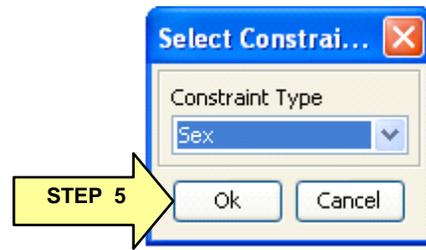


Figure 4.39 Diagram View – Confirm constraint type

Step 5. Click the **Ok** button to save your choice. (See Figure 4.39.)

Steps 6-8 are illustrated in Figure 4.40.

Step 6. Double click on the box titled **Sex**.

A box titled **Specify Sex** pops up.

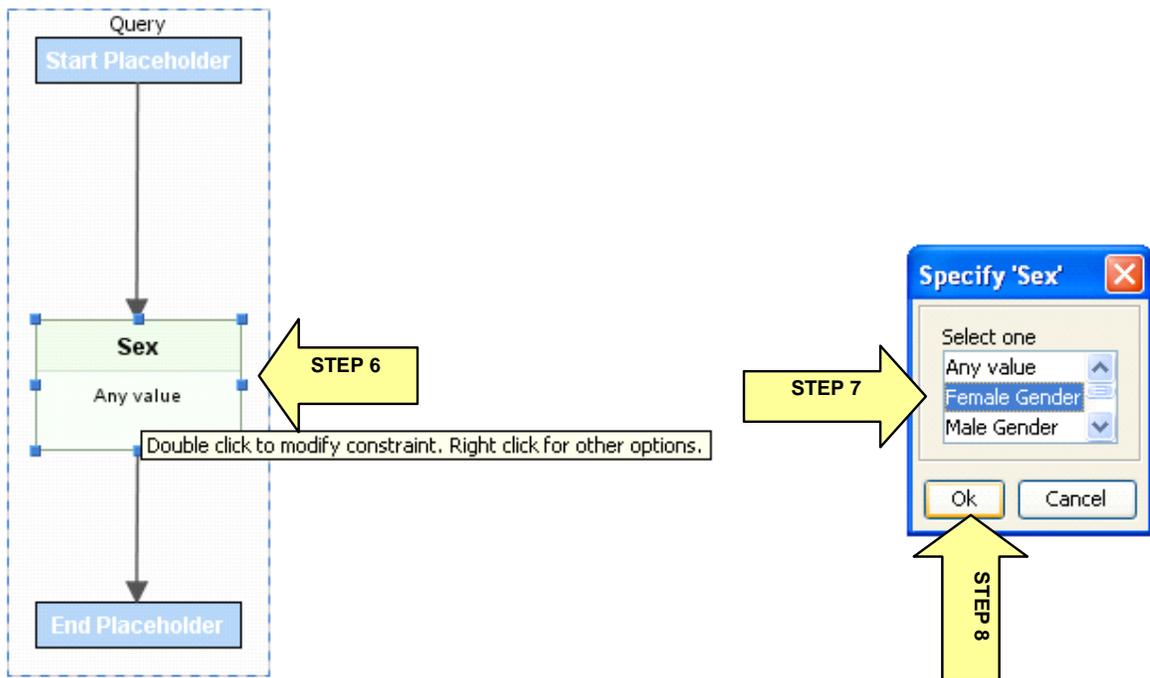


Figure 4.40 Diagram View – Specify Sex constraint

Step 7. Select **Female Gender** from the pop up box choices.

Step 8. Click the **Ok** button to save your choice.

Steps 9-10 are illustrated in Figure 4.41.

Step 9. Right click on the line between the box titled **Sex** and the **End Placeholder** box.

A box with constraint choices pops up.

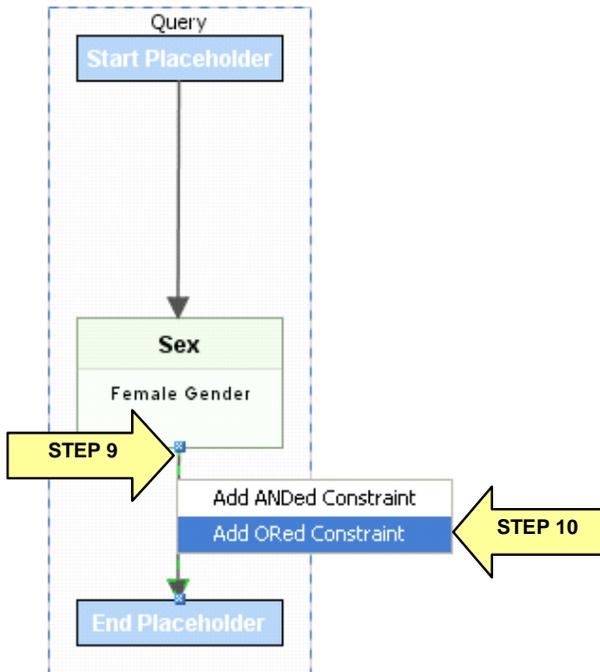


Figure 4.41 Diagram View – Add ORed Constraint

Step 10. Select the **Add ORed Constraint** choice in the pop up box.

A box titled **Add 1st field constraint** pops up.

Step 11. Select the **Age** choice in the drop-down menu of this pop up box.

Step 12. Click the **Ok** button in this pop up box. (See Figure 4.42.)

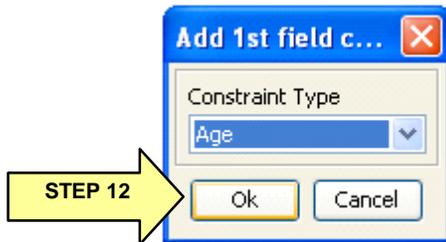


Figure 4.42 Diagram View – Select Age as 1st Constraint

A box titled **Add 2nd field constraint** pops up.

Step 13. Select the **Age** choice in the drop-down menu of this pop up box.

Step 14. Click the **Ok** button in this pop up box.

Step 15. Double click on the first **Age** box. (See Figure 4.43.)

A box titled **Specify Age** pops up.

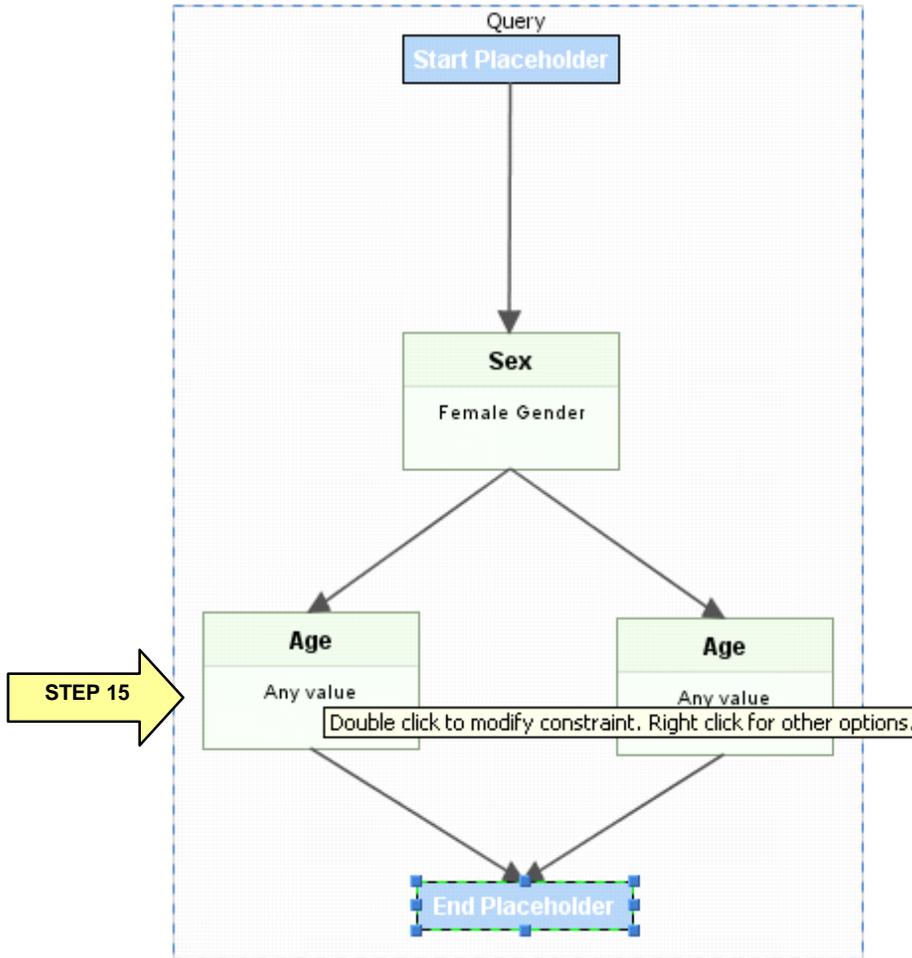


Figure 4.43 Diagram View - Double click 1st Age ORed constraint

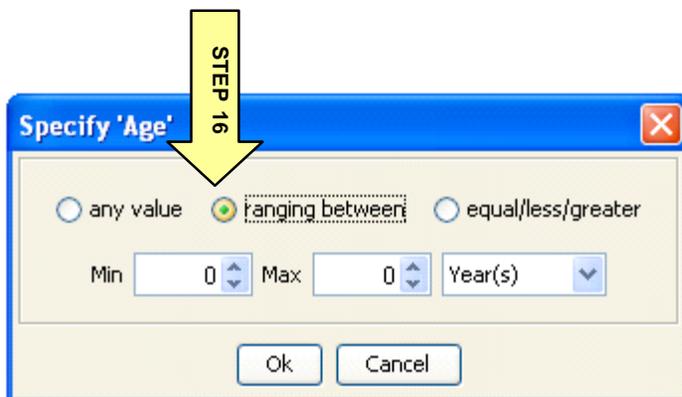


Figure 4.44 Diagram View – Specify Age constraint

Step 16. Select the radio button titled **ranging between**. (See Figure 4.44.)

Step 17. Adjust the **Min** age value to **10** by clicking on the up and down arrows or typing into the text box.

Step 18. Adjust the **Max** age value to **30** by clicking on the up and down arrows or typing into the text box.

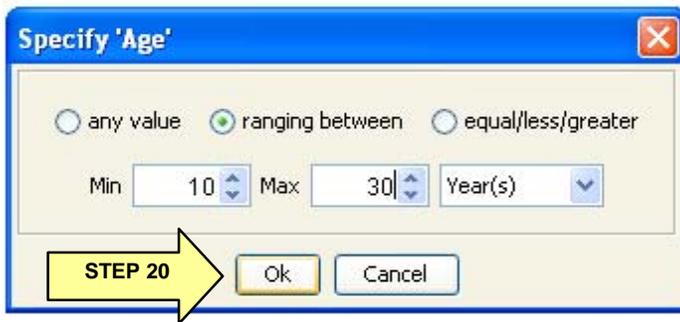


Figure 4.45 Diagram View – Specify Age Constraint

Step 19. Select **Year(s)** from the drop-down menu. (This is the default value.)

Step 20. Click the **Ok** button to save your choices. (See Figure 4.45.)

Step 21. Double click the second **Age** box.

A box titled **Specify Age** pops up.

Step 22. Select the radio button labeled **equal/less/greater**.

Step 23. Select **Greater Than** from the drop-down box.

Step 24. Adjust the age value to **60** by clicking on the up and down arrows or typing directly into the text box.

Step 25. Select **Year(s)** from the drop-down menu. (This is the default value.)

Step 26. Click the **Ok** button to save your choices.

Steps 27-28 are illustrated in Figure 4.46.

Step 27. Right click on the **End Placeholder** box.

A box with the message **Add ANDed constraint above** pops up.

Step 28. Select the **Add ANDed constraint above** message in the pop up box.

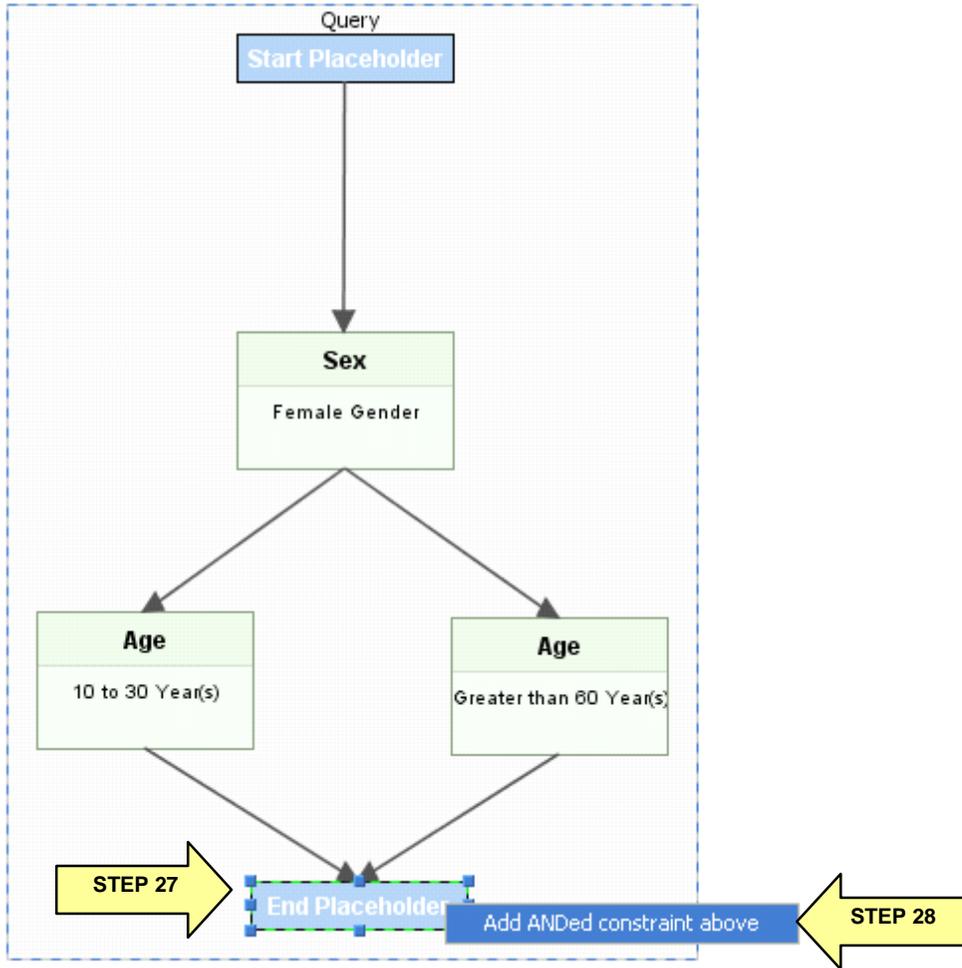


Figure 4.46 Diagram View – Add ANDED constraint above

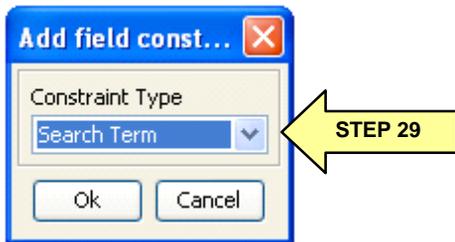


Figure 4.47 Diagram View – Select Search Term constraint type

A box with the message **Add field constraint above** pops up.

Step 29. Select the **Search Term** choice in the drop-down menu of this pop up box. (See Figure 4.47.)

Step 30. Click the **Ok** button in this pop up box.

Step 31. Double click on the new **Search Term** box. (See Figure 4.48.)

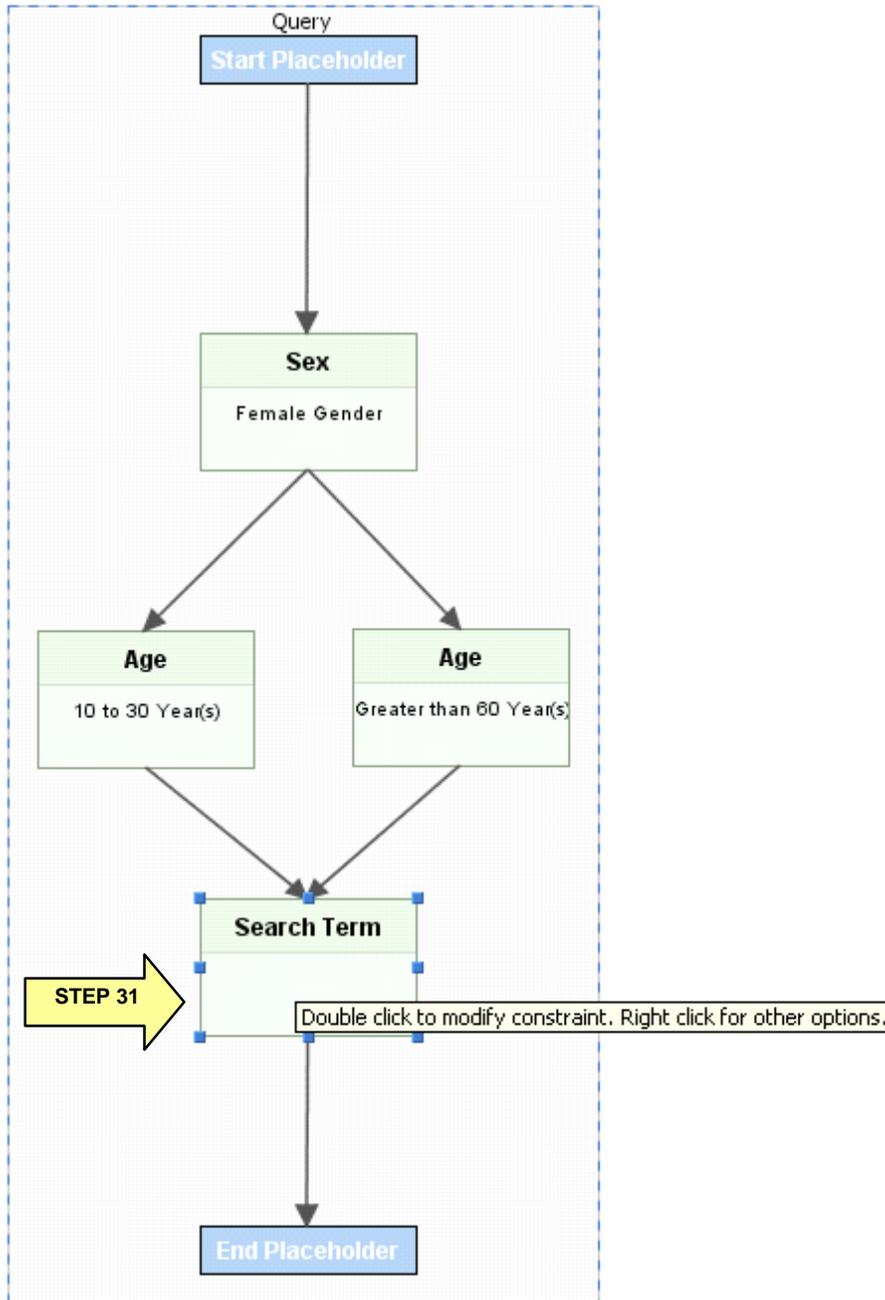


Figure 4.48 Diagram View - Double click Search Term constraint

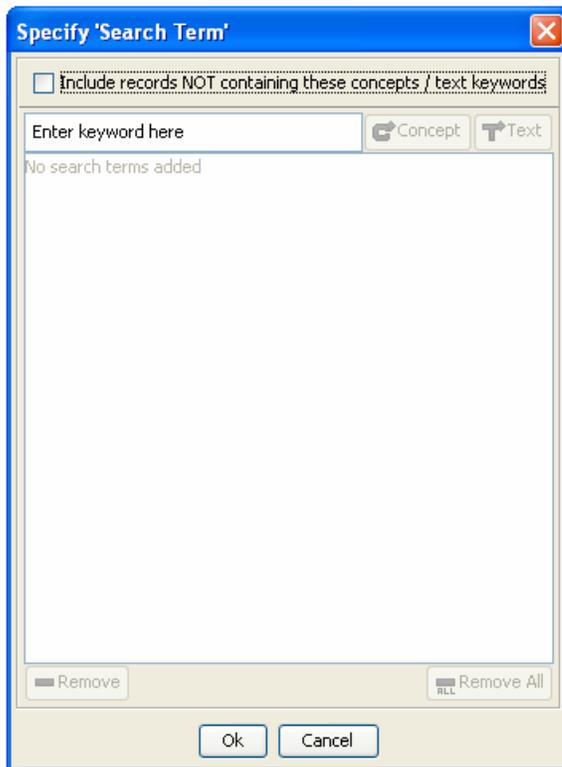


Figure 4.49 Diagram View – Specify ‘Search Term’ pop up

A box titled **Specify Search Term** pops up. (See Figure 4.49.)

Step 32. Click in the text box to enter searching criteria.

Step 33. Type “**biopsy**” into the text box. (See Figure 4.50.)

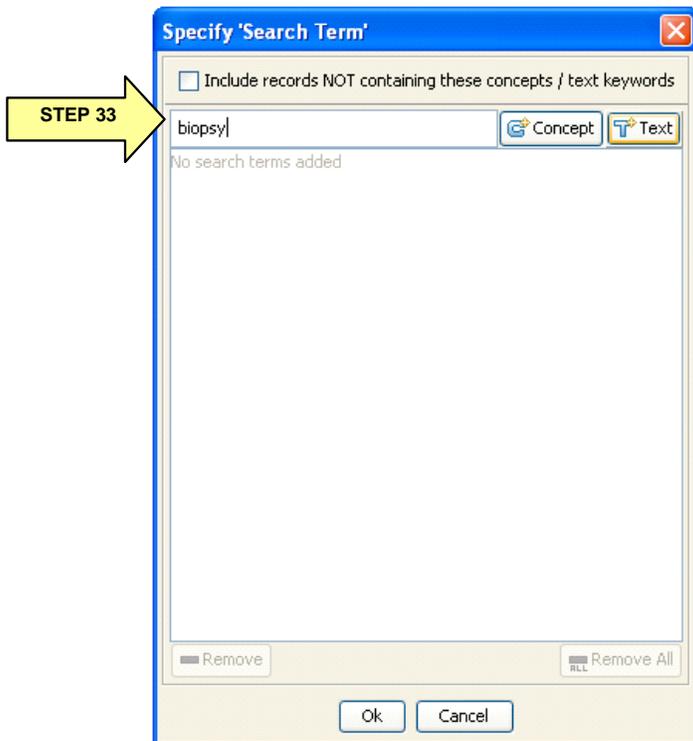


Figure 4.50 Diagram View – Enter search term

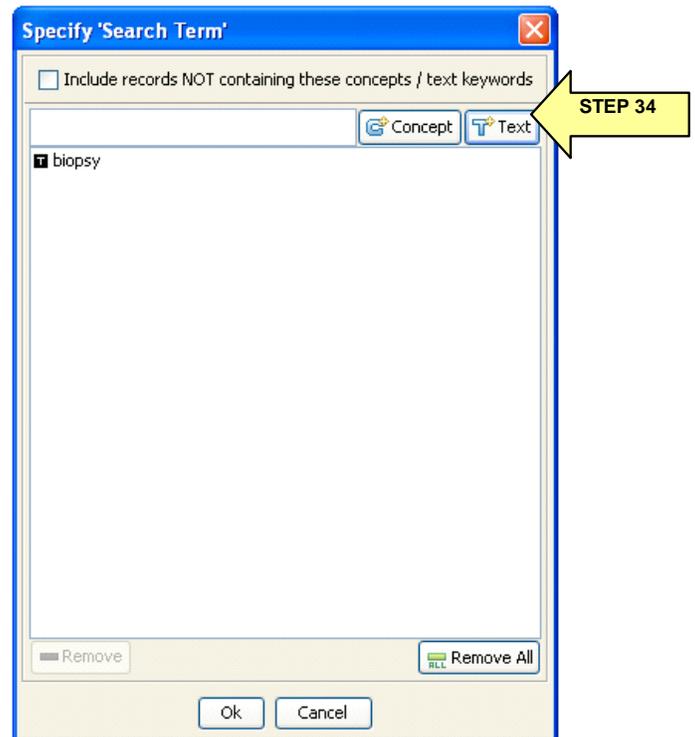


Figure 4.51 Diagram View – Add text term

Step 34. Click the **Text** button to select the type of search you would like to perform. (See Figure 4.51.)

The phrase **biopsy** is automatically added to the box of search criteria when you selected the **Text** button.

Step 35. Click the **Ok** button to save the specification.

You are now back at the “Query Builder” window and the **Search Term** box is shown with the “**biopsy**” specification displayed.

Steps 36-39 are illustrated in Figure 4.52.

Step 36. Right click on the line between the **Search Term** box and the **End Placeholder** box.

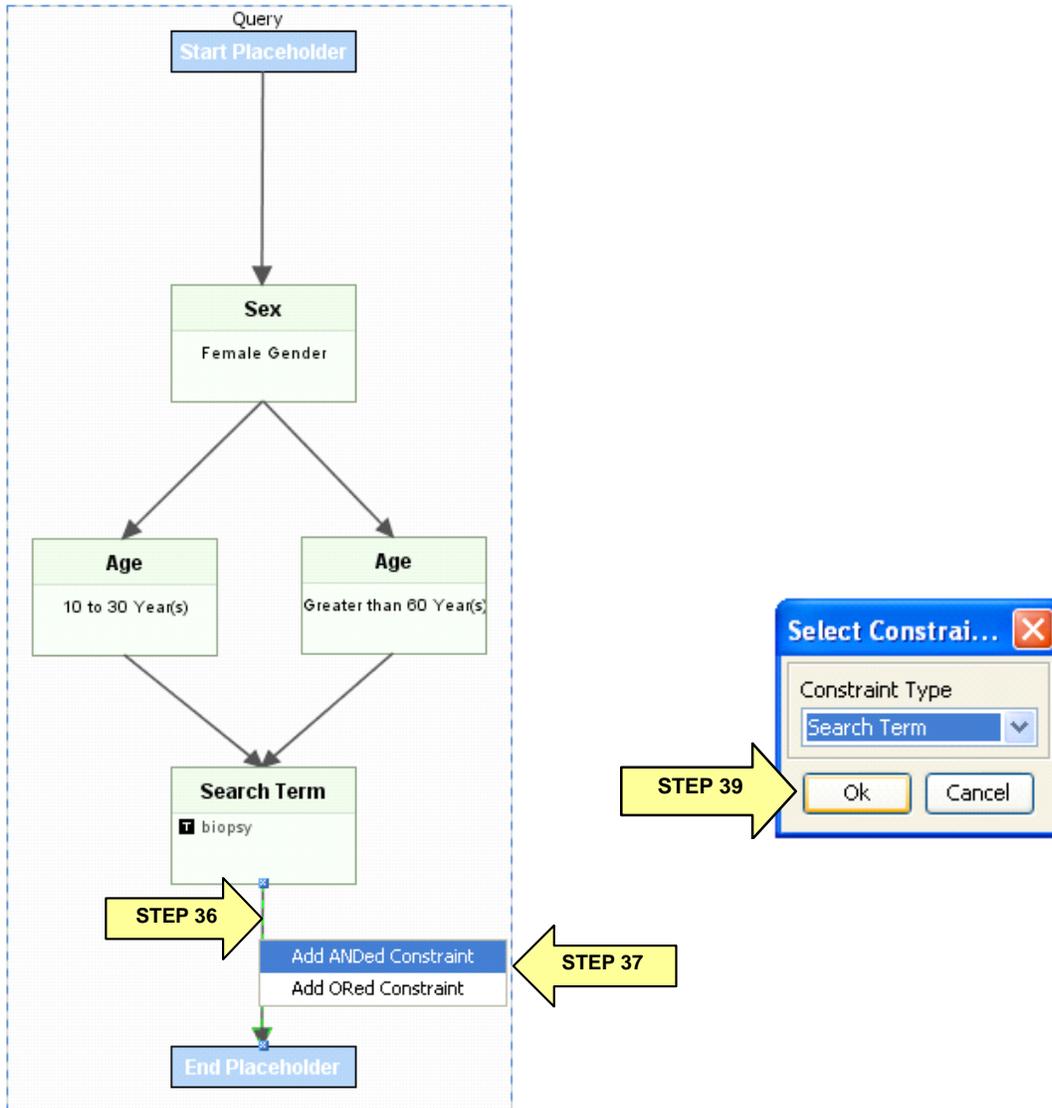


Figure 4.52 Diagram View – Add ANDed Constraint and Select Search Term constraint type

A box with constraint choices pops up.

Step 37. Select the **Add ANDed Constraint** choice in the pop up box.

A box with the message **Select Constraint** pops up.

Step 38. Select the **Search Term** choice in the drop-down menu of this pop up box.

Step 39. Click the **Ok** button in this pop up box.

The new **Search Term** box is now visible in the query window.

Step 40. Double click on the new **Search Term** box.

A box titled **Specify Search Term** pops up.

Step 41. Click in the text box to enter searching criteria.

Step 42. Type “**DCIS**” into the text box.

Step 43. Click the “Text” button to select the type of search you would like to perform.

The phrase “**DCIS**” is automatically added to the box of search criteria when you selected the **Text** button.

Step 44. Click the **Ok** button to save this specification.

You are now back at the “Query Builder” window and the **Search Term** box is shown with the “**DCIS**” specification.

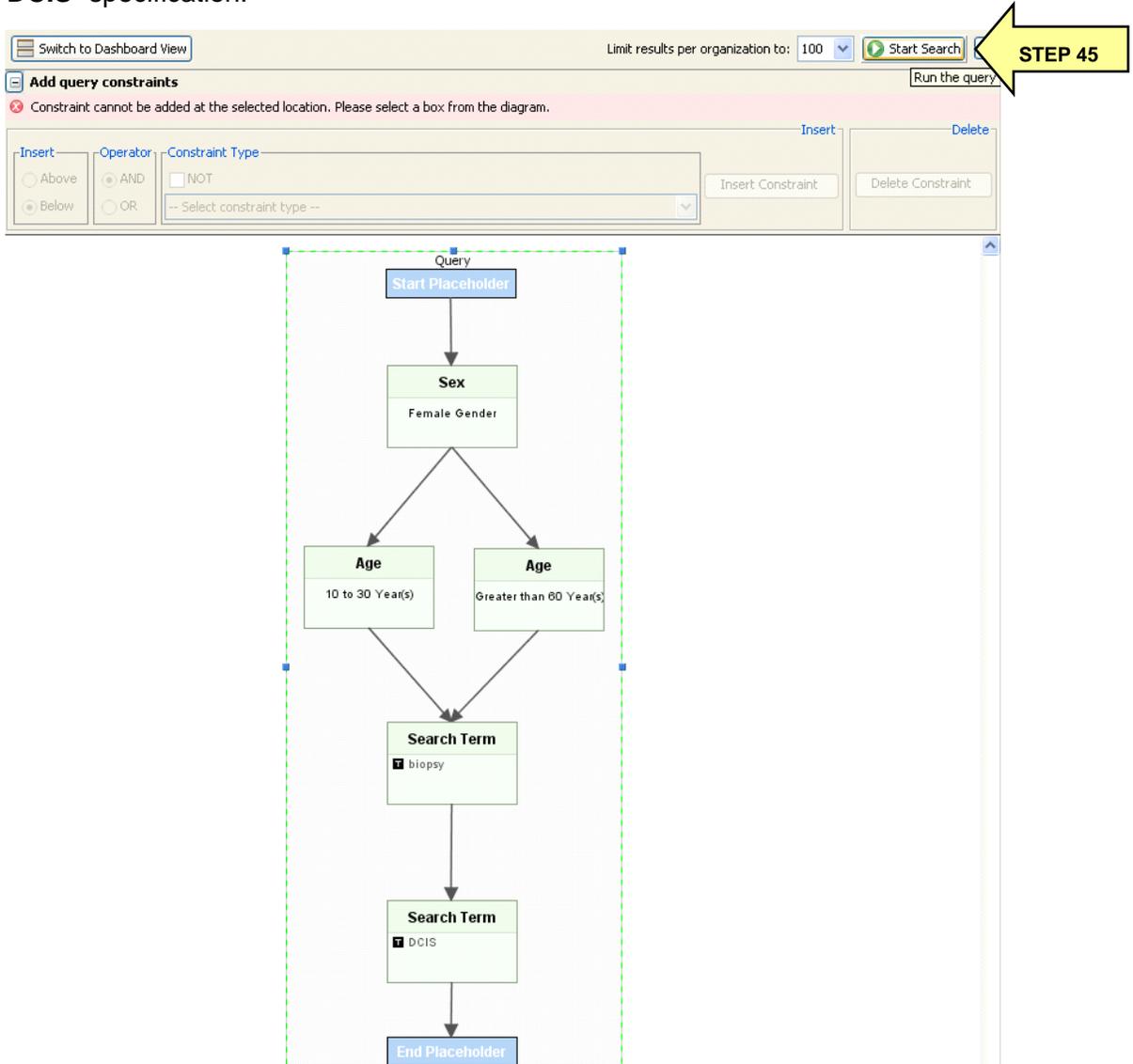


Figure 4.53 Diagram View – Start search from Diagram View

Step 45. Click the **Start Search** button to submit search criteria to the system and perform the search. (See Figure 4.53.)

Concept Search in the Diagram View

Problem Statement:

Change what you have from the previous Text Search to perform a concept search to find all patients with biopsies having no indication of Adenocarcinoma.

Step 1. In the Diagram View, click the box titled **Sex** to select it. (See Figure 4.54.)

Step 2. Click the **Delete Constraint** button located in the right-hand corner of the **Diagram View** control panel.

A box pops up titled **Confirm Constraint Delete**.

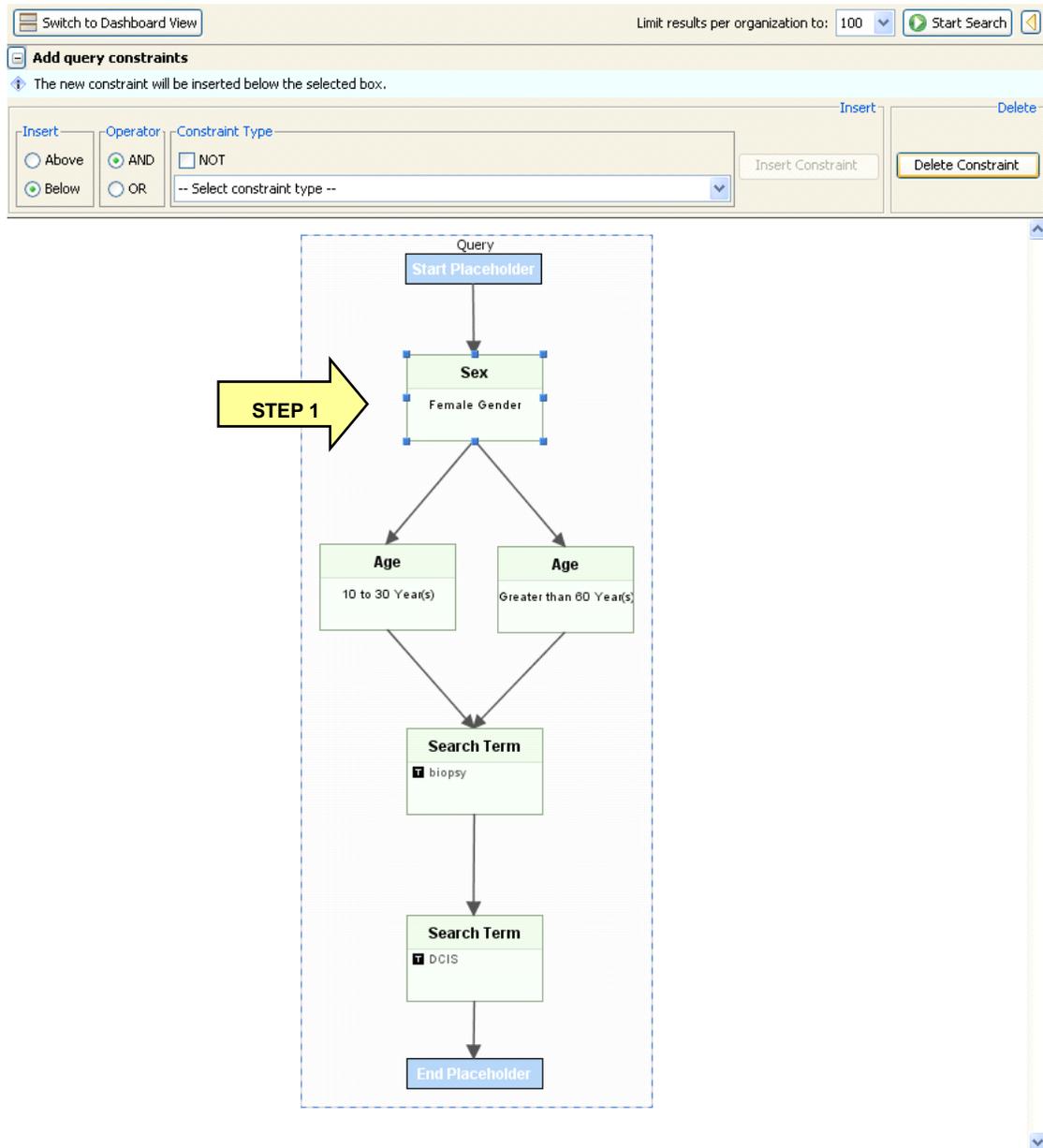


Figure 4.54 Diagram View – Select Sex constraint on diagram



Figure 4.55 Diagram View – Confirm delete of selected constraint

Step 3. Click the **Yes** button to select that you are sure you want to delete the selected constraint. (See Figure 4.55.)

Step 4. Click on the first box titled **Age** to select it. (See Figure 4.56.)

Step 5. Click the **Delete Constraint** button located in the right-hand corner of the **Diagram View** control panel.

A box pops up titled **Confirm Constraint Delete**.

The screenshot shows the 'Add query constraints' interface. At the top, there is a 'Switch to Dashboard View' button, a 'Limit results per organization to: 100' dropdown, and a 'Start Search' button. Below this is a section titled 'Add query constraints' with a note: 'The new constraint will be inserted above the selected box.' This section contains controls for 'Insert' (radio buttons for 'Above' and 'Below'), 'Operator' (radio buttons for 'AND' and 'OR'), and 'Constraint Type' (checkbox for 'NOT' and a dropdown menu). There are 'Insert Constraint' and 'Delete Constraint' buttons. Below the controls is a query diagram within a dashed blue box. The diagram starts with a 'Query' box containing a 'Start Placeholder'. Two arrows point from the 'Start Placeholder' to two 'Age' boxes. The first 'Age' box contains '10 to 30 Year(s)' and the second contains 'Greater than 60 Year(s)'. Arrows from both 'Age' boxes point to a 'Search Term' box containing 'biopsy'. Below this, another 'Search Term' box contains 'DCIS'. An arrow from the second 'Search Term' box points to an 'End Placeholder' box. A yellow arrow labeled 'STEP 4' points to the first 'Age' box. To the right of the diagram is a 'Confirm Constraint Delete' dialog box with a question mark icon and the text 'Are you sure you want to delete the selected constraint?'. It has 'Yes' and 'No' buttons.

Figure 4.56 Diagram View - Select Age constraint and confirm deletion

Step 6. Click the **Yes** button to select that you are sure you want to delete the selected constraint.

Repeat Steps 4-6 to delete the second **Age** box.

Step 7. Double click on the **Search Term** box containing “**biopsy**”. (See Figure 4.57.)

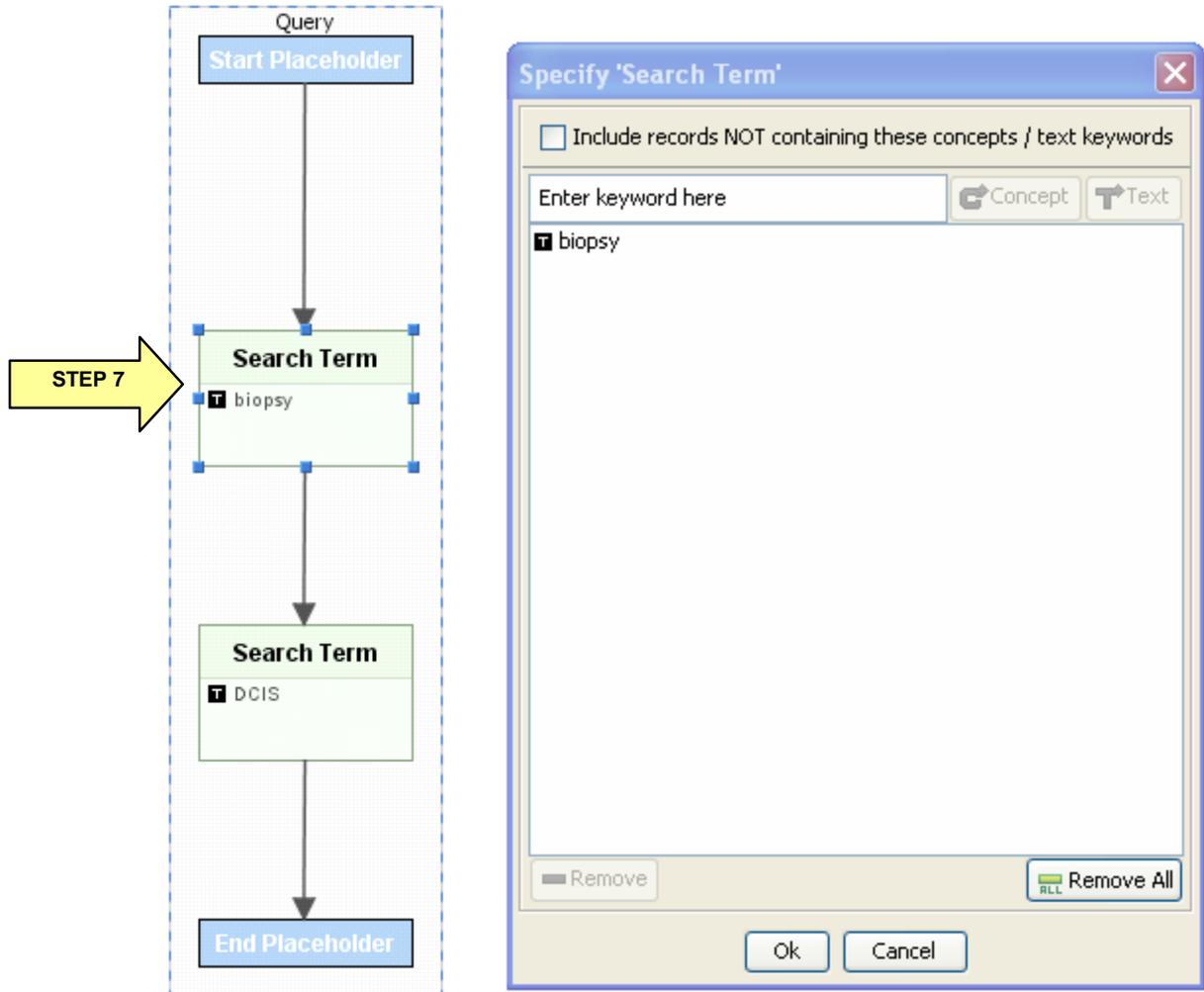


Figure 4.57 Diagram View - Pre-populated Specify 'Search Term' pop-up

A box titled **Specify Search Term** pops up.

The term “**biopsy**” was already entered but since it was entered for a text search, not a concept search, we must delete the text term and enter the concept term.

Note: A “**T**” precedes the term indicating it is part of a **TEXT** search.

Steps 8-9 are illustrated in Figure 4.58.

Step 8. Select the term “**biopsy**” .

It is now highlighted.

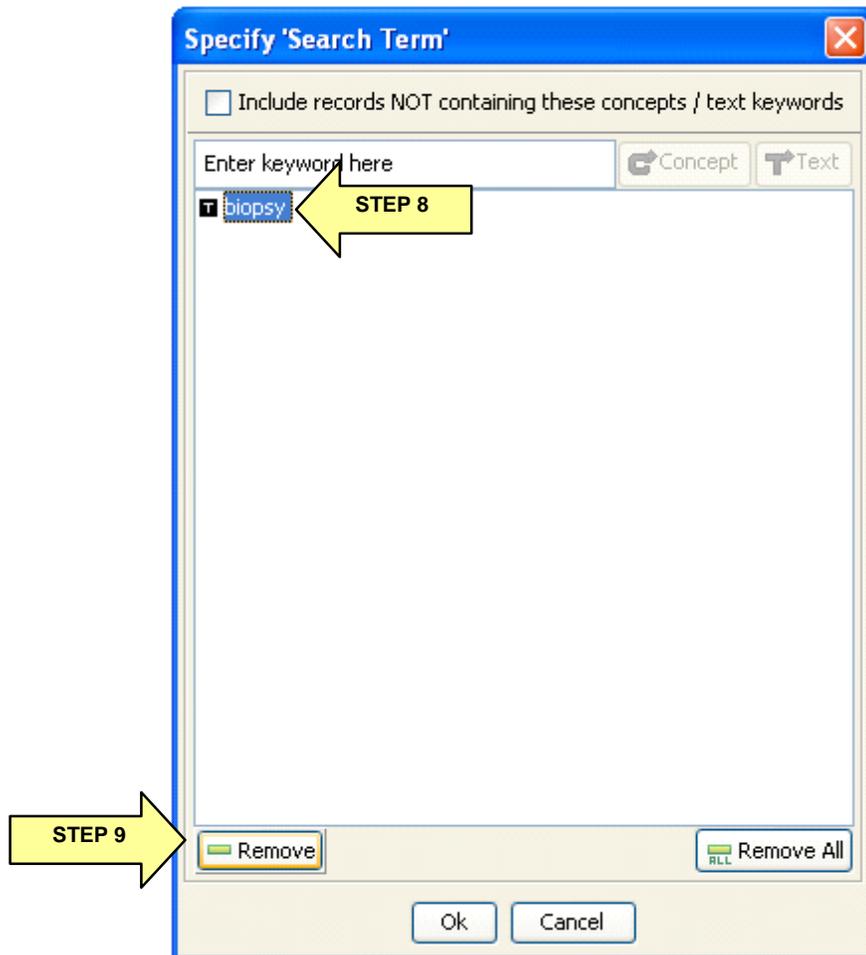


Figure 4.58 Diagram View - Remove selected search term

Step 9. Click the - **Remove** button.

Step 10. Click in the text box to enter searching criteria.

Step 11. Type "**biopsy**" into the text box.

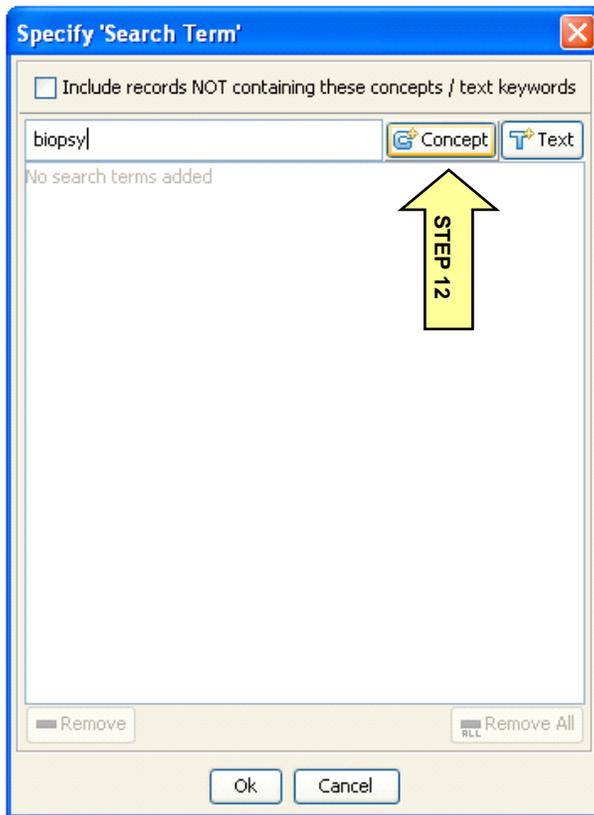


Figure 4.59 Diagram View – Specify search term as a concept

Step 12. Click the **Concept** button to select the type of search you would like to perform. (See Figure 4.59.)

A box titled **Select best matching concept(s)** pops up displaying the concept **“biopsy”** (**“BX”**) as a choice to use for the search.

Steps 13-14 are illustrated in Figure 4.60.

Step 13. Select the concept **“BX”**.

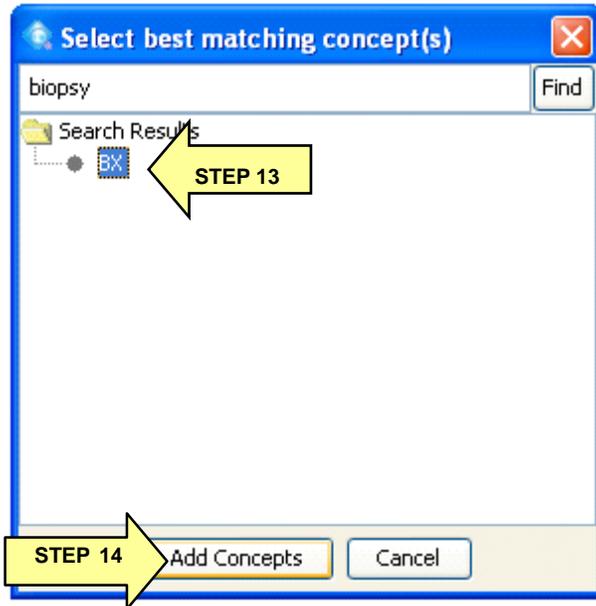


Figure 4.60 Diagram View – Select concept from of interest from Search Concepts form

Step 14. Click the **Add Concepts** button to add the concept to your search.

The concept “**BX**” is automatically added to the box of search criteria after you select the **Add Concepts** button.

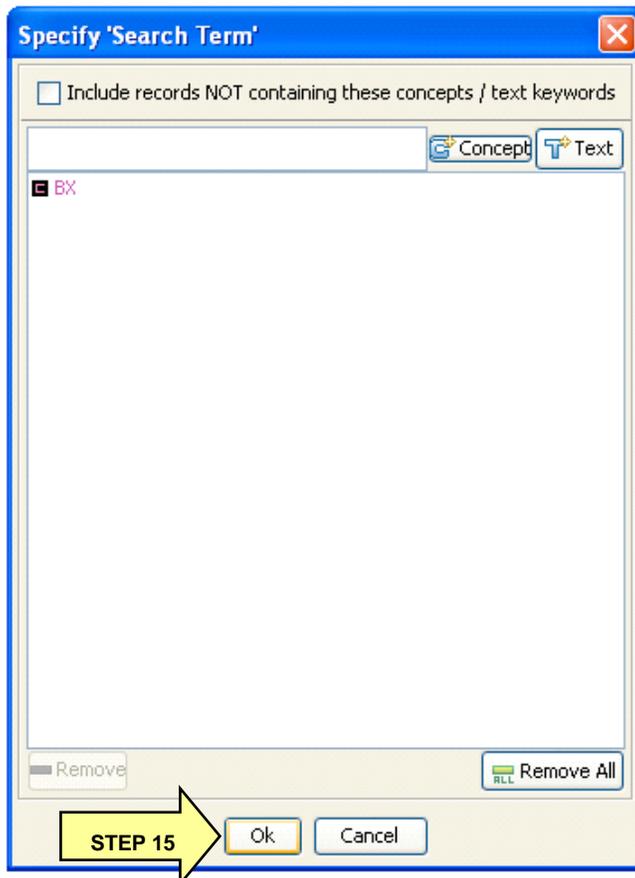


Figure 4.61 Diagram View – Concept of interest displayed on the Specify “Search Term” form

Note: The “T” indicator for the text entry of biopsy has been replaced with a “C” along with the concept code for biopsy.

Step 15. Click the **Ok** button to submit this specification. (See Figure 4.61.)

You are now back at the “Query Builder” window and the **Search Term** box is shown with the “**BX**” (“**Biopsy**”) specification.

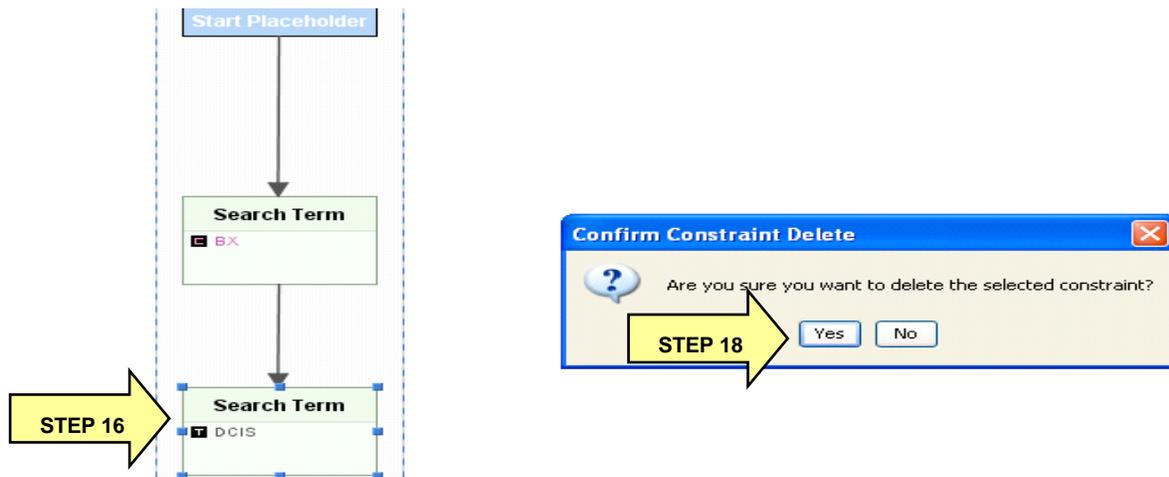


Figure 4.62 Diagram View – Select Search Term from diagram and confirm deletion

Steps 16-18 are illustrated in Figure 4.62.

Step 16. Click on the **Search Term** box containing the term “**DCIS**” to select it.

Step 17. Click the **Delete Constraint** button located in the right-hand corner of the **Diagram View** control panel.

A box pops up titled **Confirm Constraint Delete**.

Step 18. Click the **Yes** button to select that you are sure you want to delete the selected constraint.

Steps 19-20 are illustrated in Figure 4.63.

Step 19. Click on the **Search Term** box containing the term “**BX**” to select it.

Step 20. Select **Search Term** from the **Constraint Type** drop-down menu. (“--Select constraint type--” is the default selection.)

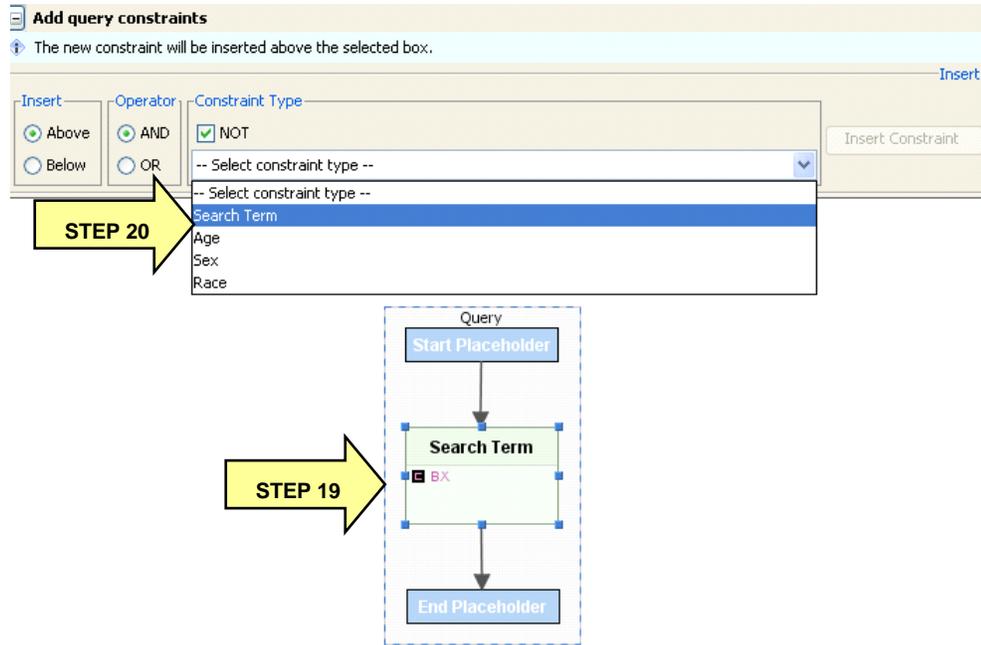


Figure 4.63 Diagram View – Select Search Term constraint type from control panel

Step 21. Select the **Insert Below** radio button on the **Diagram View** control panel. (See Figure 4.64.)

Step 22. Select the **And** Operator radio button on the **Diagram View** control panel.

Step 23. Check the **Constraint Type** box titled **NOT**.



Figure 4.64 Diagram View – Specify Search Term constraint to be inserted Below selected constraint

Step 24. Click the **Insert Constraint** button. (See Figure 4.64.)

The new **Search Term NOT** box is now visible in the query window. (See Figure 4.65.)

Note: **Search Term NOT** box is PINK to reflect this is a NEGATED Search!

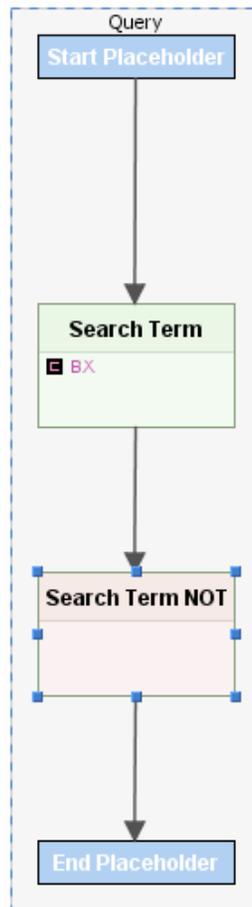


Figure 4.65 Diagram View – Search Term NOT box is added to the diagram

Step 25. Double click on the new **Search Term NOT** box.

A box titled **Specify Search Term** pops up.

Note: Upper left-hand box **Include records NOT containing these concepts/text keywords** is checked.

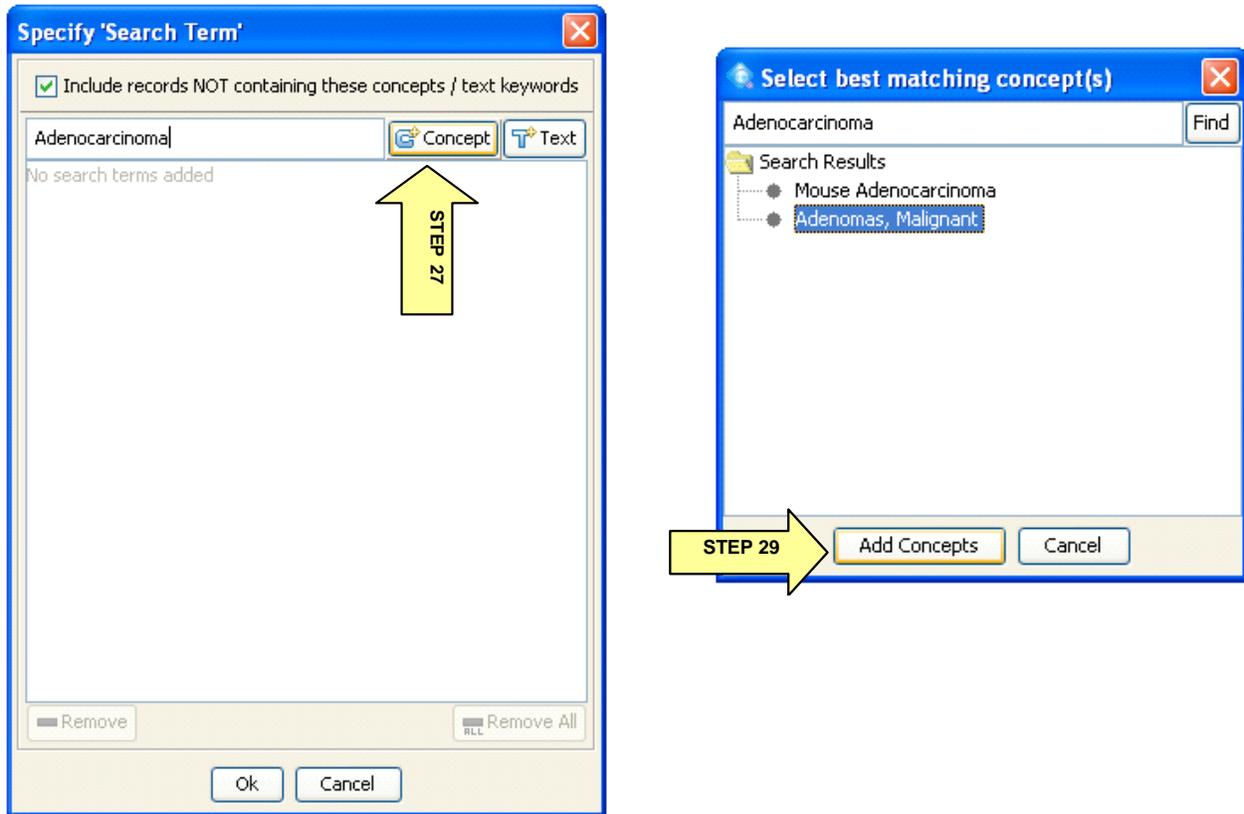


Figure 4.66 Diagram View – Specify Negated concept

Step 26. Type “Adenocarcinoma” into the text box.

Step 27. Click the **Concept** button to select the type of search you would like to perform. (See Figure 4.66.)

A box titled **Select best matching concept(s)** pops up displaying the concept “Adenocarcinoma” as a choice to use for the search.

There are two concept **Search Results** shown, “**Mouse Adenocarcinoma**” and “**Adenomas, Malignant**”.

Step 28. Select the concept “Adenomas, Malignant”.

Step 29. Click the **Add Concepts** button to add the concept to your search. (See Figure 4.66.)

The concept “Adenomas, Malignant” is automatically added to the box of search criteria once you select the **Add Concepts** button.

Step 30. Click the **Ok** button to submit this specification. (See Figure 4.67.)

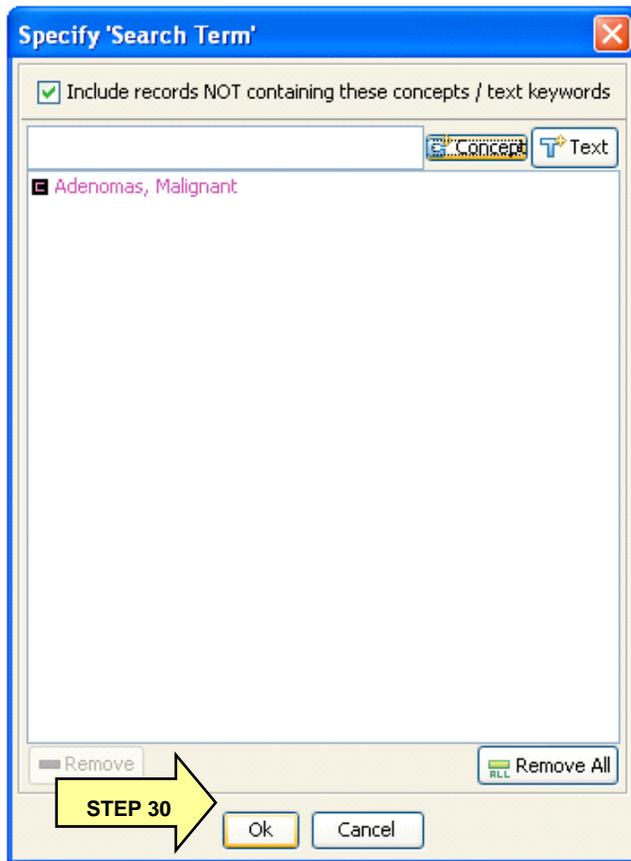


Figure 4.67 Diagram View – Specify ‘Search Term’ form

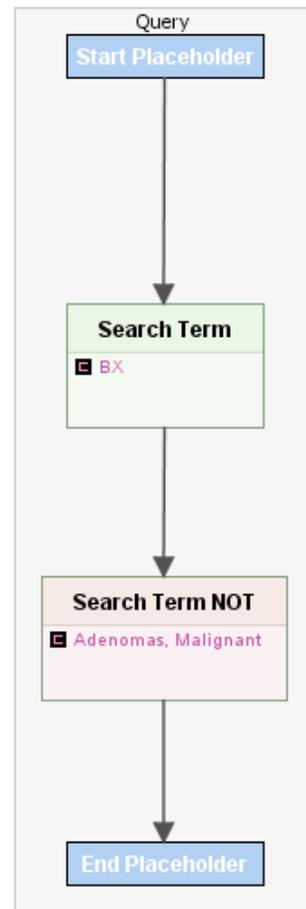


Figure 4.68 Diagram View – Concept displayed on diagram

You are now back at the “Query Builder” window and the **Search Term NOT** box is shown with the “**Adenomas, Malignant**” specification. (See Figure 4.68.)

Step 31. Click the **Start Search** button to submit search criteria to the system and perform the search. (See Figure 4.69.)

Switch to Dashboard View Limit results per organization to: 100

Add query constraints

No box selected. Please select a box from the diagram.

<input type="button" value="Insert"/>	Operator	Constraint Type	<input type="button" value="Insert"/>	<input type="button" value="Delete"/>
<input type="radio"/> Above <input checked="" type="radio"/> Below	<input checked="" type="radio"/> AND <input type="radio"/> OR	<input checked="" type="checkbox"/> NOT Search Term	<input type="button" value="Insert Constraint"/>	<input type="button" value="Delete Constraint"/>

Query

```
graph TD; A[Start Placeholder] --> B[Search Term  
BX]; B --> C[Search Term NOT  
Adenomas, Malignant]; C --> D[End Placeholder];
```

Figure 4.69 Diagram View – Start search from diagram view

Save a Query

Purpose of Task

This task allows a caTIES user to save a query for later use.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has formulated a new query using either the Diagram or Dashboard view.

Step by Step Instructions

Step 1. User navigates to the **File** menu and selects either **Save Query** or **Save Query As...**, or clicks the **Save Query** icon. (See Figure 4.70.)

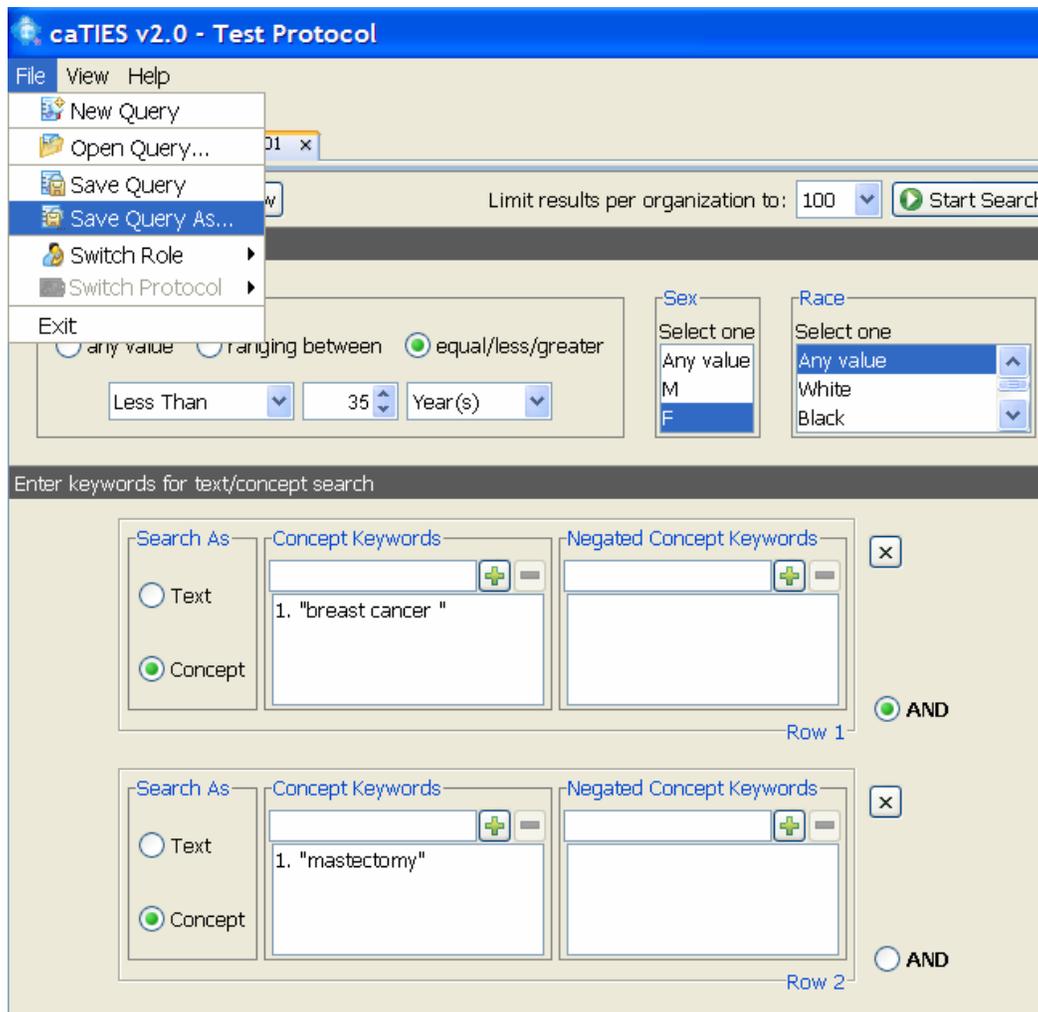


Figure 4.70 Save Query As...

The **Save Query As** pop-up box is displayed and all previous queries created by User are shown. (See Figure 4.71.)



Figure 4.71 Specify creator of query

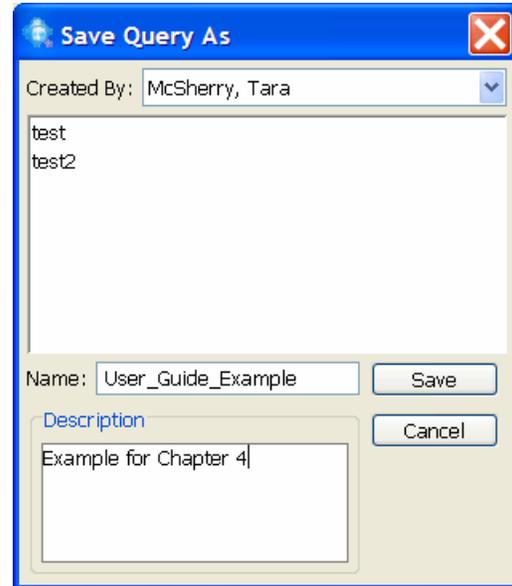


Figure 4.72 Specify query Name and Description

Save button is grayed out.

Steps 2-3 are illustrated in Figure 4.72.

Step 2. User enters name of the query into the **Name** text box.

Save button becomes active.

Step 3. User enters description of the query into the **Description** text box (Optional).

Step 4. User clicks the **Save** button.

The tab label is updated to reflect the name of the query as seen in Figure 4.73.

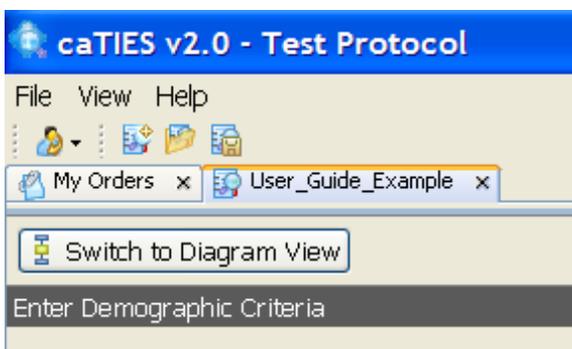


Figure 4.73 Updated query name

Open a Saved Query

Purpose of Task

This task allows a caTIES user to open a previously saved query.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

There exists at least one previously saved a query.

Step by Step Instructions

Step 1. User navigates to the **File** menu and selects **Open Query...** (as shown in Figure 4.74) or clicks the **Open Query** icon.

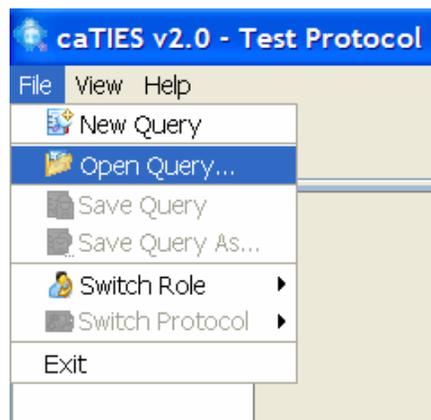


Figure 4.74 Open Query

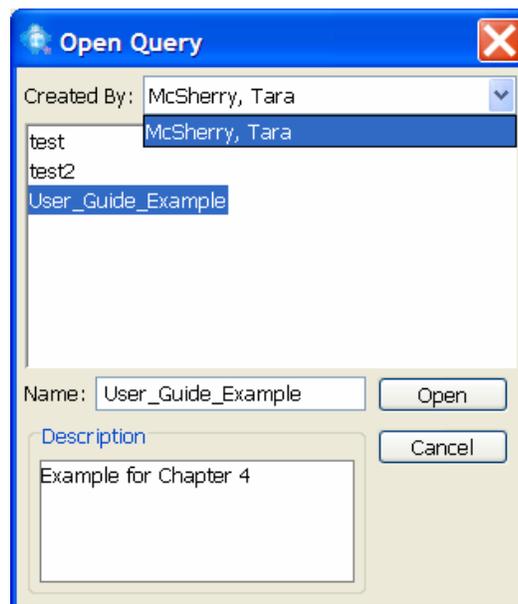


Figure 4.75 Select creator and query name of interest

The **Open Query** pop-up box is displayed and all previous queries created by User are shown. Steps 2-3 are illustrated in Figure 4.75.

Step 2. User selects caTIES user from **Created By** dropdown menu.

Form is populated with all queries that have been saved by the selected caTIES user.

Step 3. User selects query name of interest from the list of saved queries.

The **Name** and **Description** text boxes are populated with the related query information.

Step 4. User clicks the **Open** button.

A new tab is displayed in the Diagram View and is pre-populated with the appropriate query text. The name of the query is displayed on the tab.

View Query Results

Purpose of Task

This task allows a caTIES user to run a query and view results.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User's query specifications are entered.

Step by Step Instructions

Step 1. User clicks the **Start Search** button. (See Figure 4.76.)

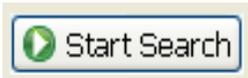


Figure 4.76 Start Search button

"Done" is displayed on the **Status** pane once search is complete. (See Figure 4.77.)



Figure 4.77 Results and Status pane

As seen in Figure 4.78, the **SPR search** icon, followed by the query name and number of results are displayed on the middle pane.

Step 2. User clicks the **Hide Query Builder** arrow.

The **Query Builder** is hidden and the **Results pane** is expanded.

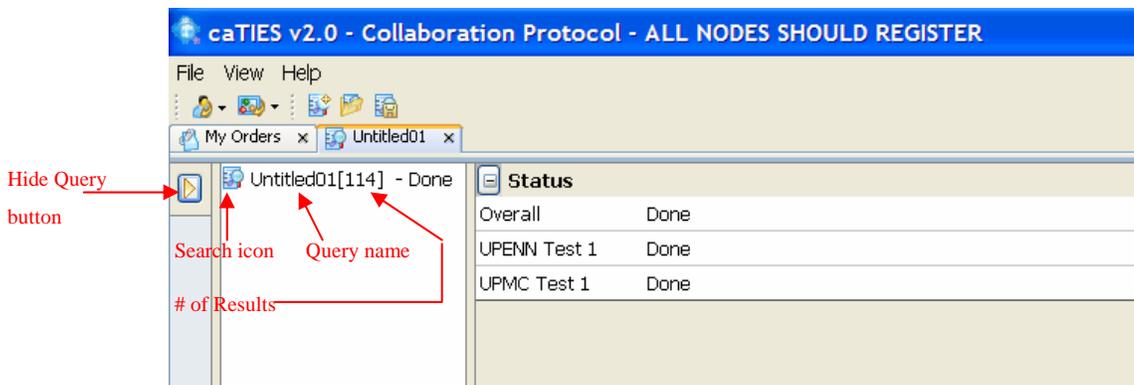


Figure 4.78 Hide Query Builder

Step 3. User double-clicks the **SPR search** icon. (See Figure 4.79.)

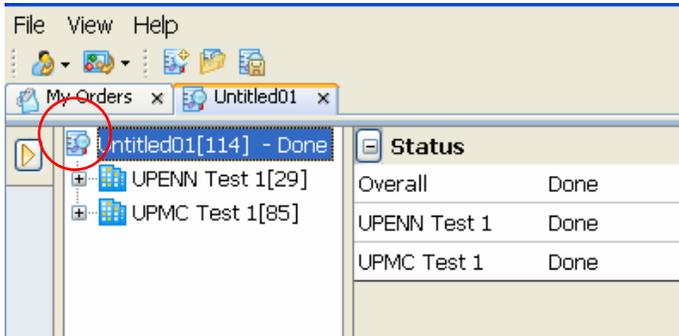


Figure 4.79 Expand Organization list

List of Organizations with data to which User has access are displayed.

Step 4. User clicks the “+” box located next to the Organization of interest. (See Figure 4.80.)

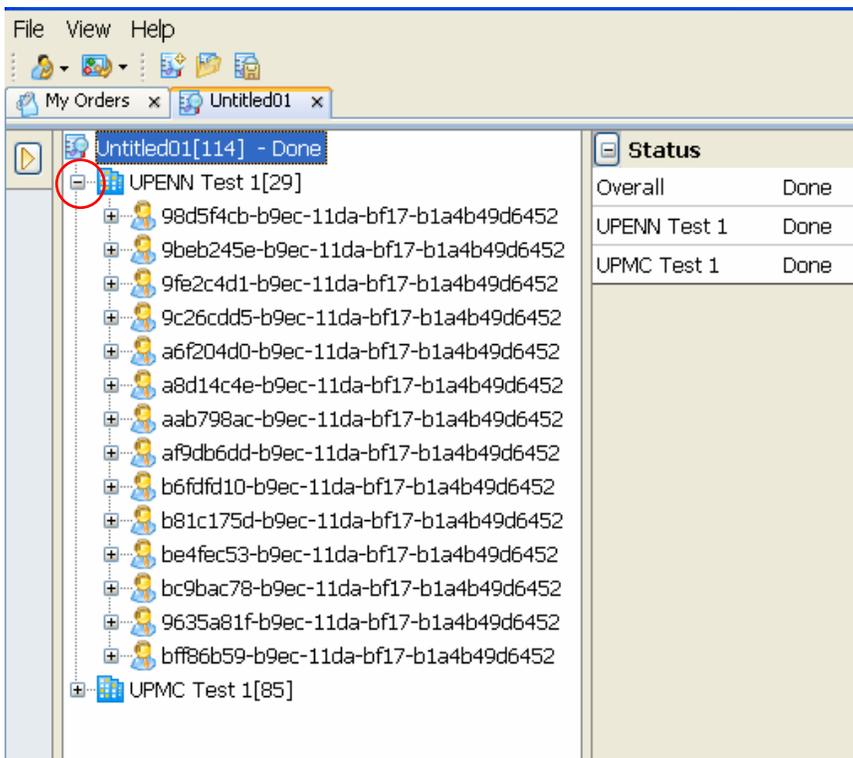


Figure 4.80 Expand Patient list for a specified Organization

The Results tree is expanded to display de-identified Patient ID(s). These Patient Identifiers have associated SPR(s) that satisfy the query specifications.

Step 5. User clicks the “+” box located next to the Patient Identifier of interest. (See Figure 4.81.)

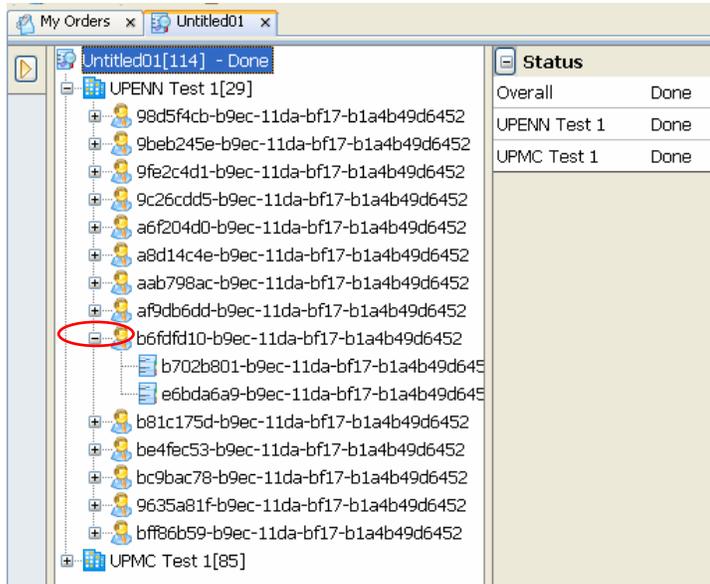


Figure 4.81 Expand SPR list for a specified Patient

The Results tree is expanded to display a list of SPRs associated with the Patient Identifier of interest.

Step 6. User selects the SPR of interest. (See Figure 4.82.)

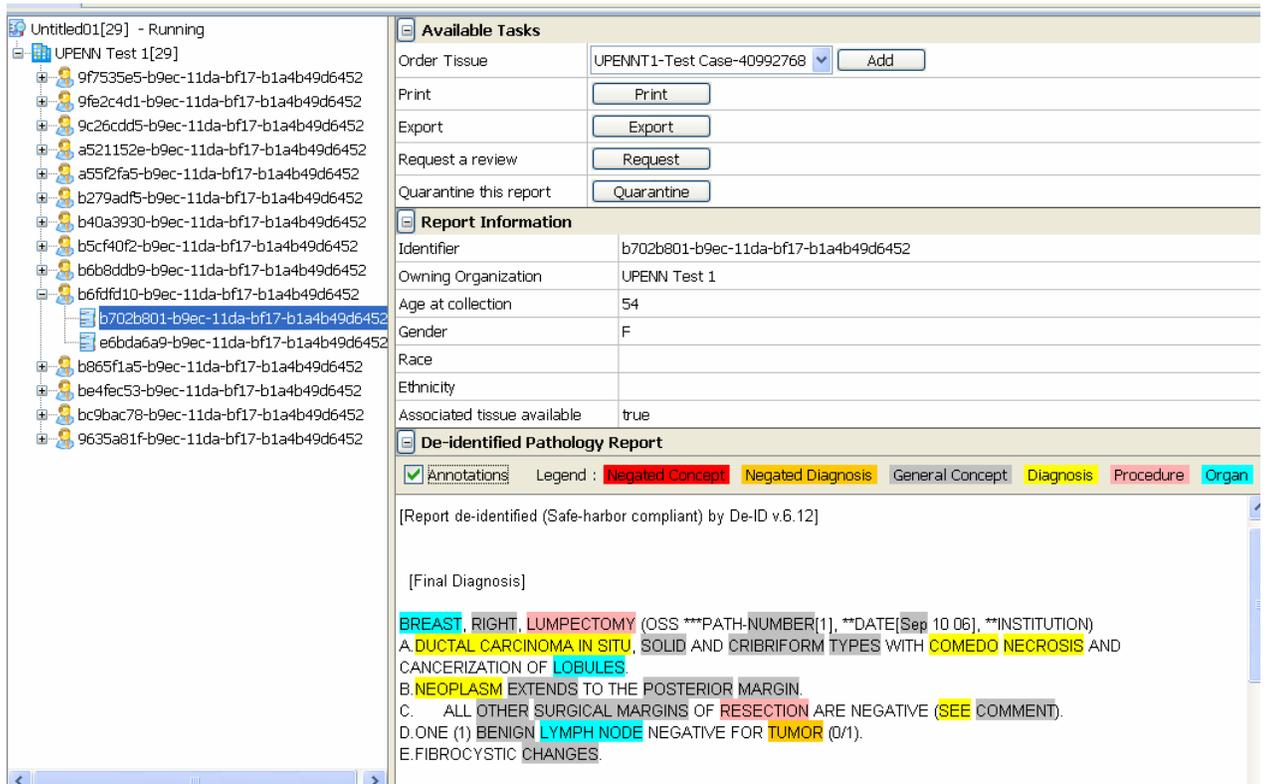


Figure 4.82 SPR details are displayed

The content of the SPR is displayed on the right pane.

Print A Query Result

Purpose of Task

This task allows a caTIES user to print a Surgical Pathology Report.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

Surgical Pathology Report of interest is displayed.

Step by Step Instructions

Steps 1-2 are illustrated in Figure 4.83.

Step 1. User navigates to the **Available Tasks** section and clicks the **Print** button.

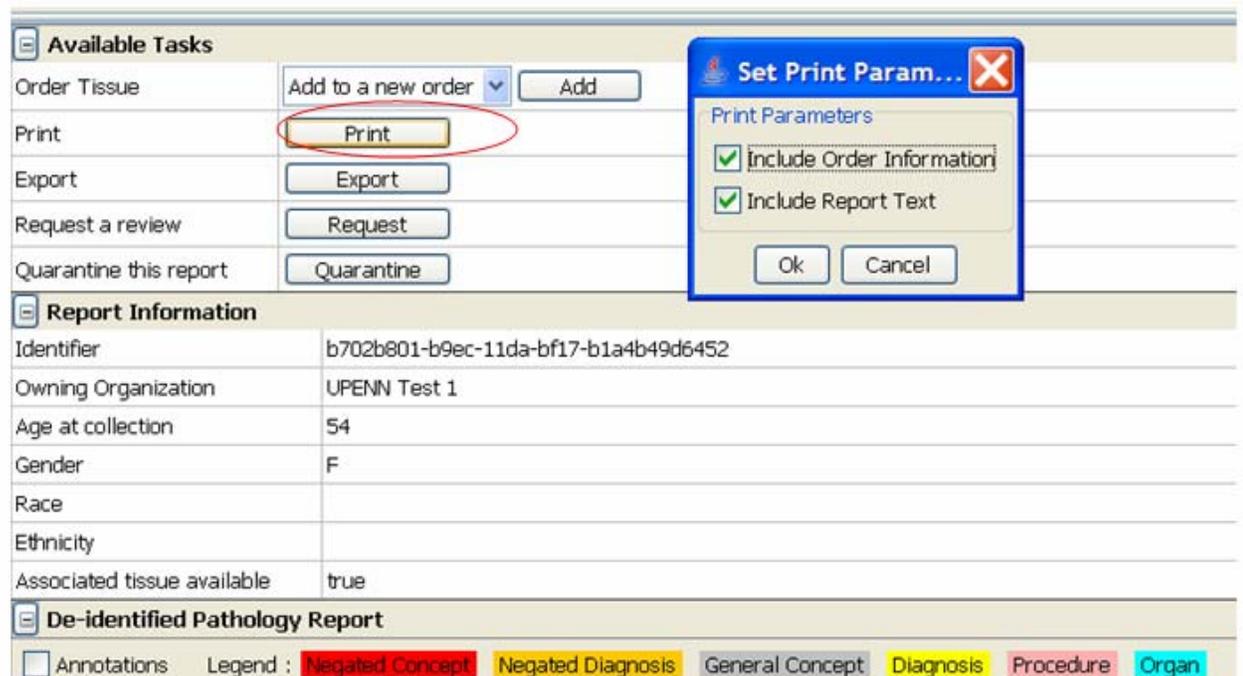


Figure 4.83 Specify print parameters

The **Set Print Parameters** pop-up is displayed.

Step 2. User specifies caTIES related print parameters and clicks the **Ok** button.

The **Print** pop-up is displayed.

Step 3. User gives Printer specifications and clicks the **OK** button.

SPR is printed in plain text format.

Export A Query Result

Purpose of Task

This task allows a caTIES user to export/save a Surgical Pathology Report locally on their computer.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

Surgical Pathology Report of interest is displayed.

Step by Step Instructions

Steps 1-2 are illustrated in Figure 4.84.

Step 1. User navigates to the **Available Tasks** section and clicks the **Export** button.

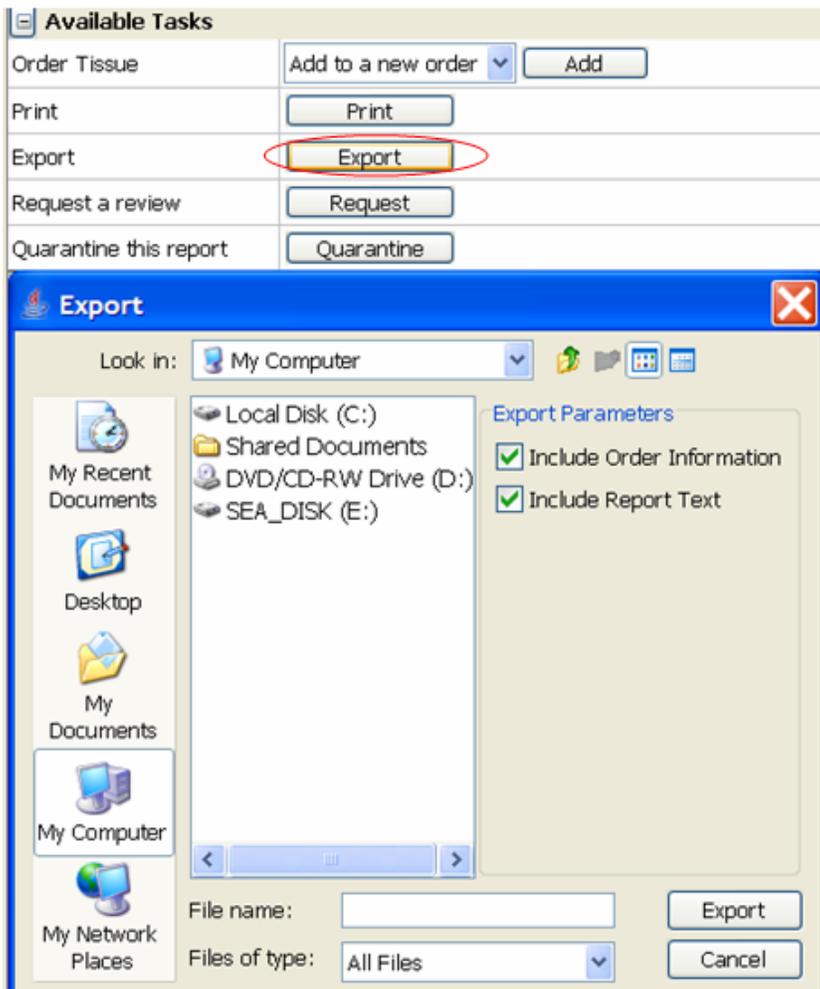


Figure 4.84 Specify location to save SPR

The **Export** pop-up is displayed.

Step 2. User navigates to the location where they would like to export/save the SPR of interest.

Step 3. User enters **File name** or selects a file by browsing their system.

Step 4. User clicks the **Export** button.

SPR is saved to the specified location as a text file.

Request Review of a Query Result

Purpose of Task

This task allows a caTIES user to flag a “problem” Surgical Pathology Report for review.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

Surgical Pathology Report of interest is displayed.

Step by Step Instructions

Steps 1-2 are illustrated in Figure 4.85.

Step 1. User navigates to the **Available Tasks** section and clicks the **Request** button.

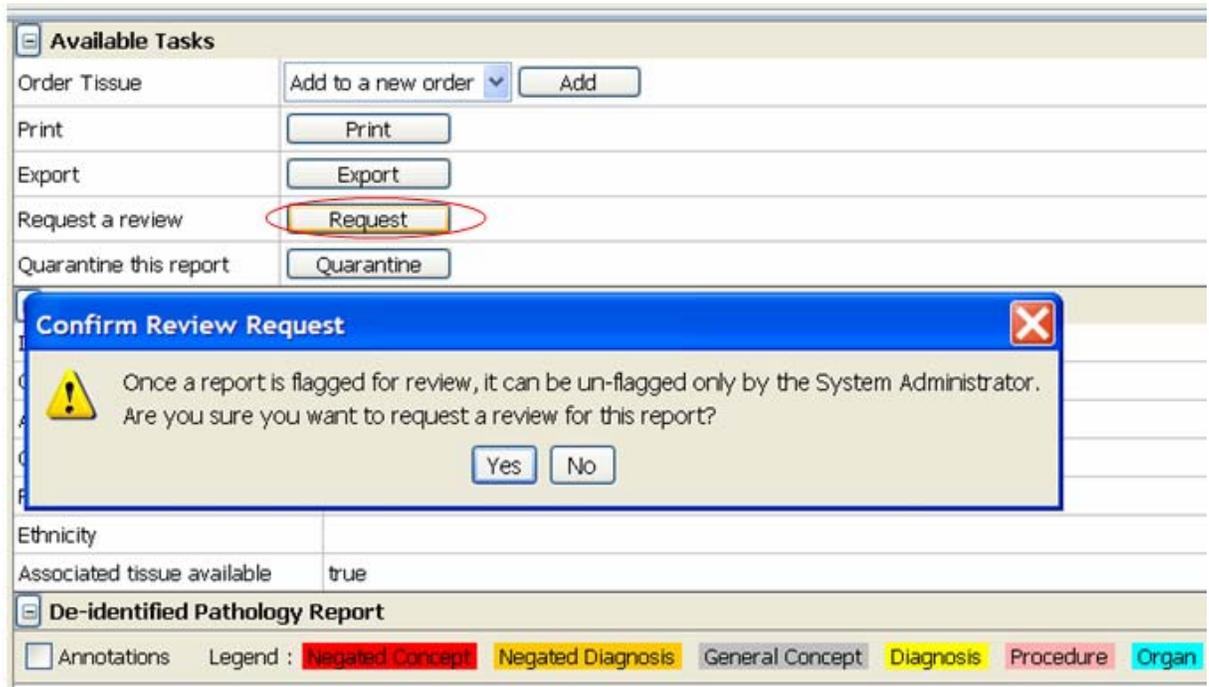


Figure 4.85 Confirm flagging report for review

The **Confirm Review Request** pop-up is displayed.

Step 2. User clicks the **Yes** button.

SPR is flagged for review.

Note: SPR can only be un-flagged by the System Administrator.

Quarantine a Query Result

Purpose of Task

This task allows a caTIES user to quarantine a Surgical Pathology Report that may be “under scrubbed” and displays identified data (less than 2% of all reports). Reports that remain identified during DeID processing must be suppressed by the system and addressed offline or quarantined in lieu of a DeID upgrade run. Users are obligated to flag identified data the moment they see it.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

Surgical Pathology Report of interest is displayed.

Step by Step Instructions

Steps 1-2 are illustrated in Figure 4.86.

Step 1. User navigates to the Available Tasks section and clicks the **Quarantine** button.

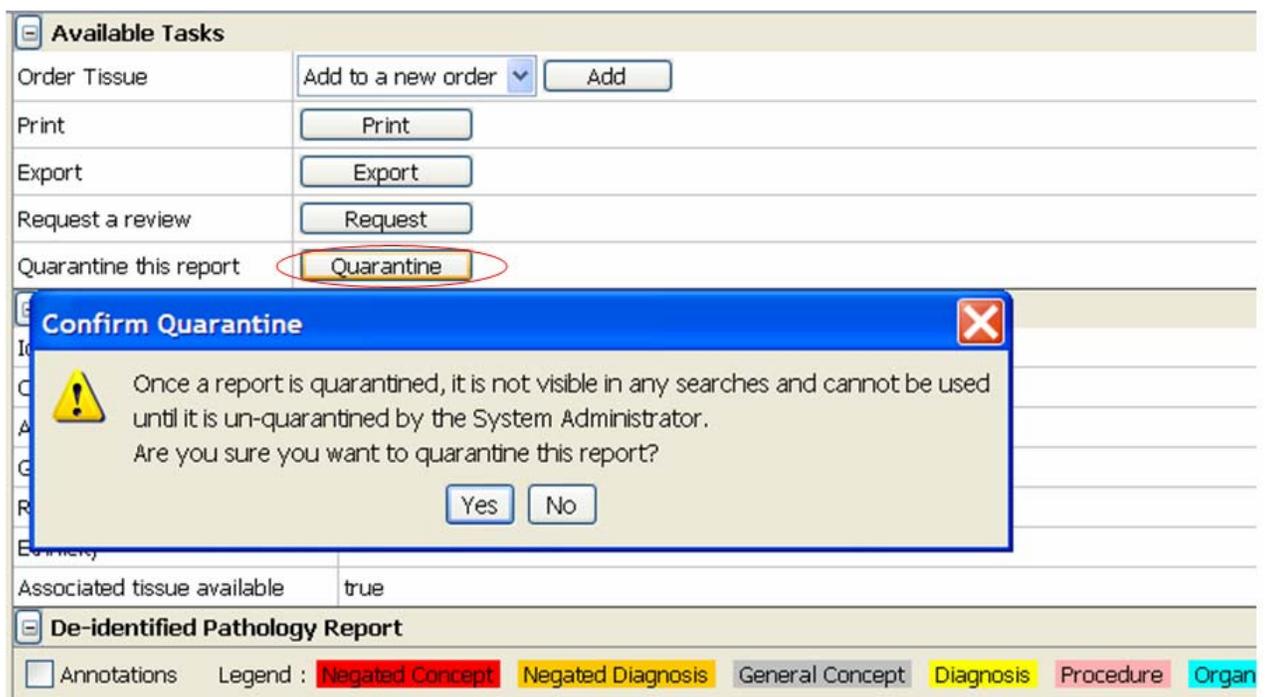


Figure 4.86 Confirm quarantining report

The **Confirm Quarantine** pop-up is displayed.

Step 2. User clicks the **Yes** button.

SPR is quarantined and therefore not visible in any searches.

Note: SPR cannot be used or queried on, until it is un-quarantined by the System Administrator.

Order Management Functionality

Overview of Order Management Tasks

The Ordering process can be described as a “conversation” between the Researcher and Honest Broker. Each conversation is some variation of the following dialog.

Researcher: *“I would like these Order Items. Are they available for distribution to me?”*

Honest Broker: *“This Order Item is available. This Order Item is not available.”*

Researcher: *“Okay, ship the available items.” or “In that case let me modify my Order.”*

The “conversation” is always initiated by the Researcher. The process begins when the Researcher creates a case set, or Order. At this point, the Order has not been submitted to the Honest Broker and may undergo modifications such as additions of Order Items, deletions of Order Items, deletion of the entire Order, insertion of Order Instructions, or modification of Order Instructions.

Once the Order is submitted, it becomes visible in the Honest Broker’s queue. At this point, the Order can no longer be deleted, but may be cancelled. The difference is that no record is kept of deleted Orders; where as cancelled Orders are saved in the system.

Submission of an Order starts the Honest Broker’s part of the “conversation”. The Honest Broker updates the status of the Order and adds comments to an Order to communicate what stage the Order is in and any additional information that they want the Researcher to be made aware of regarding the Order Status. Once the Honest Broker updates the availability status of the Order, it again becomes the Researcher’s part of the “conversation”. Based on the availability status of the Order Items, communicated by the Honest Broker, the Researcher may modify the Order and begin the process again, cancel the Order, or decide they still want the Order, as is, and confirm the Order for shipping.

Each task that is part of the Order “conversation” described above is explained in detail in this section, as well as tasks that can occur at anytime in the Order “conversation” such as printing and exporting Order information. The Order management functions described in the following section are:

- Create a Case Set/Order
- Add an Order Item to an Existing Order
- Delete an Order Item from an Existing Order
- Delete an Order
- Insert Order Instructions
- Modify Order Instructions
- Submit an Order
- Cancel an Order
- Set/Update Order Status
- Add Comments to an Order
- Print an Order Item
- Export an Order Item
- Confirm an Order for Shipping.

Create a Case Set/Order

Purpose of Task

This task allows a caTIES user to select cases from query results to be saved for later review or submission as a tissue Order.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has run a query and SPR results are displayed on the middle pane.

Step by Step Instructions

Steps 1-3 are illustrated in Figure 4.87.

Step 1. User clicks on the “+” box to expand results for the Organization/Patient Identifier of interest and selects an SPR.

The content of the selected SPR is displayed in the right pane.

Step 2. User adds the tissue specified in the displayed SPR to a new Order by first selecting **Add to a new order** from the **Order Tissue** dropdown menu.

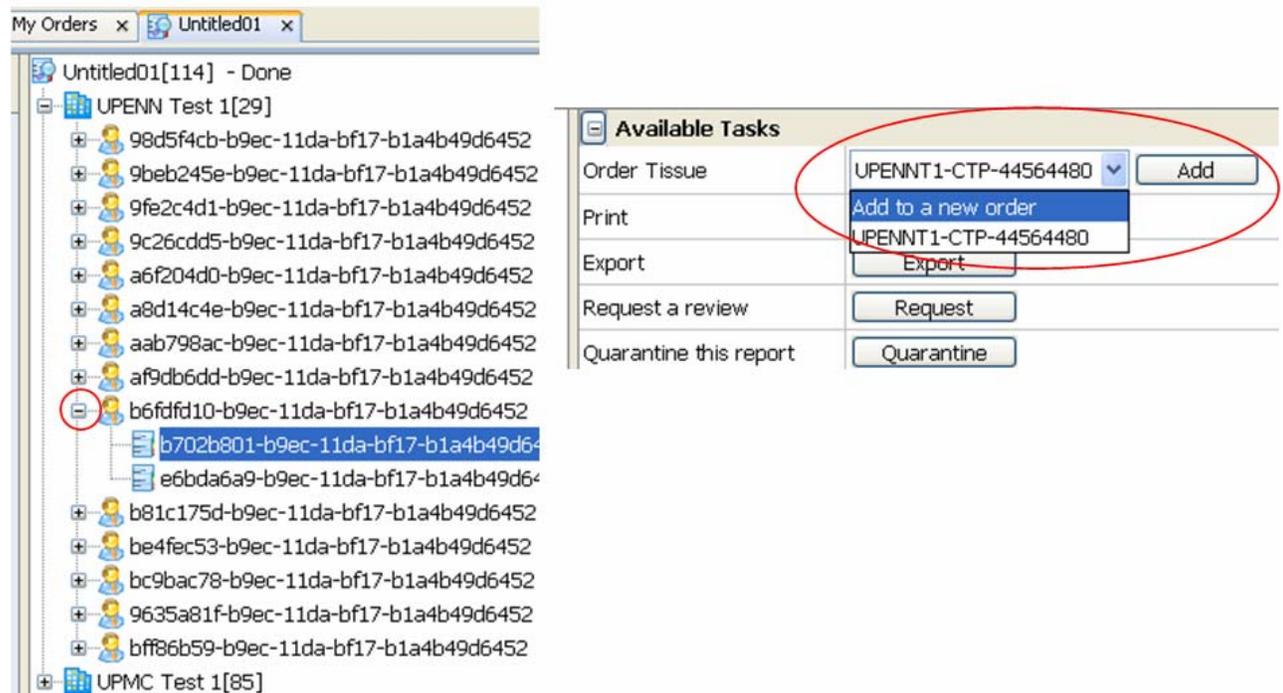


Figure 4.87 Add report to a new order

Step 3. User clicks the **Add** button.

The **My Orders** tab begins blinking to indicate the addition of a tissue to an Order. (See Figure 4.88.)

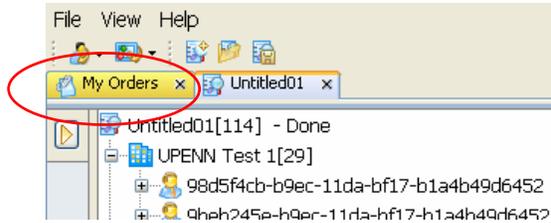


Figure 4.88 Blinking My Orders tab

Step 4. User selects the **My Orders** tab.

The **My Orders** form is displayed. (See Figure 4.89.)

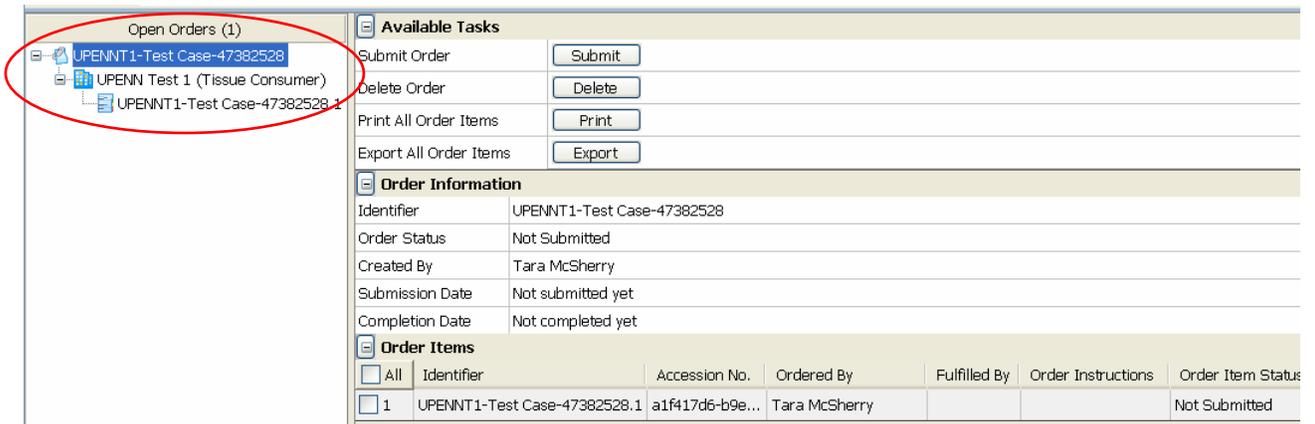


Figure 4.89 My Orders form

The unique Order Identifier that is generated for the newly created Order, the name of the “Owning Organization” and the Organization’s Role (Data Provider, Tissue Provider, Data Consumer, or Tissue Consumer), and the Order Item Identifier are displayed in the left pane.

An aggregate view of the new Order and its contents are displayed on the right pane.

Add an Order Item to an Existing Order

Purpose of Task

This task allows a caTIES user to add another case/SPR to an existing Order.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has run a query and an Order has previously been created.

SPR results are displayed on the middle pane.

Step by Step Instructions

Steps 1-3 are illustrated in Figure 4.90.

Step 1. User clicks the “+” box to expand results for the Organization/Patient Identifier of interest and selects an SPR.

The content of the selected SPR is displayed in the right pane.

Step 2. User adds the tissue specified in the displayed SPR to an existing Order by first selecting the Order Identifier of interest from the **Order Tissue** dropdown menu.

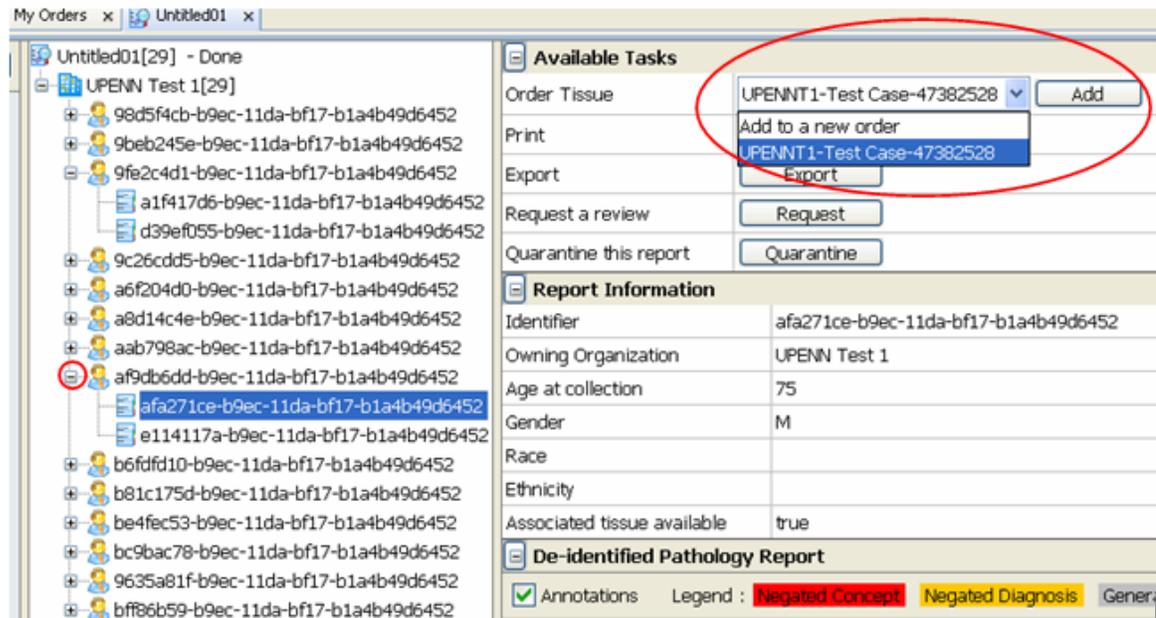


Figure 4.90 Add SPR to existing order

Step 3. User clicks the **Add** button.

The **My Orders** tab begins blinking to indicate the addition of a case to the Order of interest.

Step 4. User selects the **My Orders** tab.

The **My Orders** form is displayed with the list of Order Identifiers on the left pane. (See Figure 4.91.)

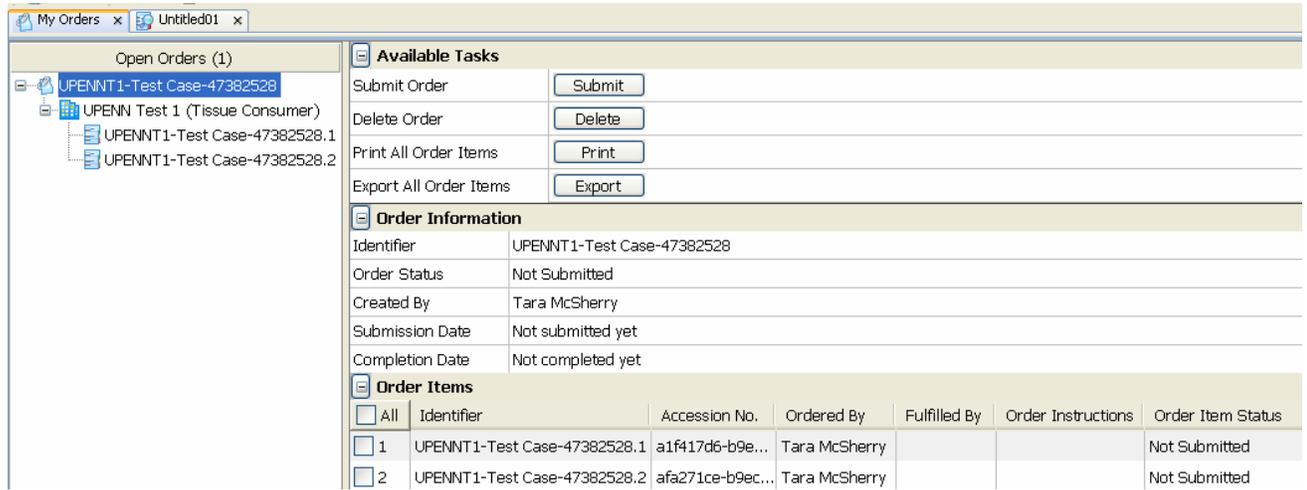


Figure 4.91 My Orders view - View Open orders

The Order of interest is updated to include the added SPR identifier and the tissue provider/consumer. It is displayed beneath the Order Identifier.

Step 5. User clicks the Order Identifier of interest located on the left pane.

An aggregate view of the order and its contents are displayed on the right pane.

Delete an Order Item from an Existing Order

Purpose of Task

This task allows a caTIES user to remove a tissue request from an existing Order.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has created an Order containing at least one Order Item (SPR).

Step by Step Instructions

Step 1. User views all open Orders by selecting the **My Orders** tab and ensuring the **Open Orders** view on the left pane is displayed.

The **My Orders** form is displayed with the list of Order Identifiers on the left pane. See Figure 4.92.

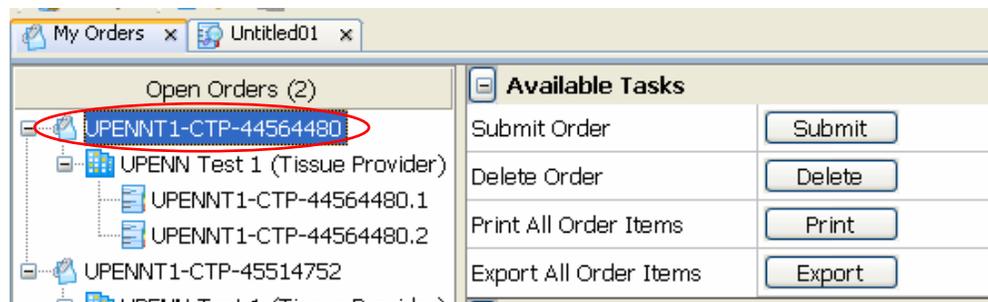


Figure 4.92 My Orders View - Open Orders view

Steps 2-3 are illustrated in Figure 4.93.

Step 2. User selects the Order Item of interest from the list displayed on the left pane. Selected Order is highlighted in the view.

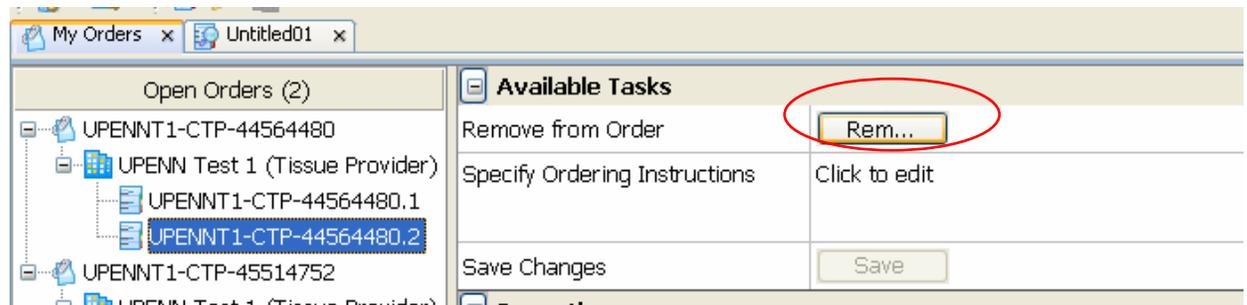


Figure 4.93 My Orders View - Order item details

A detailed view of the selected Order Item is displayed on the right pane.

Step 3. User clicks the **Remove** button located under **Available tasks**.

The Order Item is removed from the Order Identifier's Order Item list.

Delete an Order

Purpose of Task

This task allows a caTIES user to delete an open Order.

Note: The difference between deleting an Order and cancelling an Order is that cancelling applies to a submitted Order and deleting applies to an open (not yet submitted) Order.

Prerequisite Information

User is logged in as a Researcher.

User has created an Order but has not yet submitted the Order to the Honest Broker.

Step by Step Instructions

Step 1. User views all open Orders by selecting the **My Orders** tab and ensuring the **Open Orders** view in the left pane is displayed. (See Figure 4.94.)

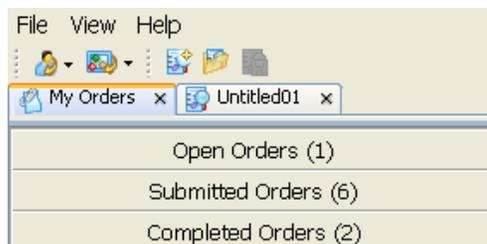


Figure 4.94 My Orders tab

Step 2. User views an Order by selecting the Order Identifier of interest from the left pane. (See Figure 4.95.)

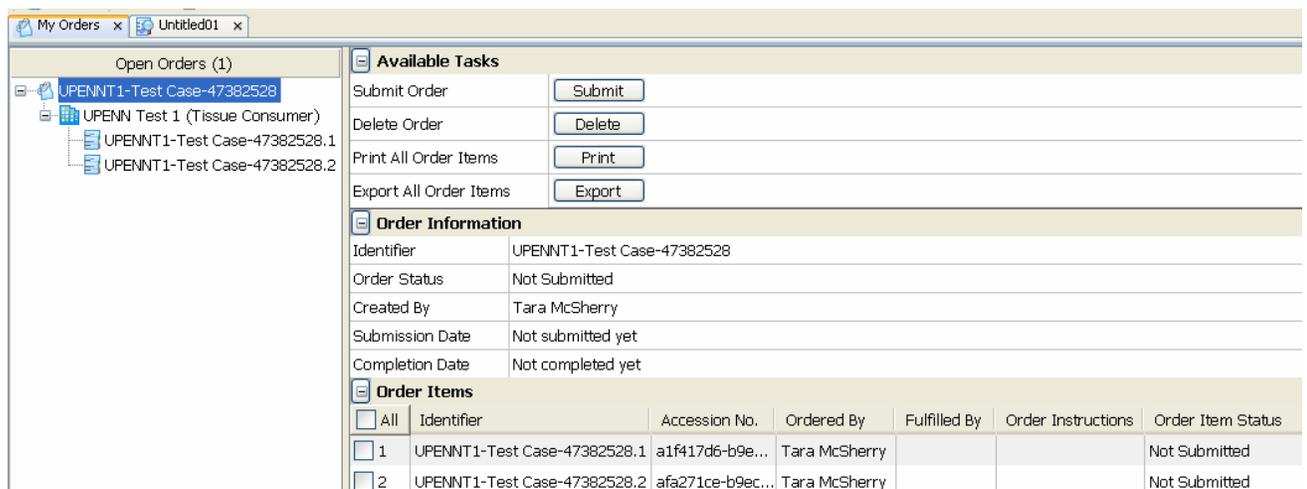


Figure 4.95 My Orders View – Order details

The Order aggregate view is displayed on the right pane.

Step 3. User clicks the **Delete** button located under **Available Tasks**. (See Figure 4.96.)

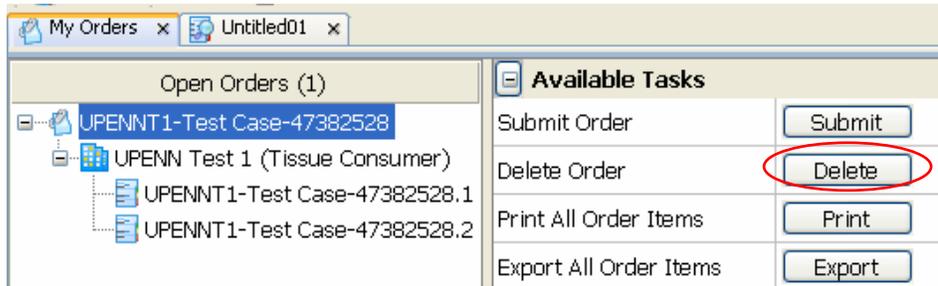


Figure 4.96 Delete Order

The **Confirm Order Deletion** dialogue box is displayed. (See Figure 4.97.)



Figure 4.97 Confirm deletion of order

Step 4. User clicks the **Yes** button.

The **Order Deleted** dialogue box is displayed. (See Figure 4.98.)



Figure 4.98 Alert User of deletion

Step 5. User clicks the **OK** button.

The entire Order is removed from the **Open Orders** pane.

Insert Order Instructions

Purpose of Task

This task allows a caTIES user to add Order instructions to a tissue Order.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has created an Order containing at least one Order Item.

Order Item Identifiers for the Order of interest are displayed on the left pane.

Step by Step Instructions

Step 1. User selects the Order Item of interest from the list displayed on the left pane.

A detailed view of the selected Order Item is displayed on the right pane.

Step 2. User clicks the **Specify Ordering Instructions** text box. (See Figure 4.99.)

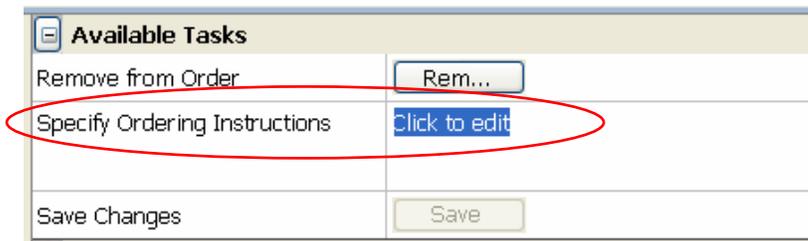


Figure 4.99 My Orders View – Specify ordering instructions

Grayed text stating, “Click to edit” disappears from text box.

Steps 3-4 are illustrated in Figure 4.100.

Step 3. User enters ordering instructions.

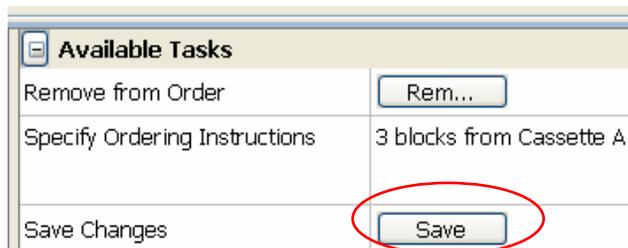


Figure 4.100 My Orders View - Save ordering instructions

Step 4. User clicks the **Save** button located under **Available Tasks**.

Save button is grayed and no longer able to be clicked.

Note: If more updates are made the **Save** button will become active again.

Modify Order Instructions

Purpose of Task

This task allows a caTIES user to modify Order instructions that were previously specified for a particular tissue Order.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has created an Order containing an Order Item in which Order Instructions have been specified.

Order Item Identifiers for the Order of interest are displayed on the left pane.

Step by Step Instructions

Step 1. User selects the Order Item of interest from the list displayed on the left pane.

A detailed view of the selected Order Item is displayed on the right pane.

Step 2. User clicks the **Specify Ordering Instructions** text box. (See Figure 4.101.)

Step 3. User highlights and deletes the current instructions.



Figure 4.101 My Orders View - Modify ordering instructions

Steps 4-5 are illustrated in Figure 4.102.

Step 4. User enters new ordering instructions.



Figure 4.102 My Orders View – Save ordering instructions

Step 5. User clicks the **Save** button located under **Available Tasks**.

Save button is grayed and no longer able to be clicked.

Note: If more updates are made the **Save** button will become active again.

Submit an Order

Purpose of Task

This task involves the Researcher submitting the Order to the Honest Broker. Submission will place the Order in the Honest Broker's queue.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has the required IRB approval to receive tissue from the tissue bank.

Note: The system will not prevent the Researcher from ordering tissue; however, it is the Researcher's responsibility to provide the required IRB documents to the Honest Broker, and it is the Honest Brokers' responsibility to check required IRB approval before processing tissue requests.

User has created an Order containing at least one Order Item.

Order Item Identifiers for the Order of interest are displayed in the left pane.

Step by Step Instructions

Step 1. User selects the Order Identifier of interest from the list displayed on the left pane. (See Figure 4.103.)

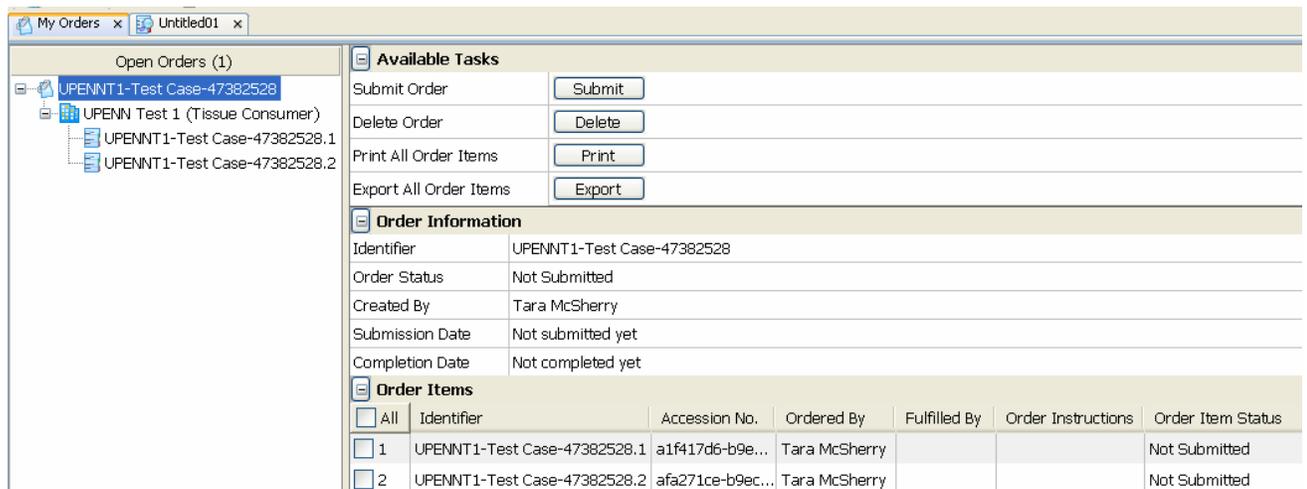


Figure 4.103 My Orders View – Open Orders tab displaying Order details

The Order aggregate view is displayed on the right pane.

Steps 2-3 are illustrated in Figure 4.104.

Step 2. Under **Order Items** select the **All** checkbox.

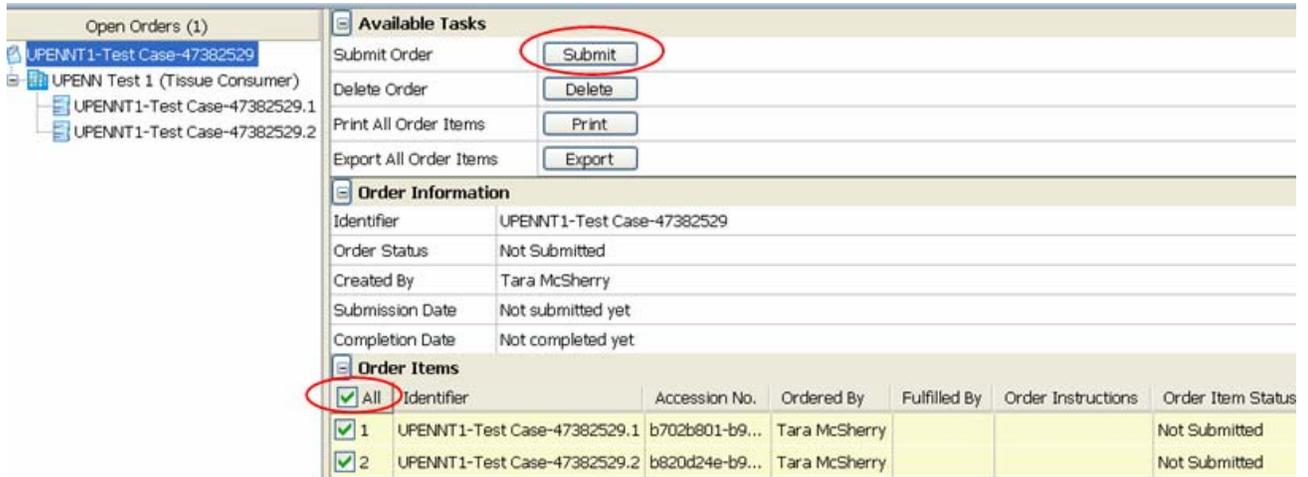


Figure 4.104 My Orders View – Select all Order Items

Checkboxes of all Order Items listed for the specified Order Item Identifier are selected.

Step 3. Click the **Submit** button located under **Available Tasks**.

The **Order Submitted** dialogue box is displayed. (See Figure 4.105.)

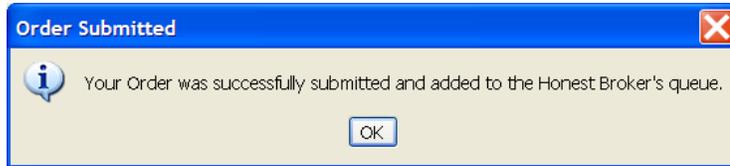


Figure 4.105 Alert User of Order submission

Step 4. Click the **OK** button.

System updates the status of the Order to **Submitted**.

The entire Order is removed from the **Open Orders** tab to the **Submitted Orders** tab and the number of **Open Orders** is decremented.

The number of **Submitted Orders** is incremented.

Step 5. User navigates to the **Submitted Orders** tab on the left pane.

The submitted Order is displayed in the left pane. (See Figure 4.106.)

The screenshot displays the 'My Orders View' interface. On the left, a tree view shows the hierarchy of orders under 'Submitted Orders (2)'. The selected order is 'UPENNT1-Test Case-47382529', which is expanded to show its sub-items: 'UPENN Test 1 (Tissue Consumer)', 'UPENNT1-Test Case-47382529.1', and 'UPENNT1-Test Case-47382529.2'. On the right, the 'Available Tasks' section includes buttons for 'Cancel Order', 'Print All Order Items', and 'Export All Order Items'. Below this, the 'Order Information' section provides details for the selected order, including its identifier, status, creator, submission date, and completion date. At the bottom, the 'Order Items' section contains a table with columns for selection, identifier, accession number, ordered by, fulfilled by, order instructions, and order item status.

Available Tasks	
Cancel Order	<input type="button" value="Cancel"/>
Print All Order Items	<input type="button" value="Print"/>
Export All Order Items	<input type="button" value="Export"/>

Order Information	
Identifier	UPENNT1-Test Case-47382529
Order Status	Pending
Created By	Tara McSherry
Submission Date	11 / 25 / 2006 02:23 PM
Completion Date	Not completed yet

Order Items						
<input type="checkbox"/> All	Identifier	Accession No.	Ordered By	Fulfilled By	Order Instructions	Order Item Status
<input type="checkbox"/>	1	UPENNT1-...	b702b801-b9e...	Tara McSherry		Pending
<input type="checkbox"/>	2	UPENNT1-...	b820d24e-b9e...	Tara McSherry		Pending

Figure 4.106 My Orders View – Submitted Orders tab

Cancel an Order

Purpose of Task

This task allows a caTIES user to cancel an entire tissue Order that was previously submitted.

Note: The difference between cancelling an Order and deleting an Order is that cancelling applies to a submitted Order and deleting applies to an open (not yet submitted) Order.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has submitted an Order (Order was saved and sent to the honest broker).

Step by Step Instructions

Step 1. User views all submitted Orders by selecting the **My Orders** tab and ensuring the **Submitted Orders** view on the left pane is displayed. (See Figure 4.107.)

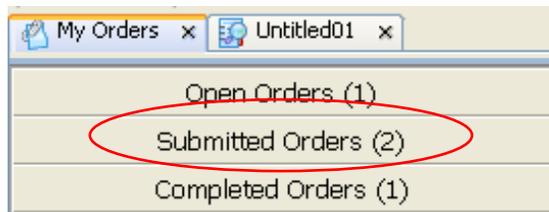


Figure 4.107 My Orders tab

Steps 2-3 are displayed in Figure 4.108.

Step 2. User views an Order by selecting the Order Identifier of interest from the left pane. The Order aggregate view is displayed on the right pane.

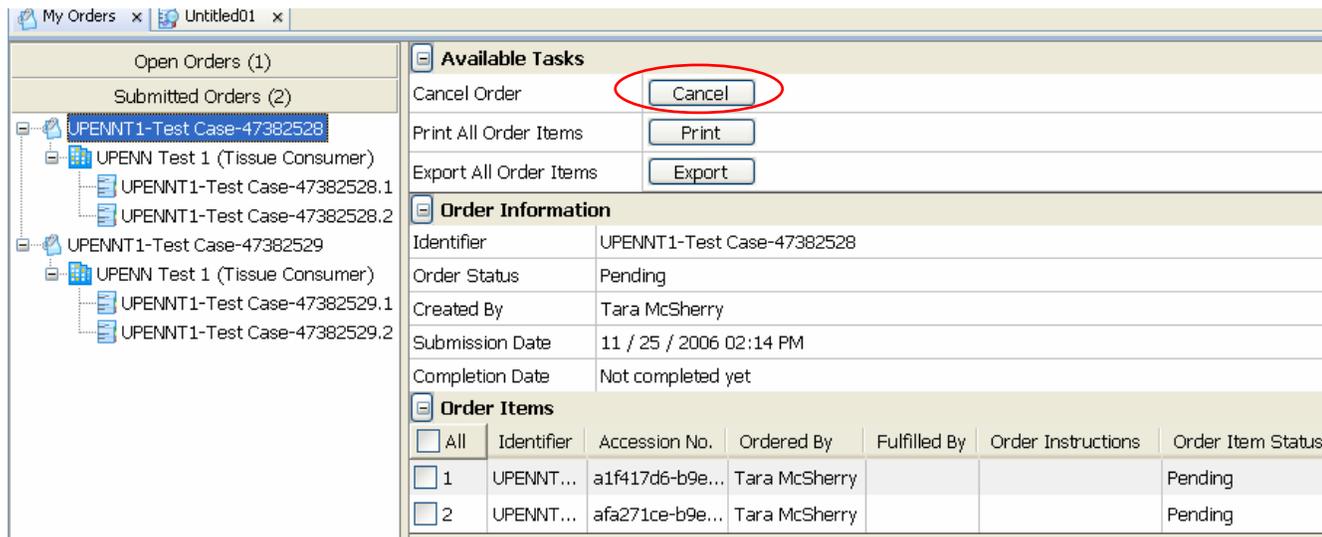


Figure 4.108 My Orders View – Order details

Step 3. User clicks the **Cancel** button located under **Available tasks**.

An **Order Cancelled** dialogue box pops up stating “Your Order was cancelled. It has been moved to the ‘Completed Orders’ List.” (See Figure 4.109.)



Figure 4.109 Alerts User of Order cancellation

Step 4. User clicks the **OK** button.

System updates the status of the Order to **Completed**.

The entire Order is removed from the **Submitted Orders** tab to the **Completed Orders** tab and the number of **Submitted Orders** is decremented.

The number of **Completed Orders** is incremented.

Step 5. User navigates to the **Completed Orders** view in the left pane.

The cancelled Order is displayed in the left pane. (See Figure 4.110.)

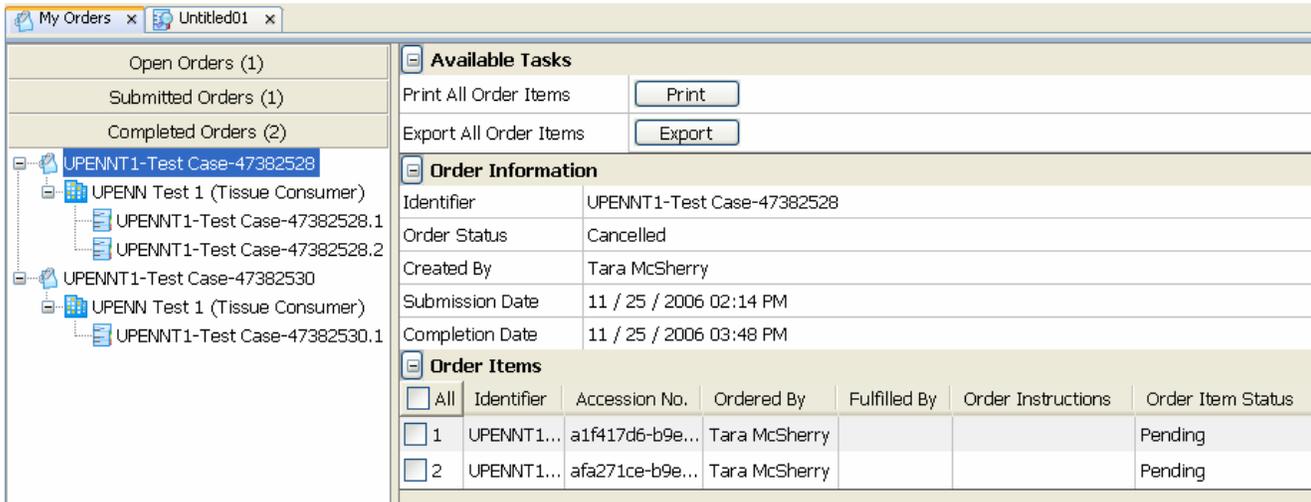


Figure 4.110 My Orders View – Completed Orders tab

Set/Update Order/Order Item Status

Purpose of Task

This task allows a caTIES user to communicate the status of an Order or Order Item to other caTIES users. An explanation of different status types for Orders and Order Items is as follows:

Order/Order Item	Status	Explanation
Order Item	Retrieved	Actual tissue was retrieved
Order Item	Not Found	Tissue could not be located
Order Item	Reviewed	Order Item was approved
Order Item	Unusable	Tissue was located, but is unusable (e.g. not enough left)
Order Item	Processed	Has been approved and now slides are being made or staining is being done
Order Item	Distributed	The tissue has been approved, processed and now has been shipped
Order	Not Submitted	Not sent to Honest Broker (not visible in Honest Broker Queue)
Order	Pending	In Honest Broker Queue
Order	Requested	Honest Broker requested tissue to be retrieved
Order	Incomplete	Not all of the Order Items were found or some were unusable
Order	Retrieved	All Order Items were retrieved
Order	Cancelled	Researcher cancelled Order
Order	Confirmed	Researcher confirms the Order after Honest Broker accepts or rejects all Order Items
Order	Processed	All Order Items have been processed
Order	Distributed	All Order Items have been shipped

Table 4.2 Order/Order Item Status

Tissue Orders may not necessarily be completely fulfilled by the Honest Broker due to unavailability of some of the Order Items requested in the Order.

This particular example allows for an Honest Broker to update the statuses of individual Order Items along with the status of an entire Order that was previously submitted by a Researcher (or by an Honest Broker for a Researcher). The statuses are updated based on availability of Order Items requested.

Prerequisite Information

User is logged in as an Honest Broker.

An Order has been submitted and now appears in the **Honest Broker Queue**.

The status of the Order of interest is “Pending”.

Users who submitted the Orders have the required IRB approval to receive tissue from the tissue bank.

Note: The system will not prevent the Researcher from ordering tissue; however, it is the Researcher’s responsibility to provide the required IRB documents to the Honest Broker, and it is the Honest Broker’s responsibility to check required IRB approval before processing tissue requests.

The Order of interest contains 2 Order Items. One Order Item is “Reviewed”, one Order Item is “Not Found”, therefore the entire Order is “Incomplete”.

Step by Step Instructions

Step 1. User navigates to the **Honest Broker Queue** by clicking the **Manage Orders** tab.

The left pane is populated with all of the Orders that have previously been submitted.

Step 2. User selects the **New Orders** tab. (See Figure 4.111.)

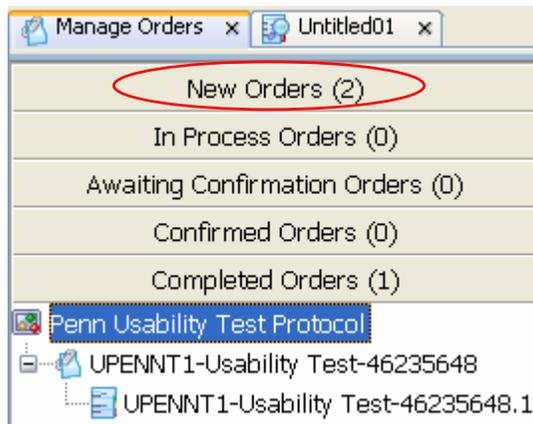


Figure 4.111 Manage Orders tab

All newly submitted Orders for the Honest Broker are displayed. (See Figure 4.112.)

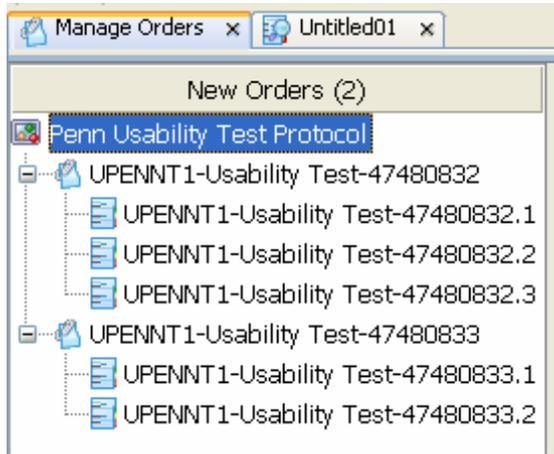


Figure 4.112 Manage Orders View – List of submitted Orders

Step 3. User selects the Order Identifier of interest from the list displayed in the left pane. The Order aggregate view of the Order is displayed in the right pane. (See Figure 4.113.)

Available Tasks						
Set Order Status	Pending <input type="button" value="Set"/>					
Print All Order Items	<input type="button" value="Print"/>					
Export All Order Items	<input type="button" value="Export"/>					
IRB Information						
IRB Approval No.	12345677					
IRB Title	Penn Usability Test Protocol					
Approval Date	05 / 30 / 2006					
Expiration Date	Never expires					
Organization's Role	Tissue Provider					
Order Creator						
First Name	Casey					
Last Name	Overby					
Street Address	1426 Blockley Hall					
City	Philadelphia					
State	PA					
Country	USA					
Zip Code	19104					
Phone	215-746-1781					
Fax	215-573-3213					
Email	overbyc@mail.med.upenn.edu					
Order Information						
Identifier	UPENNT1-Usability Test-47480833					
Order Status	Pending					
Created By	Casey Overby					
Submission Date	11 / 25 / 2006 03:56 PM					
Completion Date	Not completed yet					
Order Items						
<input type="checkbox"/> All	Identifier	Accession No.	Ordered By	Fulfilled By	Order Instructions	Order Item Status
<input type="checkbox"/> 1	UPENNT1-Usability Te...	tst7127183	Casey Overby			Pending
<input type="checkbox"/> 2	UPENNT1-Usability Te...	tst7127183	Casey Overby			Pending

Figure 4.113 Manage Orders View – Order details

Step 4. User selects the Order Item Identifier for tissue that has been approved by the tissue bank. The Order Item is listed under the Order Identifier of interest in the left pane.

A detailed view of the selected Order Item is displayed in the right pane. (See Figure 4.114.)

Available Tasks	
Set Status	Pending <input type="button" value="Set"/>
Order Item Information	
Identifier	UPENNT1-Usability Test-47480833.1
Order Item Status	Pending
Ordered By	Casey Overby
Filled By	
Ordering Instructions	
Patient Information	
Name	OLIVER null TWIST
Date of Birth	1983-06-03
Gender	M
Race	
Ethnicity	
Marital Status	
Medical Record No. (MRN)	080520051
Social Security No. (SSN)	080-52-0051
Identified Report Information	
Accession No	tst7127183
De-identified Report ID	bbf27418-b9ec-11da-bf17-b1a4b49d6452
Collection Date	2005-09-12
Operating Physician ID	
Organization	UPENN Test 1
Honest Broker Comments	
Honest Broker Comments	Click to edit
Save Changes	<input type="button" value="Save"/>
Original Pathology Report	
De-identified Pathology Report	
<input checked="" type="checkbox"/> Annotations	Legend : Negated Concept Negated Diagnosis General Concept Diagnosis Procedure Organ
[Report de-identified (Safe-harbor compliant) by De-ID v.6.12]	
[Final Diagnosis]	

Figure 4.114 Manage Orders View – Order Item details

Steps 5-6 are illustrated in Figure 4.115.

Step 5. User selects **Reviewed** from the dropdown menu located next to **Set Status**.

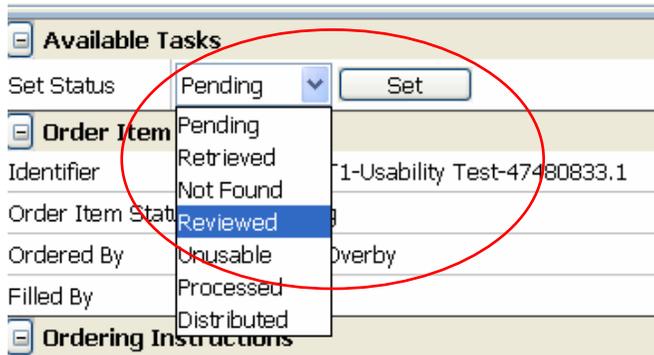


Figure 4.115 Manage Orders View – Select Order Item status

Step 6. User clicks the **Set** button.

System updates the status of the Order Item to **Reviewed**.

Step 7. User selects the Order Item Identifier of a tissue that could not be located by the tissue bank. Order Item is listed under the Order Identifier of interest in the left pane.

A detailed view of the selected Order item is displayed in the right pane.

Steps 8-9 are illustrated in Figure 4.116.

Step 8. User selects **Not Found** from the dropdown menu located next to **Set Status**.

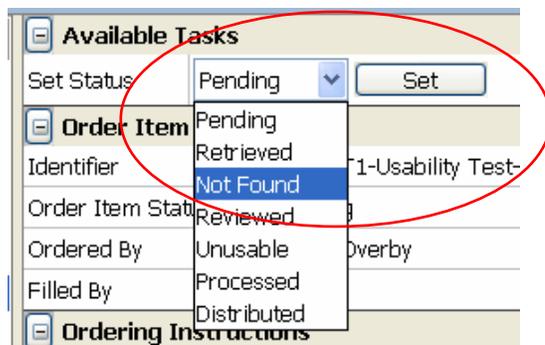


Figure 4.116 Manage Orders View – Select Order Item status

Step 9. User clicks the **Set** button.

System updates the status of the Order Item to **Not Found**.

Steps 10-11 are illustrated in Figure 4.117.

Step 10. User selects the Order Identifier from the left pane.

Step 11. User selects **Incomplete** from the dropdown menu located next to **Set Order Status**.

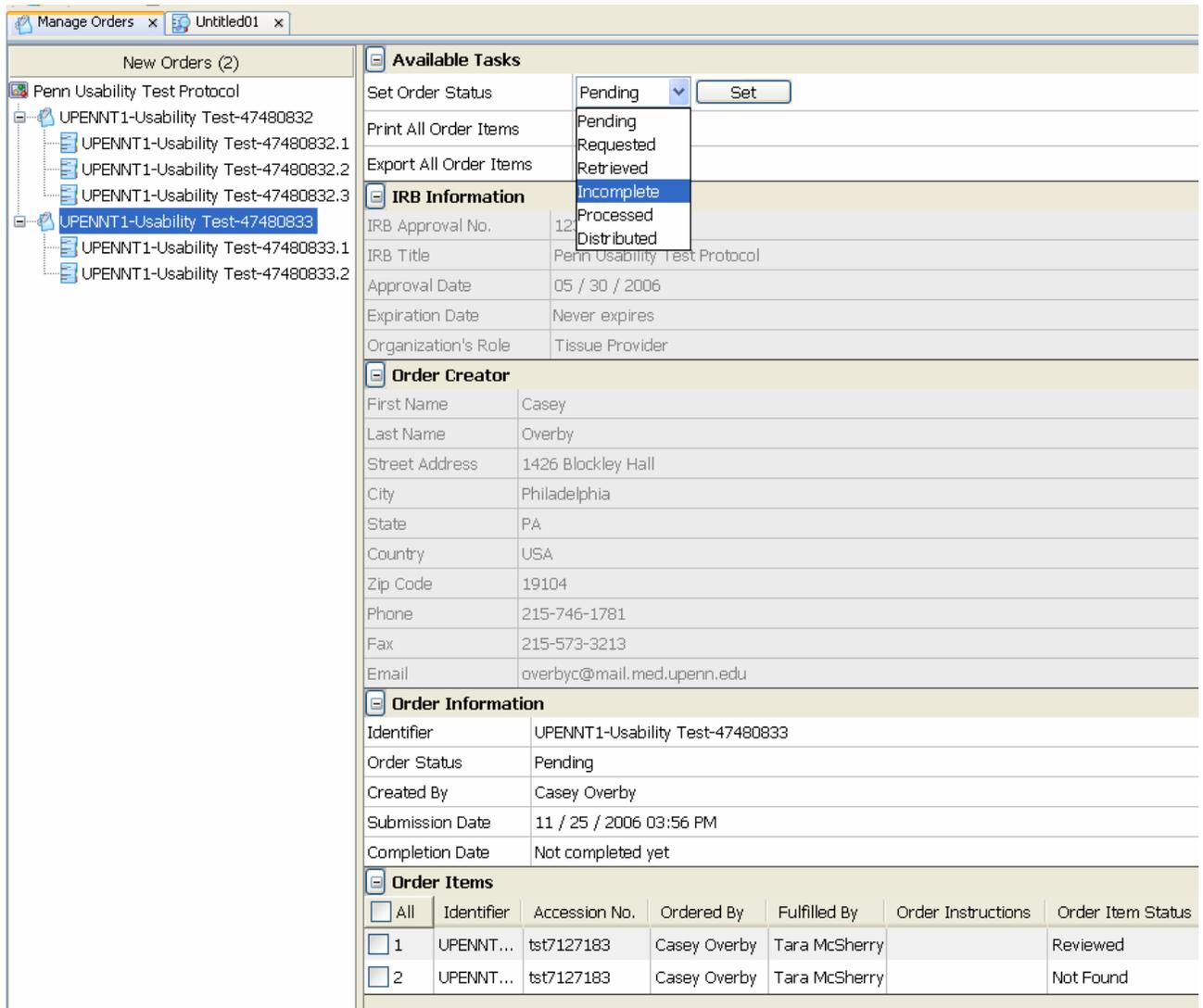


Figure 4.117 Manage Orders View – Select Order status

Step 12. User clicks the **Set** button.

System updates the status of the submitted Order from **Pending** to **Incomplete**.

Add Comments to an Order

Purpose of Task

This task allows the Honest Broker to comment on an Order Item status. A common example of an Honest Broker comment is the reason why an Order Item cannot be fulfilled.

Prerequisite Information

User is logged in as an Honest Broker

Researcher has previously submitted an Order. The Order was saved and sent to the Honest Broker.

Step by Step Instructions

Step 1. User views all submitted Orders by selecting the **Manage Orders** tab and ensuring the **New Orders** view on the left pane is displayed.

Step 2. User views an Order by selecting the Order Identifier of interest from the left pane. (See Figure 4.118.)

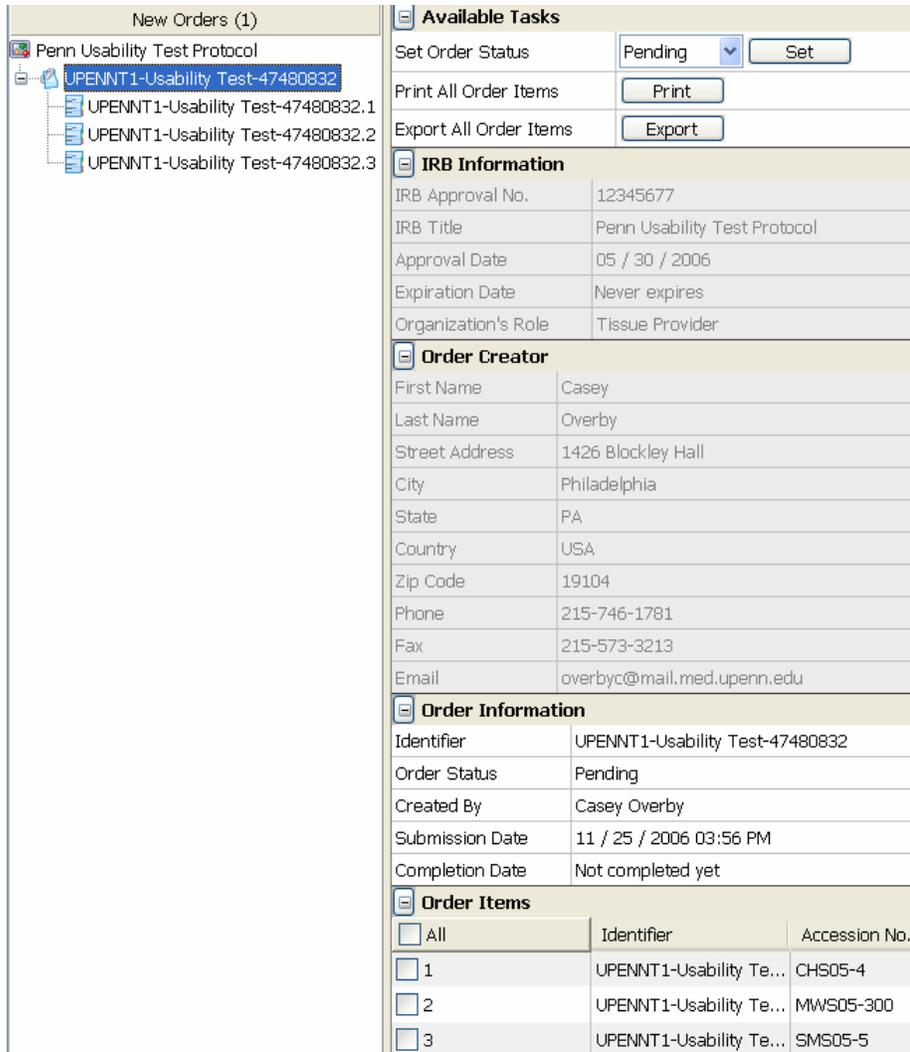


Figure 4.118 Manage Orders View – Order details

The Order aggregate view is displayed on the right pane.

Step 3. User selects the Order Item of interest.

The Order Item details are displayed in the right pane.

Note: Each Order Item detail category can be expanded (+) or minimized (-) for easy viewing.

Step 4. User clicks the **Honest Broker Comments** text box. (See Figure 4.119.)

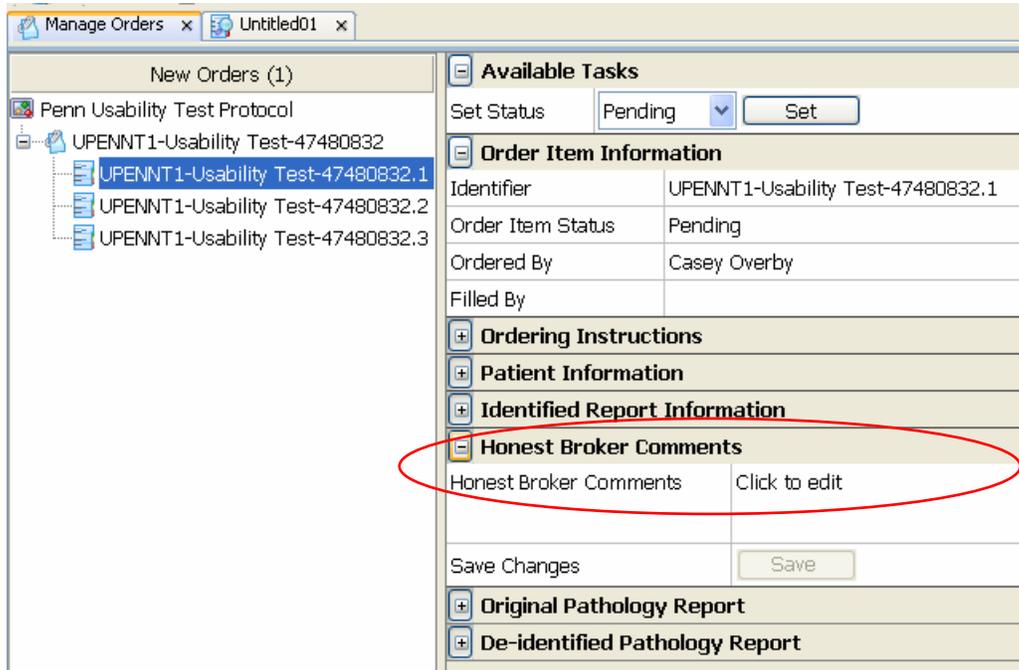


Figure 4.119 Manage Orders View – Add Honest Broker Comments to an Order

Step 5. User enters comments pertaining to the Order Item. (See Figure 4.120.)



Figure 4.120 Manage Orders View – Save Honest Broker Comments

Step 6. User clicks the **Save** button.

Save button is grayed and can no longer be clicked.

Note: If more updates are made the **Save** button will become active again.

Print an Order Item

Purpose of Task

This task allows a caTIES user to print Order Item details in a spreadsheet format.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has previously created an Order.

Step by Step Instruction

Steps 1-3 are illustrated in Figure 4.121.

Step 1. User views all created Orders by selecting the **My Orders/Manage Orders** tab.

Step 2. User views Order details by selecting the Order Identifier of interest from the left pane under any of the available tabs.

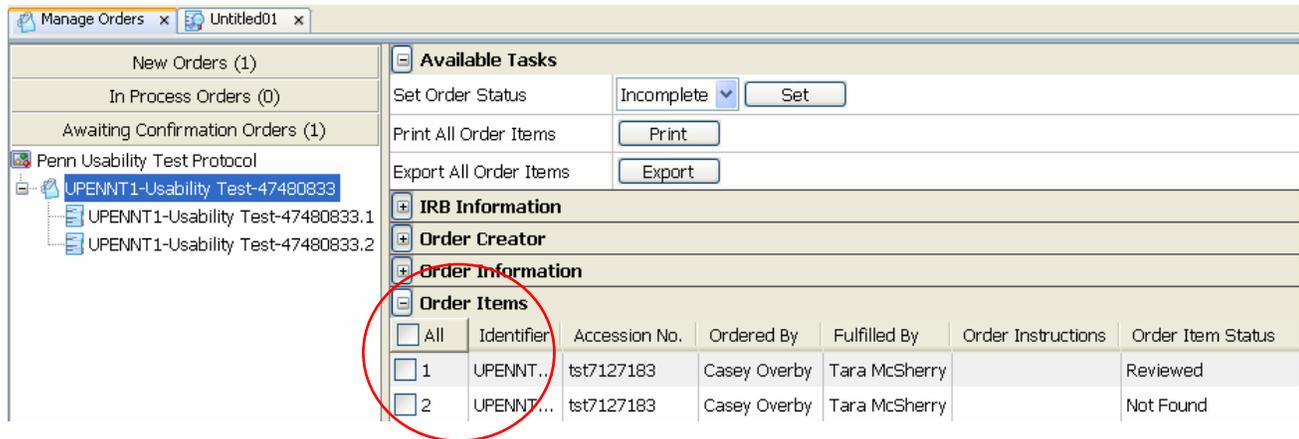


Figure 4.121 My Orders/Manage Orders View – Order details

A detailed view of the selected Order is displayed in the right pane.

Step 3. User selects which Order Item(s) they would like to print by selecting the checkbox in the **Order Items** section in the right pane.

Note: If no Order Items are selected than all Order Items for the Order will be printed.

Step 4. User clicks the **Print** button. (See Figure 4.122.)

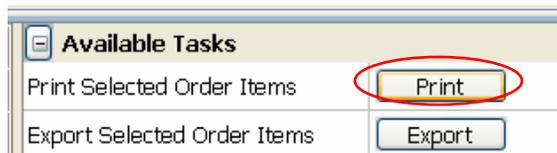


Figure 4.122 My Orders/Manage Orders View – Print selected Order Items

The **Set Print Parameters** dialog box is displayed. (See Figure 4.123.)

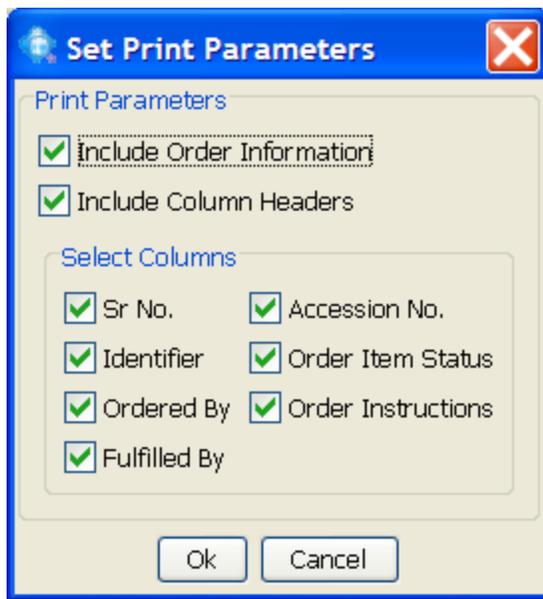


Figure 4.123 Select print parameters

Step 5. User selects the desired parameters and clicks the **OK** button.

Order Item(s) details are sent to the printer.

Export an Order Item

Purpose of Task

This task allows a caTIES user to export/save Order Item information locally on their computer. In this task, the extracted data will be saved in a CSV file.

Prerequisite Information

- User is logged in as a Researcher or Honest Broker.
- User has previously created an Order.

Step by Step Instructions

Step 1. User views all created Orders by selecting the **My Orders/Manage Orders** tab.

Step 2. User views Order details by selecting the Order Identifier of interest from the left pane under any of the available tabs. (See Figure 4.124.)

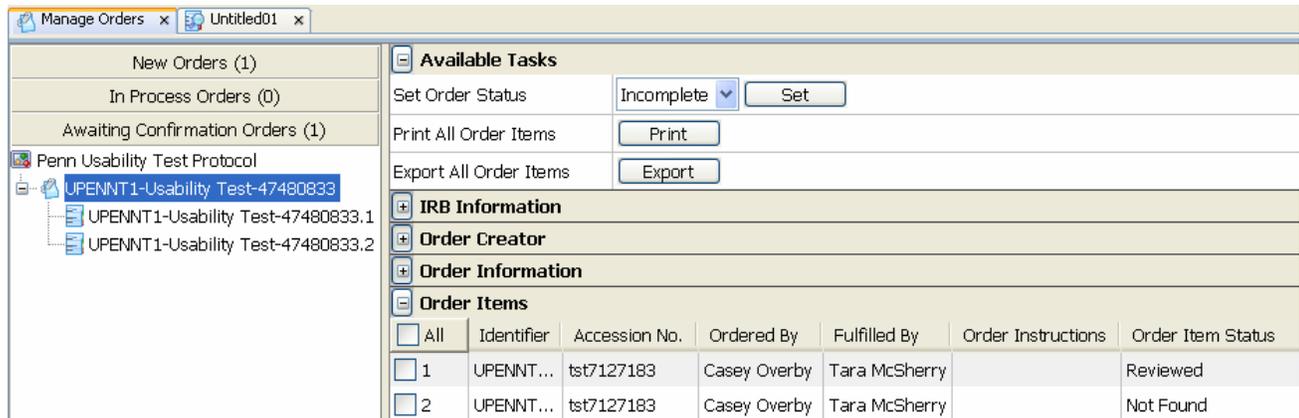


Figure 4.124 My Orders/Manage Orders View – Order details

A detailed view of the selected Order is displayed in the right pane.

Step 3. User selects which Order Item(s) they would like to export by selecting the checkbox in the **Order Items** section in the right pane.

Note: If no Order Items are selected than all Order Items for the Order will be exported.

Step 4. User clicks the **Export** button. (See Figure 4.125.)

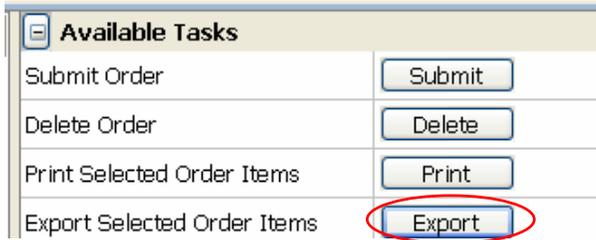


Figure 4.125 My Orders/Manage Orders View – Export selected Order Items

The **Export** pop-up is displayed.

Steps 5-7 are illustrated in Figure 4.126.

Step 5. User navigates to the location where they would like the Order Item(s) to be to exported/saved.

Step 6. User enters **File name**.

Step 7. User clicks the **Export** button.

System saves data extract in a CSV file to the specified location.

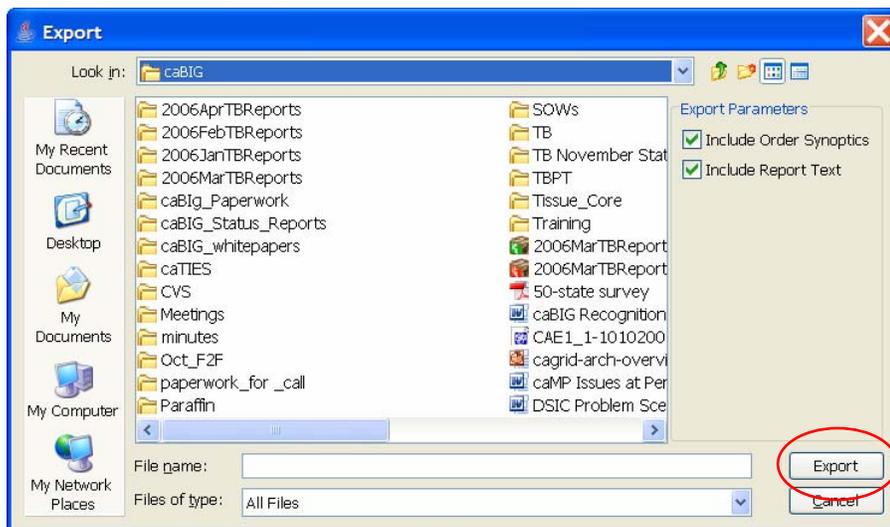


Figure 4.126 Select location to save Order Item(s) of interest

Confirm an Order for Shipping

Purpose of Task

This task involves the Researcher confirming the shipment of the Order. The Honest Broker may also perform this task for a Researcher.

Prerequisite Information

User is logged in as a Researcher or Honest Broker.

User has the required IRB approval to receive tissue from the tissue bank.

Note: The system will not prevent the Researcher from ordering tissue; however, it is the Researcher's responsibility to provide the required IRB documents to the Honest Broker, and it is the Honest Broker's responsibility to check for required IRB approval before processing tissue requests.

User has submitted an Order. (Order was saved and sent to the Honest Broker.)

Honest Broker has updated the availability status of the items.

In the following example, the Order of interest contains 2 Order Items. The Honest Broker has updated the availability status of one Order Item to be **Reviewed**, the other Order Item to be **Not Found** and the entire Order to be **Incomplete**. (See Set/update Order Status section for explanation of statuses.)

Step by Step Instructions

Steps 1-2 are illustrated in Figure 4.127.

Step 1. User views all submitted Orders by selecting the **My Orders** tab and ensuring the **Submitted Orders** view in the left pane is displayed.

Step 2. User views an Order by selecting the Order Identifier of interest from the left pane.

The Order aggregate view is displayed on the right pane.

The availability statuses of the Order Items are displayed under **Order Item Status**.

Note: At this point, the Researcher is free to modify the Order and resubmit or entirely cancel the Order. The user may also still provide additional Order instructions for each available Order Item. (This is optional. See Insert Order Instructions for more details.)

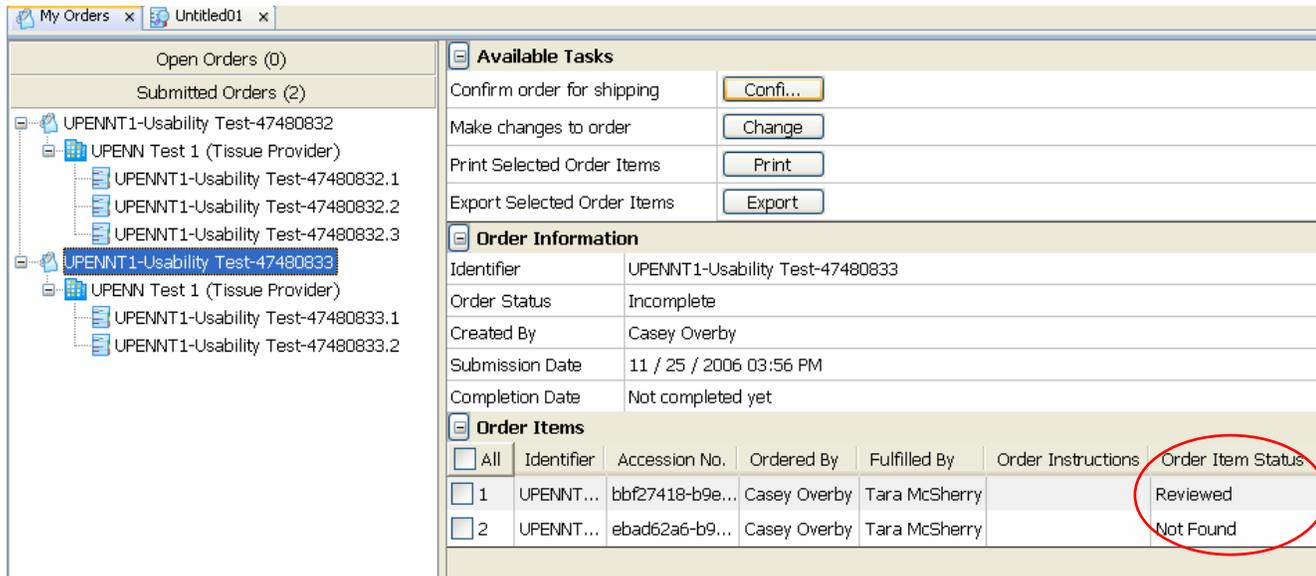


Figure 4.127 My Orders View – Order details

Step 3. User decides they want all available Order Items to be shipped and clicks the **Confirm Order for shipping** button as shown in Figure 4.128. (See Set/update Order Status.)

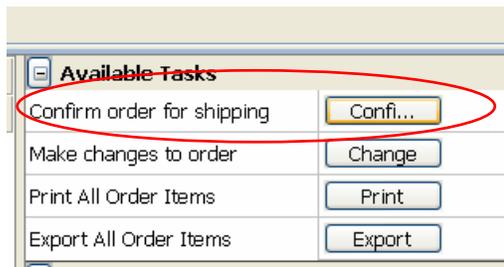


Figure 4.128 Confirm order for shipping

The **Order Confirmed** dialogue box is displayed. (See Figure 4.129.)



Figure 4.129 Alert User of Order confirmation

Step 4. User clicks the **OK** button.

System updates the status of the Order to **Confirmed**.

Chapter 5 Error Messages/Indicators and Problem Resolutions

The purpose of this chapter is to help end users troubleshoot and resolve issues that may arise when they are using caTIES. Explanation of error messages with the probable cause for the issue and solution are provided. Also, a Frequently Asked Questions section is presented to provide a quick solution to common user inquiries as well as references to sections in the manual that provide further detail on the subject.

Error Messages

The caTIES system produces error messages when a procedure does not complete.

The following table displays a listing of the common error messages in the system. Error messages are sorted by their occurrences along with their area of operation. The table also details probable cause of the error and a solution if available.

Area of Operation	Error Message	Probable Cause	Solution
Creating	An error occurred while creating the protocol.	The system could not create the new protocol.	User should try again. If it does not work, re-login and try again.
Creating	An error occurred while creating the user.	The system could not create the new user.	User should try again. If it does not work, re-login and try again.
Date	No Expiration date specified. Please specify the date, or check the Never Expires check box.	Self explanatory	Self explanatory
Field Requirement	Please fill in the following required fields. Distinguished Name	Required field not filled	Fill in the required field.
Field Requirement	Please fill in the following required fields. Abbreviated Name. Limit to 4 letters.	Required field not filled	Fill in the required field.

Log-in	<p>Not properly logged in. Please re-login and try again.</p> <p>If the problem persists, please inform the System Administrator.</p> <p>caTIES client will now close.</p>	Self explanatory	Self explanatory
Order	There was an error while submitting your order in the system	Self explanatory	User should try again. If it does not work, re-login and try again.
Order	There was an error while deleting the order	Self explanatory	User should try again. If it does not work, re-login and try again.
Order	There was an error while cancelling your order	Self explanatory	User should try again. If it does not work, re-login and try again.
Order	There was an error while confirming your order	Self explanatory	User should try again. If it does not work, re-login and try again.
Order	There was an error completing the operation	An error occurred while trying to make the order modifiable and moving it to the Open Orders list.	User should try again. If it does not work, re-login and try again.
Order	<p>There are some order items which still have "Pending" status."</p> <p>All order items' status should be updated before the order status can be set to "<status>"</p>	User cannot set the order status to Retrieved or Pending unless all the order item statuses are updated to something other than Pending.	Change the status of all order items to something other than Pending.
Protocol	You are not assigned as an honest broker to this distribution protocol	User tried to modify the status of an order, which was created under a distribution protocol, for which the user was not the honest broker.	User should ask the administrator to assign him/her as the HB.

Protocol	Could not add distribution protocol	Self explanatory	User should try again. If it does not work, re-login and try again
Protocol	You have no active protocols. Please select another role.	Selected a Researcher role, but the user does not have any active protocols	Select another role
Quarantine	An error occurred when attempting to quarantine this report.	Self explanatory	User should try again. If it does not work, re-login and try again.
Query	There was an error building the query graph from <queryname>	The query was corrupted during saving, and cannot be recovered	Re-create the query and save it again.
Query	No query by the name <name> was found.	The query name specified does not exist	Enter a valid query name to be opened.
Query	An error occurred while saving the query. Please try again.	Self explanatory	Self explanatory
Query	Query has no search criteria\n Add search criteria using Dashboard/Diagram perspective.	No search terms or demographic constraints specified while querying	Specify search criteria and try again
Query	Query not run	An error occurred when running the query	Try again or rebuild the query and try again.
Retrieve	An error occurred when saving the comments. Error retrieving the identified pathology report	This could happen if the user doesn't have access to the identified data or if the machine storing the private identified data is down.	Contact system administrator.
Retrieve	An error occurred when attempting to retrieve the report. Please note down the Accession no. for the report and notify your System Administrator.	Self explanatory	Self explanatory
Review	An error occurred when requesting a review of this report	Self explanatory	User should try again. If it does not work, re-login and try again
Save(ing)	Save Failed	The system failed to save the changes.	User should try again. If it does not work, re-login

			and try again.
Save(ing)	Could not save changes to protocol	The system failed to save the changes.	User should try again. If it does not work, re-login and try again.
Save(ing)	An error occurred when saving the comments	Self explanatory	User should try again. If it does not work, re-login and try again
Save(ing)	An error occurred when saving the review comments	Self explanatory	User should try again. If it does not work, re-login and try again
Tissue Request	<p>You have requested tissue from organizations which aren't registered as Tissue providers or consumers on this protocol.</p> <p>Please remove the order items in question from your order and try again.</p>	Self explanatory	Remove the order items in question.

Table 5.1 Error Messages

Frequently Asked Questions (FAQs)

The following table lists FAQs to help the User find answers to common queries. References to further details on each topic are provided.

Q: How do you toggle between the Dashboard View and the Diagram View?
<p>A: The default view of the caTIES Query Interface is the Dashboard View. When in the Dashboard View, a user can toggle to the Diagram View by clicking the Switch to Diagram View button in the top left corner of the window. When in the Diagram View the label on the button changes to Switch to Dashboard View to allow toggling back to the Dashboard.</p> <p>See Figure 3.12 .</p>
Q: I entered search terms but am getting an error message stating “x”
<p>A: You must press the + button in order for search terms to be entered into the system as search criteria.</p> <p>See Figure 4.24.</p>
Q: I have entered my search criteria just as I would in a Google search (in sentence form), but I am not getting any results returned
<p>A: Do not type your search out in sentence form. caTIES searches on keywords, so only enter the keyword, not the whole sentence. If you have multiple keywords do not type “keyword-X AND keyword-Y”, instead use the BOOLEAN AND or OR operations in the interface to represent these combinations.</p> <p>See Figure 4.27.</p>
Q: Why do you get to choose the exact Metathesaurus concepts searched for when entering search criteria in the Diagram View and not the Dashboard View?
<p>A: The Dashboard View is intended for the creation of simple queries while the Diagram View is a more advanced interface that is intended for construction of more complex queries. There are purposely fewer steps in the creation of a query in a Dashboard View so that novice users can easily create queries. Advanced users may use the Diagram View if they would like to be more specific with search criteria.</p> <p>See Create A Query.</p>
Q: Why can't I type my search criteria into the “Start Placeholder”?
<p>A: The “Start Placeholder” is simply a way to visually show the beginning of the query flow. This is not a modifiable field. Add your search criteria below the “Start Placeholder”.</p> <p>See Figure 4.36.</p>

Q: How do you construct a query that is an OR between demographic search criteria?

A: An OR between demographic search criteria can only be represented in the Diagram View as this is an advanced search option.

See example of an OR between two Age groups in Figure 4.43.

Q: Do I have to wait until the search is completely finished before I can begin viewing results?

A: No, as soon as the first results are listed you can begin viewing the results.

See Figure 3.21 which shows a status of “Running” while an SPR from the results group in being viewed.

Q: What does “Results per Organization” mean?

A: Results per Organization is a way to limit how many results could be returned for each organization node the query is running against. For instance, If a query is running against the UPMC, UPENN, and TJU caTIES nodes and 100 is chosen as the limit of Results per Organization then a maximum of 300 results may be returned for the query (100 for each of the 3 organizations queried against.) The results view shows the organization name and the number of results returned for each organization.

See Figure 4.79.

Q: How do I resize the screen so that only the results are visible?

A: To resize the screen to show only the results view, simply click on the “Hide Query Builder/Show Query Builder” button.

See Figure 4.78.

Q: What does the hierarchy of icons in the Query Results View represent?

A: The hierarchy of icons in the Query Results View is:

Name of Query

Organization Name

Patient ID

SPR ID.

See View Query Results for more information.

Q: What is the difference between creating an Order & submitting an Order?
<p>A: Creating an Order means you have selected cases from query results to be saved for later review or later submission as a tissue Order. Submitting an Order means you have sent your Order to the Honest Broker. Submission places the Order in the Honest Broker's queue.</p> <p>For more information see Overview of Order Management Tasks.</p>
Q: What do all the different types of Order status mean?
<p>A: See Table 4.2.</p>
Q: What does the hierarchy of icons in the My Orders View represent?
<p>A: The hierarchy of icons in the My Orders View is:</p> <ul style="list-style-type: none">Protocol NameOrder IdentifierOrder Item Identifier <p>Figure 4.111 clearly shows this hierarchy.</p>
Q: I entered Order Instructions, but later I went back to the Order and the instructions are not there. What happened?
<p>A: Did you forget to press "Save"? If so the instructions you entered were not saved to the system.</p> <p>See Insert Order Instructions.</p>
Q: If a Researcher accidentally hides/closes the "My Orders" tab, how can it be made visible/reopened?
<p>A: The View menu allows you to select the tab for opening the My Orders view.</p> <p>See Figure 3.10.</p>

Table 5.2 FAQs

Glossary

Term	Definition
Accession Number	Uniquely identifies specimens accessioned into an organizational unit, such as a laboratory
Active Protocols pane (Administrator view)	Displays a list of active protocol names.
Active Users pane (Administrator view)	Displays a list of active caTIES Users.
Administrator view/perspective	Allows local administrators to create users and distribution protocols in the system.
API	Application Programming Interface – Interface provided in order to allow requests for services to be made by other computer programs, and/or to allow data to be exchanged between them.
Awaiting Confirmation Orders pane (Honest Broker view)	Contains a list of orders that are awaiting confirmation from the researcher. Researcher has the opportunity to cancel or confirm an order based off of tissue availability.
Boolean Operator Search	A search using the AND, OR and NOT boolean operators
caBIG™	The cancer Biomedical Informatics Grid
Cancer Data Standards Repository (caDSR) Compliance	All data stored and distributed by caTIES will have a metadata description rooted in caDSR common data elements and classification hierarchies.
caTIES	Cancer Text Information Extraction System
caTIES Local Administrator	The caTIES local administrator submits archived cases, configures local caTIES pipeline to site specifications. This individual is responsible for administrating all caTIES datastores, creating user and study accounts and assigning honest broker roles to users. This person must ensure that all possible organizational policies such as IRB approval are met before granting them accounts on the system.
caTIES pipeline	The caTIES pipeline on a Surgical Pathology Report will produce visible annotations for elements such as concept, negated concept, diagnosis, negated diagnosis, organ, procedure and section.
caTIES User	Individual who can access the caTIES application
CHIRPS	Consented High-Performance Indexing and Retrieval of Pathology Specimens
Chunker	Parses reports into sections, parts, sentences, and phrases
Collaborative Tissue Resource Manager (CTRM)	Used to organize SPRs returned from a caTIES query into retrospective tissue distribution protocols.
Completed Orders pane (Researcher)	Displays a list of case sets/orders that have been canceled or distributed.

Term	Definition
view)	
Concept Codes	All NCI Metathesaurus codes applicable to a specific report section regardless of semantic type
Concept Search	A search for concepts that mean the same thing as your search term but can be phrased multiple ways, synonyms of your search term or terms that are alternate spellings.
Concept-based query	Users are able to enter strings that are mapped to candidate EVS concepts, and users can select one or more EVS concepts to be included in the query. During this process, users are able to interact with either the Metathesaurus broader-than/narrower-than tree or the NCI Thesaurus to further browse and refine their concepts
Confirmed Orders pane (Honest Broker view)	Contains a list of orders that have been confirmed by the Researcher.
DAI	Data Access Interface
Dashboard view	The dashboard view allows for simple query generation. Queries expressed on the dashboard will automatically appear in the diagram view.
De-ID	The commercial tool, De-ID, is used to scrub reports of HIPAA identifiers. This choice remains contingent on ongoing De-ID license procurement by caBIG™. The pipeline itself is not dependent on de-identification. Therefore if and when other de-identification tools become available, the developers are not constrained to usage of De-ID because of inter-module dependency.
De-identification	Removal of HIPAA mandated identifiers from free-text.
Diagnosis	Disease classification
Diagram view	The diagram view can be used for more advanced query generation. Diagram-specified queries will not always convert back to the dashboard: diagram-based queries may be more expressive than what can be achieved in the dashboard.
Distinguished name	When the cancer researcher has successfully registered with GUMS server and obtain a distinguished name from their credential, this name is provided to the caTIES local administrator.
Distribution Protocol	An IRB approved set of procedures that describe how previously collected specimen will be utilized.
EVS	NCI Enterprise Vocabulary System
EVS Compliance	The NCI Metathesaurus is used to code concepts and the NCI Thesaurus is used for metadata annotation and to make relational inferences among concepts.
Expired Protocols pane (Administrator view)	Displays a list of protocol names which have expired.
Expired User Accounts pane (Administrator view)	Displays a list of expired caTIES User accounts.
Export all order items (Honest Broker view)	Allows Honest Broker to export all order items that are listed for a specified order.
Export report/ query result	Allows caTIES user to export/save a Surgical Pathology Report locally on their computer

Term	Definition
External Cancer Researcher	The external cancer researcher is not part of the local organization but has the required IRB approval to access data and order tissue from other caTIES nodes. A cancer researcher will be internal to the organization he is a member of, but will be external to other organizations that are also on the caTIES grid.
Flagging Problem Reports	Users are able to flag reports for review by the caTIES developers. In addition to flagging, the users will be able to enter a short problem report that will help the developers diagnose the problem.
GATE	General Architecture for Text Engineering
Gazeteer	Contains pre-negation, post-negation, pseudo-negation, stop words, and irrelevant terms.
Globus Toolkit	The Globus Toolkit is a reference implementation of the Open Grid Service Infrastructure specification. The open source Globus Toolkit is a fundamental enabling technology for the "Grid." The toolkit includes software services and libraries for resource monitoring, discovery, and management, plus security and file management.
GridServices	GridServices are stateful Webservices that provide more functionality than the basic webservices upon which they are built.
GUMS	Grid User Management Service
HIPPA	HIPAA dictates that patient health information never be seen by unauthorized individuals. All network-visible reports will be de-identified to meet HIPAA safe harbor compliance. Accordingly information like name, address and social security number will be scrubbed from visible report text. Identified information will only be available to honest brokers at the organizations to which the identified data belongs.
Honest Broker	This IRB-sanctioned individual obtains material under safe harbor and forwards de-identified materials to cancer researchers. The honest broker will be able to take on the role of the cancer researcher, and will be able to perform all the functions that can be performed by the cancer researcher in the system, in order to act as proxy for the researcher. A default honest broker will be assigned for each organization. This default honest broker will be assigned as the honest broker for every study in the system. The honest broker can change this assignment to any other honest broker within his/her institution if they wish to do so.
Honest Broker Comment	Honest Broker entered text which provides additional information for distributing materials based on previous request
Honest Broker Queue	Contains all case set/order requests that have been submitted by Researchers.
Honest Broker view/perspective	Allows honest brokers to view identified information that is required to fill orders.
In Process Orders pane (Honest Broker view)	Contains a list of orders that are in process.
IE	Information Extraction
Internal Cancer Researcher	This researcher is part of the local organization and has the required IRB approval to access data and order tissue.
IRB	Institutional Review Board

Term	Definition
IRB identifier	Institutional Review Board Approval Number.
IRB protocol	Local IRBs enforce HIPAA guidelines and may impose additional rules of their own. We are obligated to design a system that can gain approval across the range of participating IRBs.
JDBC	Java Database Connectivity - defines how a user may access a database.
NCI	National Cancer Institute
NCICB	National Cancer Institute Center for Bioinformatics
NCI Enterprise Vocabulary System (EVS)	Provides resources and services to meet NCI needs for controlled terminology, and to facilitate the standardization of terminology and information systems across the Institution and the larger biomedical community. The two key terminology resources produced and published by EVS are the NCI Thesaurus and NCI Metathesaurus
NCI Metathesaurus	A comprehensive biomedical terminology database, connecting 2,500,000 terms from more than 50 terminologies, including some propriety vocabularies with restrictions on their use.
NCI Thesaurus	A reference terminology used in a growing number of NCI and other systems. It provides rich textual and ontologic descriptions of some 50,000 key biomedical concepts.
Negated Concept	Negative findings and diagnoses are coded as negated concepts.
Negated Search	A negated search can only be performed when executing a concept search. Allows user to perform a search for Surgical Pathology Reports that specifically state that a specimen was negative for a given diagnosis.
NegEx	Negation Detection
New External Protocols pane (Administrator view)	Displays a list of new external protocol names.
New Orders pane (Honest Broker view)	Contains a list of new orders that have been requested by a researcher.
New Study/Protocol	Specifies a Study or Protocol. Includes Protocol name, IRB information and Organization Role
OGSA-DAI	OGSA-DAI is part of the chosen architecture for caBIG™ design and implementation. It is an extension of the core functionality of the Globus Toolkit. OGSA-DAI web services can be deployed within a Grid environment. OGSA-DAI thereby provides a means for users to Grid-enable their data resources.
Open Orders pane (Researcher view)	Displays a list of case sets/orders that have been created by the Researcher
Open Source Tools	Off-the-Shelf (OTS) tools used to build caTIES must be open source. The only exceptions to this pertain to 1) systems within covered organizations and 2) software that removes HIPAA identifiers from the SPR text. In particular, it is feasible within the caTIES design for participating sites to house their private data in commercial relational database management system (RDBMS). These RDBMS must be supported by OGSA-DAI. caTIES itself is also open source.

Term	Definition
Order Creator (Honest Broker view)	Information about the Researcher who created the case set/order.
Order Identifier	Identifier that uniquely identifies an order within the caTIES system.
Order Item	A single unit of information or material within an order
Order Item Status	The current state of the order item(e.g. retrieved, not found)
Order Management Interface	Users are able to save and retrieve orders. Users are able to add/remove cases/order items from the order across sessions. Orders can contain cases from different organizations and different queries. Users are able to monitor the status of submitted orders, cancel orders, and delete unsubmitted orders. Submitted orders cannot be deleted. They remain in the system as audit log entries.
Order Set	A request for information or materials made by a user to an organization
Order Status	The current state of the order (e.g. pending, completed) (See Table 4.2)
Order Information (Honest Broker view)	Information stored with an order include: order status, creator of the order, submission date and completion date
Order Tissue	The caTIES system has a two-step process for ordering tissue. The first step involves the researcher submitting the order to the honest broker, after which the honest broker updates the availability status of the items. The second step is to confirm the shipping of the order. The researcher is free to modify the order before step two and resubmit or entirely cancel the order.
Order view/perspective	Allows researchers to manage orders
Organization Role	Organization Roles include: Tissue Consumer and Data Consumer
Patient	A person who receives medical attention, care, or treatment
Print all order items (Honest Broker view)	Honest Broker selects all order items, specifies details of interest and prints all order items.
Print report/ query result	Allows caTIES user to print a Surgical Pathology Report
Quarantine a Report	Quarantine reports that may be "under scrubbed" (less than 2% of all reports)
Query	A statement of information needs, using terms and Boolean operators to retrieve results from a database
Query Builder	Used for complex queries
Query view/perspective	Allows researchers to model queries using the diagram and the dashboard view. The Query perspective will also allow researchers to view the results and add cases to orders.
RDBMS	Relational Database Management System
Report Information	Information stored with a report include: de-identified accession number, age at sample acquisition, race, gender, and organization that houses the tissue
Request a review	Flagging a report as an indication that there is a problem with the report processing which should be reviewed
Researcher	Represents internal and external cancer researchers

Term	Definition
RegEx	Regular Expression Extraction
Resetter	Clears document, deletes existing annotations
Semantic Type Categorization	Extracts organs, procedures, and diseases; infers topology of concept relationships
Semantic Type Filter	Removes concepts associated with unwanted semantic types
Set order status (Honest Broker view)	Option allows the Honest Broker to change the status of the order.
SPIN	Shared Pathology Information Network
SPIN pipeline	The pipeline accomplishes the automated sequential processing of Surgical Pathology Reports from free-text to coded data
Specimen	Biological specimen derived from a patient
Submitted Orders pane (Researcher view)	Displays a list of case sets/orders that have been submitted and therefore added to the Honest Brokers Queue.
SPRs	Surgical Pathology Reports
Surgical Pathology Report (SPR)	Description made by a pathologist of the gross and microscopic examination of a pathology specimen. Also, SPRs act as tissue locators by indicating the presence of tissue blocks, frozen tissue and other resources, and by identifying the relationship of the tissue block to significant landmarks such as tumor margins.
Text Search	A search for an exact match between your search term and the term in the Surgical Pathology Report
Text-based query	Users are able to enter strings and the system will search for documents that exactly match this string.
The "Grid"	A means for people to share computing power and other tools securely online across corporate, institutional, and geographic boundaries without sacrificing local autonomy.
Tokeniser	Tokenizes words, numbers, punctuation, and spaces
UI	User Interface
UML	Unified Modeling Language
UPCI	University of Pittsburg Cancer Institute
User Role	Role assigned to an active caTIES user account. Roles include: Administrative role, Honest Broker role and Researcher role
VCDE	Vocabularies & Common Data Elements Workspace - caBIG™
Vocabulary Concept Tagger	Annotates fragments of free text to associated concepts using controlled terminology

References

Technical Manuals/Articles

caTIES Phase II Administration Manual:

http://cabigcvs.nci.nih.gov/viewcvs/viewcvs.cgi/*checkout*/caties/Documents/CaTIES%20Phase%20I%20System%20Administration%20Manual.doc?rev=1.1&content-type=application/msword

caTIES Phase II Software Design Description v. 2.0.7:

http://cabigcvs.nci.nih.gov/viewcvs/viewcvs.cgi/*checkout*/caties/Design%20and%20Models/caTIES_2.0_design_jul312006.doc?rev=1.1&content-type=application/msword

caTIES Use Cases and Software Requirements Specification v. 2.0.3 – Phase II FINAL:

http://cabigcvs.nci.nih.gov/viewcvs/viewcvs.cgi/*checkout*/caties/Use%20Cases%20and%20Requirements/caBIG_caTIES_SRS_2.0.3%20FINAL.doc?rev=1.1&content-type=application/msword

caBIG™ Material

caBIG™ :

<http://cabig.nci.nih.gov/>

caBIG™ Compatibility Guidelines:

http://cabig.nci.nih.gov/guidelines_documentation

caTIES: How To Search

caTIES Searching Techniques

This appendix provides information that is useful for effectively searching when using the caTIES Query Interface.

Overview of caTIES Searching Techniques

caTIES supports the following searching functionality:

Text Searches

Concept Searches

Boolean Operator Searches

- AND
- OR
- NOT

Negated Searches

Concept Searching vs. Text Searching

caTIES supports two main types of searches: concept searches and text searches. Using the text search option will result in a set of surgical pathology reports that contain the exact term or phrase entered. Where as with a concept search, the result set will contain documents with the exact term or phrase and also documents with other concepts that are synonyms of the term or phrase entered.

Concept Searching vs. Text Searching

- **Text searching** limits your results because there must be an **EXACT** match between your search term and the term in the Surgical Pathology Report.
- **Concept searching** allows the opportunity for more results to be returned that match your search criteria. An **EXACT match up of terms is not necessary** Concepts that mean the same thing but can be phrased multiple ways, synonyms of your search term, or terms that are alternate spellings of your search term will be returned as well as terms that match your search term exactly.

When doing a concept search for the term "cancer", the result set will contain Surgical Pathology Reports with any of the terms or phrases listed in the following figure.

Concept Searching

By using Concept searching you are able to get more results without using **AND** for every possible way to phrase a certain term.

→

Not only will Surgical Pathology Reports with the term "Cancer" be returned but also Surgical Pathology Reports containing:

<ul style="list-style-type: none"> •Malignant Neoplasm •Malignancy •Malignant Tumor •Unclassified tumor, malignant •Miscellaneous neoplasm, NOS •Malignant neoplasm without specification of site •Malignant neoplasm of unspecified site •CA 	<ul style="list-style-type: none"> •Malignant neoplastic disease •Malignant neoplastic disease (disorder) •CA - Cancer •Malignant tumour •neoplasm/cancer •malignant tumoral disease •Cancer, unspecified site •Malignancy, unspecified site
---	--

Note 2 Concept Searching

Boolean Operator Searches

Boolean operators are supported when searching Surgical Pathology Reports in caTIES: These operators are AND, OR and NOT.

When using AND both terms must be present in the result set.

When using OR either one or both terms will be present in the result set.

When using NOT the result set will return cases that do not contain a specified term.

***Note:** NOT can only be used in a TEXT SEARCH

Boolean Operators

- **AND** Terms Must
 - **Both** Be Present
- **OR**
 - Either One **OR** Both Terms Will Be Present
- **NOT**
 - The Term Will **NOT** Be Present

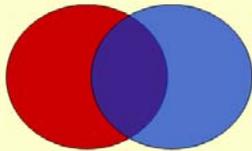
Note 3 Boolean Operators

AND

A graphical representation of the use of AND in a search is displayed in the figure below.

AND

Both Terms Must Be Present



The **Purple** Section Represents The Part That Is Red **AND** Blue And Therefore Is In The Result Set

Note 4 AND Operator

If the red circle represents a set of documents that contain term 1 and the blue circle represents documents that contain term 2, the overlapping purple section represents the resulting set that contains both terms 1 and 2.

You can use AND to get a smaller, more relevant set of search results. The following example shows the results of a search for the term "School". This search retrieves 595 million documents, many of which may be irrelevant to what you are specifically looking for. You may, for example, only be interested in finding different schools at the University of Pennsylvania. In that case, no relevant documents are shown in this list, although of the 595 million there are most likely some documents in which you have interest.

The screenshot shows a search interface with a yellow header containing the word "AND". Below the header, there is a text box with the following text: "Without using AND to limit your search you may end up with way too many results, and some may have nothing to do with what you are looking for." Below this text is a search input field containing the word "School" and a "SEARCH" button. Below the search field, the results are displayed as "Results 1-10 Of about 595,000,000 for School". The results list is as follows:

1. Games for the School Yard
2. Music - Buy The School of Fish CD
3. Back Care - Ergonomic School Bag Study
4. Philadelphia Public Schools
5. School of Dolphins Sculpture
6. GED versus High School Diploma
7. Financial Aid – Ways to Pay for School
8. Reunion.com – Get in Touch with Old School Mates
9. Back to School Sale
10. Strategies for Parents Who Home School Their Children

Note 5 AND Operator

Below we see the results of a search including the terms "School" AND "UPenn". We see that the resulting set is much smaller, 527 thousand, and very relevant to what we were looking for.

AND

By using **AND** to limit your search a more narrowly defined result set will be returned. The result set does not contain results that only have the term "School" or only have the term "UPenn", each result must contain both terms.

Results 1-10 Of about 527,000 for School AND UPenn

1. UPenn Law School
2. UPenn School of Arts and Sciences
3. UPenn School of Dental Medicine
4. UPenn School of Design
5. UPenn School of Engineering and Applied Science
6. UPenn School of Medicine
7. UPenn School of Nursing
8. UPenn School of Social Work
9. UPenn School of Veterinary Medicine
10. UPenn – Wharton School

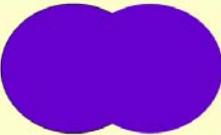
Note 6 AND Operator

OR

A graphical representation of the use of OR in a search is displayed in the figure below.

OR

Either One **OR** Both Terms Must Be Present



The **Purple** Section Represents The Entire OR Result Set

Note 7 OR Operator

The purple section represents all documents that would be included in the result set.

That is, documents that contain term 1, documents that contain term 2 and documents that contain both term 1 and term 2.

OR can be used when you may be overlooking relevant documents and want to broaden your search. For example, if we are interested in finding documents relevant to the American War of Independence. Pictured is an example of a search for the phrase "War of Independence" which returned only 7 results. We may want more results than this.

OR

Without using **OR** to broaden your search you may end up with too few results.

War of Independence

Results 1-7 Of 7 for War of Independence

1. The American War of Independence: The Rebels and the Redcoats
2. The Greek War of Independence
3. Israeli War of Independence
4. Algerian War of Independence
5. Turkish War of Independence
6. Texas War of Independence
7. The Irish War of Independence

Note 8 OR Operator

We can now use the fact that the American War of Independence is also referred to as the American Revolutionary War. Therefore, we expand our search to "War of Independence" OR "Revolutionary War". Now there is a much larger result set of 1,770 documents most of which are relevant to our topic of interest.

OR

By using **OR** to broaden your search a larger result set will be returned. Consider synonyms and alternate spellings.

War of Independence OR Revolutionary War

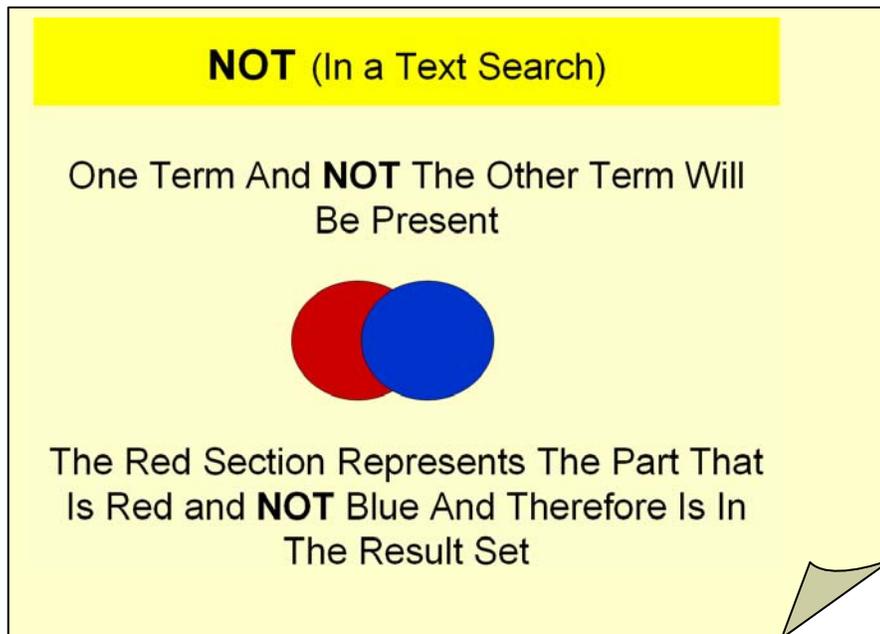
Results 1-10 Of about 1,770 for War of Independence OR Revolutionary War

1. The American War of Independence: The Rebels and the Redcoats
2. Bibliographies of the American Revolutionary War
3. LIBERTY! The American Revolution
4. Virtual Marching Tour of the American Revolutionary War
5. Revolutionary War: A Journey Towards Freedom
6. Revolutionary War Timeline
7. Revolutionary War Websites For Kids
8. American Revolutionary War Soldiers and Their Descendants
9. Intelligence in the American Revolutionary War
10. Women Soldiers in the American Revolutionary War

Note 9 OR Operator

NOT

In caTIES, the Boolean NOT operator can only be used in a Text Search. A graphical representation of the use of NOT in a Text Search is displayed in the figure below.



Note 10 NOT (In a Text Search)

The blue circle represents all documents that contain a term we want to exclude, therefore the red section represents our result set.

A textual NOT can be used to reduce the number of irrelevant documents in your result set. In the example below, you may be interested in properties that are not rental properties. So we do a search for documents that do not contain the word "rental"

NOT (In a Text Search)

Without using **NOT** to narrow your search you may end up with a large number of results that you do not want.

By using **NOT** you can narrow your search to retrieve only the results that fit your exact query topic.

This search would give you results that contain the word "Properties" and would leave out all the results that contain the word "Rental"

Note 11 NOT (In a Text Search)

Negated Searches

caTIES supports a powerful searching capability using a negation engine. This "negated" searching allows you to search for Surgical Pathology Reports that specifically state that a specimen was negative for a given diagnosis. When we perform a Negated Search, it is explicitly stated in the documents in the result set that a specimen is negative for the given diagnosis and all concepts related to the diagnosis term entered.

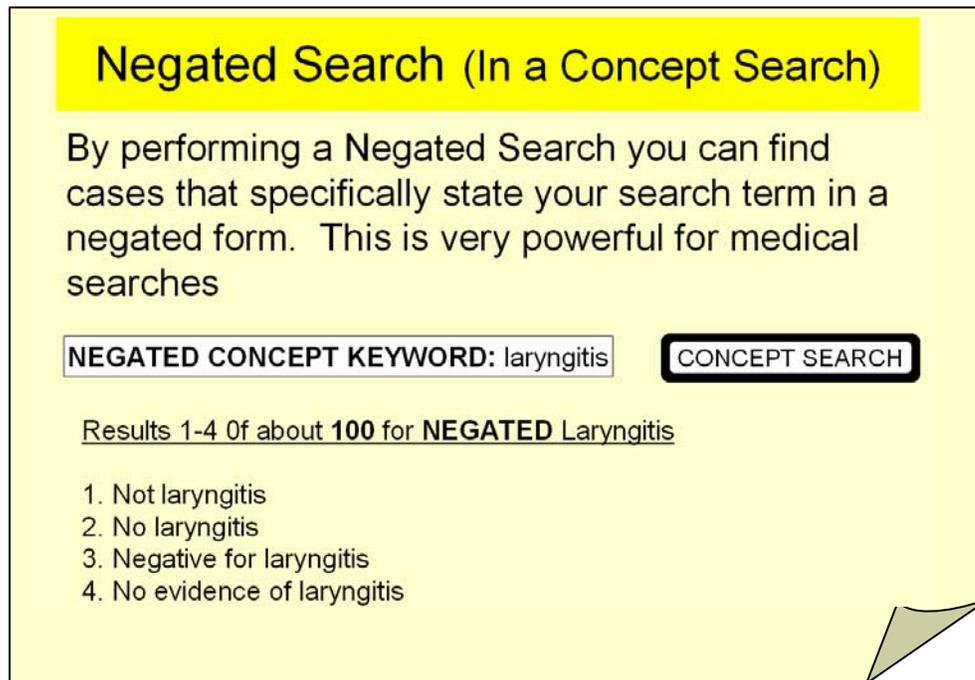
Note: A Negated Search can only be performed when executing a Concept Search.

Negated Search (In a Concept Search)

- Cases With The Term You Have Specified Will Be Part Of The Result Set If The Term Is Used In The Form Of A Negative Diagnosis
- You Use This Technique In a Concept Search To Find Cases That Specify That There Is "NO Term"

Note 12 Negated Search (In a Concept Search)

The following figure shows an example of phrases that would appear in a result set when we perform the Negated Concept search "NOT laryngitis". phrases such as "Not laryngitis" and "No laryngitis" are explicitly stated in the result set documents.



Negated Search (In a Concept Search)

By performing a Negated Search you can find cases that specifically state your search term in a negated form. This is very powerful for medical searches

NEGATED CONCEPT KEYWORD: laryngitis **CONCEPT SEARCH**

Results 1-4 Of about 100 for **NEGATED** Laryngitis

1. Not laryngitis
2. No laryngitis
3. Negative for laryngitis
4. No evidence of laryngitis

Note 13 Negated Search (In a Concept Search)

Combining caTIES Searching Techniques

You may want to use different combinations of all the searching techniques so that you can have the most useful result set. The figure below shows that you are able to use the same operator more than once in a single query.

Combining Search Techniques

- To have the most effective search possible you may want to combine search techniques.
- If you are using the same operator more than once you can simply add them together.

Eggs	AND	Pancakes	AND	French toast
Eggs	OR	Pancakes	OR	French toast
Eggs	NOT	Pancakes	NOT	French toast

Note 14 Combining Search Techniques

The next figure shows different ways you may want to formulate queries that incorporate AND, NOT and OR. You will need to understand how caTIES works in order to group the operators the way you want.

Combining AND, OR, & NOT

- If you are combining different operators it gets more tricky. You will need to know how the search tool groups the operators. Will it be:

(	Bacon	AND	Eggs	)	NOT	(	Pancakes	OR	French toast)
(((	Bacon	AND	Eggs	)	NOT	Pancakes	)	OR	French toast)
	Bacon	AND	(	Eggs	NOT	Pancakes	)	OR	French toast	

Note 15 Combining AND, OR & NOT

In caTIES, a box represents part of or a complete query. Each box can have OR

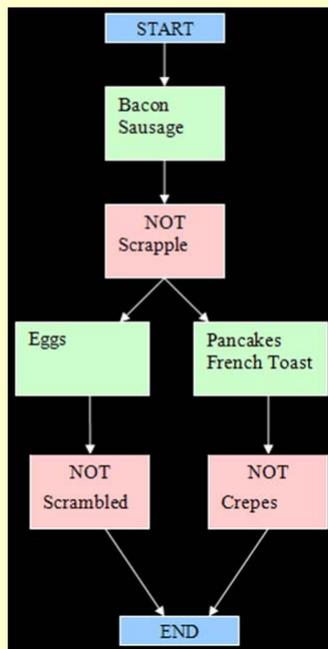
combinations and NOT combinations. Boxes can be combined with other boxes by using the term AND or using the term OR.

The following figure shows how search terms are grouped in caTIES.

How Search Combinations Are Represented

The boxes below represent grouping in caTIES.

The following figure would be grouped as:



((Bacon OR Sausage) NOT Scrapple) AND ((Eggs NOT Scrambled) OR ((Pancakes OR French Toast) NOT Crepes))

Note 16 How Search Combinations Are Represented

In general when you see an arrow you should think of it as AND, when you see a branched arrow (2 arrows coming from the same box) this represents an OR statement. The first box shows an OR combination within one box, this is read as "Bacon OR Sausage". We would read the first 2 boxes as (Bacon OR Sausage) AND NOT Scrapple. Looking further down the query we see a branched arrow representing an OR statement. In this case, we should first notice that Pancakes and French Toast are in the same box and are therefore grouped first. We read this section as (Eggs AND NOT Scrambled) OR ((Pancakes OR French Toast) AND NOT crepes).

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