



ESRI ARCMAP<sup>®</sup> EXTENSION FOR METACARTA GTS<sup>™</sup>

USER'S GUIDE

Last modified on June 8, 2007

Version 3.8

Copyright 2001 - 2007 MetaCarta, Incorporated. All rights reserved. Pat. 7,117,199. This product or document contains the confidential and proprietary information of MetaCarta, Incorporated ("MetaCarta"). This product or document is protected by copyright and distributed under license restricting its use, copying, distribution, disclosure and decompilation. No part of this product or document may be reproduced in any form by any means without prior written authorization of MetaCarta and its licensors, if any. Third-party software is copyrighted and licensed from MetaCarta suppliers.

Copyrighted and licensed third-party software used in this product includes: Debian Linux, which in turn includes the Open Source projects Tomcat Application Server and Perl and Python languages; software developed by Apache Software Foundation (<http://www.apache.org/>); DOM4J project from Metastuff Ltd.; and the Boost Regex Library from Dr. John Hammond (<http://www.boost.org>).

MetaCarta, the MetaCarta logo, CartaTrees, geOdrive, GeoTagger, GeoParser, and MetaCarta GTS are proprietary trademarks of MetaCarta that may be protected by one or more registrations. Other trademarks and service marks are the property of their respective owners.

All computer software provided by MetaCarta to the Government is Commercial Computer Software, as defined in Section 12.212 of the Federal Acquisition Regulation (48 CFR 12.212 (October 1995)) and Sections 227.7202-1 and 227.7202-3 of the Defense Federal Acquisition Regulation Supplement (48 CFR 227.7202-1, 227.7202-3 (June 1995)). Any Technical Data provided by MetaCarta shall be considered a "Commercial item" as defined in the FAR. The Government shall accept the standard commercial license for the commercial software and shall take no more than limited rights in any Technical Data describing any commercial item, component or process. In the event that, for any reason, the foregoing are deemed not applicable, the Government's right to use, duplicate or disclose any software shall be limited to "Restricted Rights" as defined in 48 CFR Section 52.227-19(c)(1) and (2) (June 1987), or DFARS 252.227-7014(a)(14) (June 1995), as applicable. Manufacturer is MetaCarta, Inc., 350 Massachusetts Avenue, 4th Floor, Cambridge, MA 02139

ALL PRODUCTS OR DOCUMENTATION ARE PROVIDED "AS IS" AND ALL EXPRESSED OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMER IS HELD TO BE LEGALLY INVALID.

## **About MetaCarta**

MetaCarta, a pioneering geographic information application solutions provider, offers comprehensive analysis tools to enable better business decisions. Founded by a team of MIT researchers in 1999, MetaCarta provides groundbreaking technology that bridges the gap between Geographic Information Systems (GIS) and text search. The company presents innovative solutions that improve decision-making by making it possible for customers to discover, visualize, and act on important information. The company is privately held, with offices in Cambridge MA, Vienna VA, and Houston TX. To learn more about MetaCarta, please visit [www.metacarta.com](http://www.metacarta.com).

MetaCarta, Inc.  
350 Massachusetts Avenue, 4th Floor  
Cambridge MA 02139

Phone: + 1 617 661 6382  
Fax: + 1 617 661 6384  
Email: [info@metacarta.com](mailto:info@metacarta.com)

## **Contents**

<b>Introduction</b>	<b>4</b>
<b>Installation</b>	<b>4</b>
Prerequisites . . . . .	4
Installation . . . . .	4
<b>Quick Start</b>	<b>5</b>
<b>Detailed Configuration Instructions</b>	<b>8</b>
Proxy Settings . . . . .	8
GTS Authentication . . . . .	8
<b>Detailed Usage Instructions</b>	<b>9</b>
Opening the MetaCarta GTS windows for ArcMap . . . . .	9
GTS Search Window . . . . .	9
The Results Window . . . . .	11
Running a spatially referenced document search . . . . .	11
Refreshing an existing search with new parameters . . . . .	13
Search Results . . . . .	14
Exporting / Saving the results of a document search . . . . .	14
Viewing a search result document . . . . .	14
Selecting search results . . . . .	15
Changing a search layer symbology and colors . . . . .	15
Setting options for result labels, map tips, and search extent . . . . .	16
<b>Troubleshooting</b>	<b>17</b>
Slow Search Performance . . . . .	17
Support . . . . .	17

## Introduction

The ESRI ArcMap Extension for MetaCarta GTS allows end users to search GTS appliances from within the ArcMap interface. This extension allows you to:

- Search and retrieve documents
- Display result sets on a map
- Store result sets as intelligent layers or shapefiles

Please follow these instructions for easy installation and operation of the ESRI ArcMap Extension for MetaCarta GTS.

## Installation

### Prerequisites

To use MetaCarta GTS within ESRI ArcMap, you must have ESRI ArcMap installed on your desktop and have network access to a MetaCarta GTS appliance. If you wish to download the extension from the GTS appliance, the appliance administrator must have configured the appliance for ArcMap download. (If you are the administrator of your GTS appliance, please see the *MetaCarta GTS Administrator's Guide* for instructions.)

To download the extension and perform an installation, follow the instructions below. The installation file may also be distributed by other means, including email, physical media, or placement on a shared file server. In all of these cases, the installation procedure is the same, starting from the second step below.

### Installation

With ESRI ArcMap software installed on your desktop, follow these instructions:

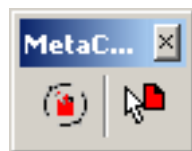
1. Open the index page of the MetaCarta GTS appliance in a web browser by going to <http://dns.name.of.appliance/index.html>. (If SSL is required at your site, you may need to use <https://> instead.) Click on the "ESRI ArcMap Extension for MetaCarta GTS" link, and then click on the download link on the next page. Save the downloaded executable, then run it.
2. Follow the on-screen install instructions. You will be asked for these pieces of information:
  - (a) The default MetaCarta GTS appliance to use. If you downloaded the installation from a GTS appliance, this value will be set automatically. If you are not sure which appliance to use, ask your system administrator.
  - (b) Proxy information required to access the GTS appliance. If Internet Explorer is configured to use a proxy, then that information will already be entered. If you use a different browser and require a proxy, get the required information from your system administrator. If you do not need a proxy, simply leave this field blank.

- (c) Location to install the software. This will default to the standard destination folder for Windows applications; in most installations, this will be `C:\Program Files\MetaCarta\ESRI ArcMap Extension for MetaCarta GTS`
- When setup is finished, you will have the option of viewing and printing this User Guide. This User Guide is also available from the application interface. Clicking on the yellow question mark button in the search window will open it in your default browser.

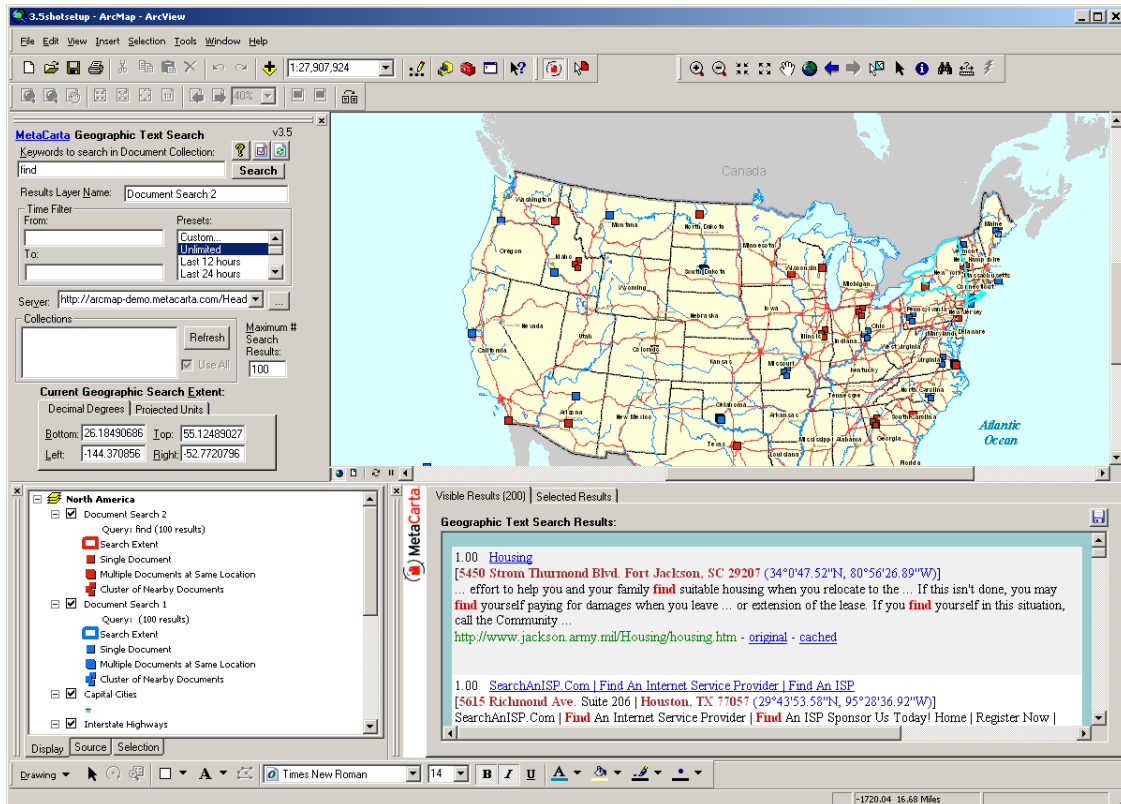
## Quick Start

These instructions will help you get started quickly. To realize the maximum power of this extension, including detailed search instructions and user interface customizations, read the entirety of this guide.

- Open ArcMap and load up the map of your choice.
- Open the MetaCarta Geographic Text Search application by right clicking anywhere on the gray of the toolbar area. (You can also select it from Toolbars under the View menu.)
- Select MetaCarta Geographic Text Search, and a toolbar with two buttons will open.



- Click on the globe/document icon to launch the application.
- This will open two windows: a search window, and a results window. The search window will dock to the right of the map window, and the results window will dock beneath it. You can move these windows around the ESRI ArcMap environment by clicking and dragging them to your desired positions. One suggested setup is as follows:



Here you see the search window in the upper left hand quadrant of the screen, and the results window in the lower right. The map area visible in the map window will act as a filter to limit the search results to that visible area. You can pan and zoom the map to include only your area of interest.

6. In the *Keywords to search in Document Collection* form field, you can enter the keywords of your choice and click *Search*. If you leave this field blank, clicking *Search* will bring up documents that are filtered only by the currently visible map. You can also filter based on time using the *Time Filter*, filter based on *Collection Name*, or limit the search's *Geographic Extent*. For more information on these features, please see page 11.
7. After you click *Search*, document results are pinpointed on the map and corresponding document summaries are presented in the window below.
8. Click the second MetaCarta button on the toolbar, the selector tool, and mouse over an icon in the map to see a pop-up summary.
9. Control-click a document icon to open that document in a new browser window.
10. Alternatively, you can click on a hyperlink in the results panel to open a document.
11. You can use the selector tool to select multiple document icons in the map by holding down the left mouse button while you drag a rectangle across the map. The selected results show up under a separate tab in the results window.
12. You can save your search by clicking the save button, which looks like a floppy disk, in the results window. This action will save visible results or selected results depending on which tab is selected.

13. You can also save your entire session by going to the ArcMap File menu and clicking Save.
14. You can save search results as a layer or shapefile by right-clicking the layer name in the ArcMap Table of Contents.

## Detailed Configuration Instructions

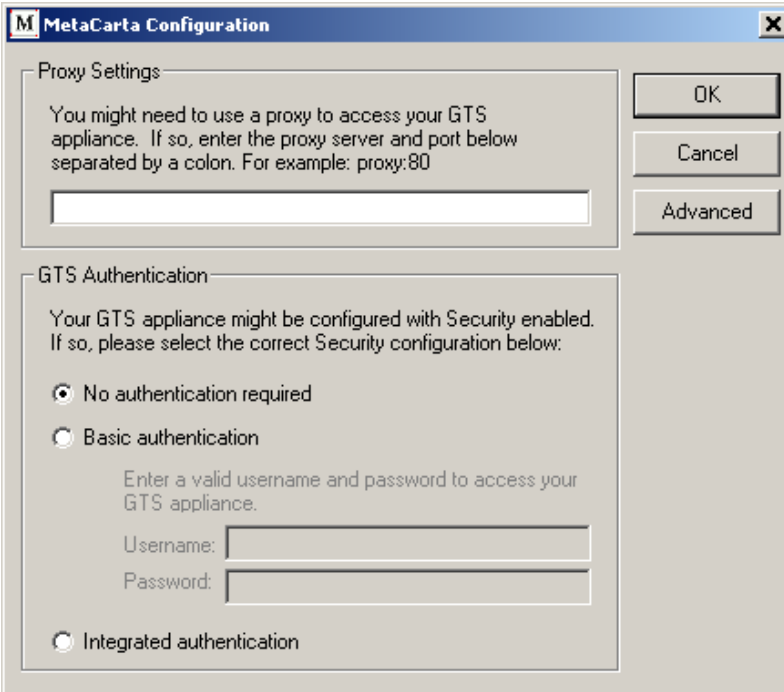
### Proxy Settings

Many organizations use a web proxy to gain access to other networks. If your MetaCarta GTS appliance is situated behind such a proxy, then enter the proxy name and the port here. If you do not need a proxy, then leave this blank.

If your proxy is the Microsoft ISA (Internet Security and Acceleration) Server, and it is configured to use Integrated Authentication, you must turn on Integrated Authentication as described in the next section. This proxy is incompatible with HTTP Basic Authentication for the GTS for ArcMap Extension.

### GTS Authentication

Press the configuration button in the Search Window (see page 9) to bring up the following configuration dialog:



The image shows a dialog box titled "MetaCarta Configuration". It has a blue title bar with a close button (X) on the right. The dialog is divided into two main sections. The first section is "Proxy Settings" and contains a text box for entering a proxy server and port, with a hint: "You might need to use a proxy to access your GTS appliance. If so, enter the proxy server and port below separated by a colon. For example: proxy:80". The second section is "GTS Authentication" and contains three radio button options: "No authentication required" (which is selected), "Basic authentication", and "Integrated authentication". Below the "Basic authentication" option, there is a text prompt "Enter a valid username and password to access your GTS appliance." followed by two text input fields labeled "Username:" and "Password:". On the right side of the dialog, there are three buttons: "OK", "Cancel", and "Advanced".

The MetaCarta GTS appliance can be configured to require authentication of its users. If HTTP Basic Authentication is enabled, you must select Basic Authentication from the list of options, and then enter a valid username and password, to be able to access any GTS search results. If you are using Integrated Authentication (Windows Active Directory), you must select the Integrated Authentication option to be able to access non-public GTS search results. If you are not sure what type of authentication to use, please ask your system administrator.

**Note:** The advanced button provides additional configuration options that should not be necessary for normal use; please only use these options if instructed to by MetaCarta support.

## Detailed Usage Instructions

### Opening the MetaCarta GTS windows for ArcMap

Right-click on an ArcMap toolbar to open a menu of available toolbars. Choose *MetaCarta Geographic Text Search* to enable that toolbar. It should now have a check placed next to it.

This will add the following 2-button toolbar to your window:






This toolbar can be docked alongside the other ArcMap toolbars in the toolbar area. The left button launches the application and opens the search window and the results window, returning them to the last positions you placed them. (If this is your first time launching the GTS for ESRI ArcMap plugin, the search window will appear to the right of the map, and the results window will appear below the map.) These windows can be resized and moved around the screen to your desired location. Holding down the Control key will allow you to keep the windows floating after you move them. Otherwise, they can be docked at any position inside of ArcMap.

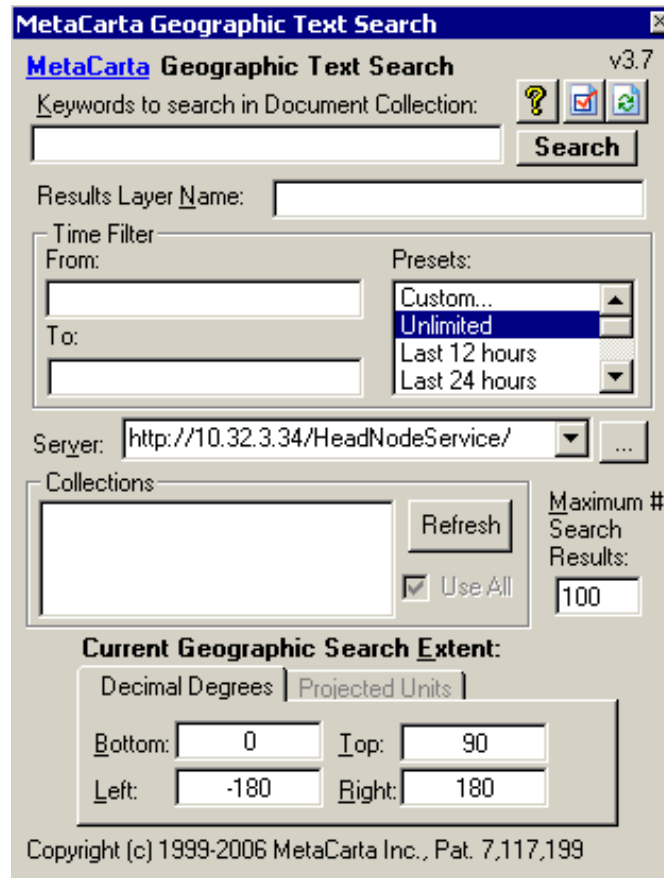
The right button allows you to select search results after you have completed a search.

### GTS Search Window

You initiate searches in the GTS Search Window, which contains the search controls used to limit the scope of your search. The search window also contains:

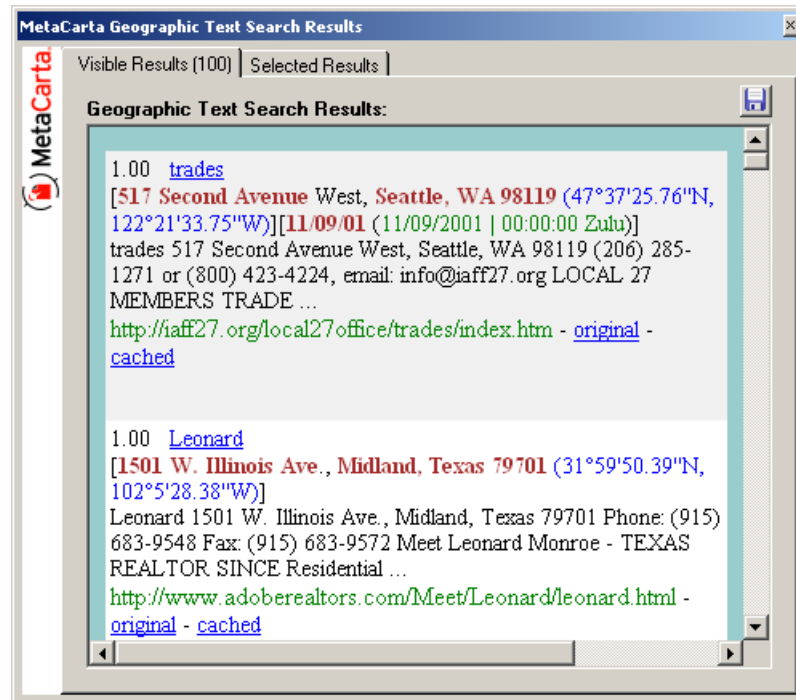
- The help button, which opens this guide in your default PDF reader: 
- The configuration button, which opens the configuration window: 
- The reload button, which runs the current search again: 
- The software version in the upper right-hand corner

The GTS Search Window:



## The Results Window

The Results Window shows you summary text from the documents that matched the current search criteria. The format is similar to that of the MetaCarta GTS Web Search Interface.



## Running a spatially referenced document search

1. Choose a Search Extent: To run a document search, you must first open a map and choose an area to search. You can zoom the map so that the desired area to search is visible, or you can edit the Current Geographic Search Extent text boxes on the Search dialog directly. The search extent will be displayed as a colored border encompassing the chosen extent in your map.

**Current Geographic Search Extent:**

Decimal Degrees | Projected Units

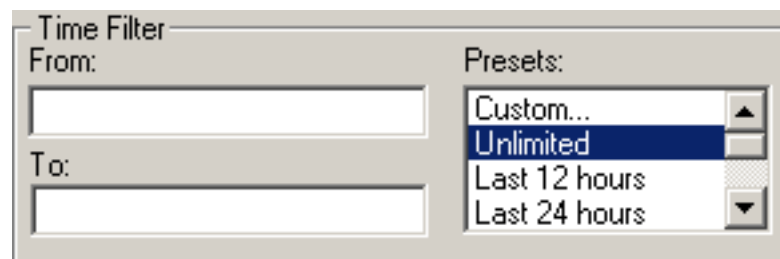
Bottom: 36.87144965 Top: 39.10817597

Left: 124.1909895 Right: 130.9730393

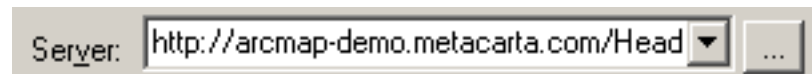
If the current map spatial reference is a projected coordinate system, the Projected Units tab on the search window will display the current search extent in the units of the coordinate system. Otherwise, the Decimal Degrees tab will display the current search extent in decimal degrees. Although the search performed will be limited to the entered extent, the values will be reset to the

visible map extent for the next search. Changing these values does not affect the visible map.

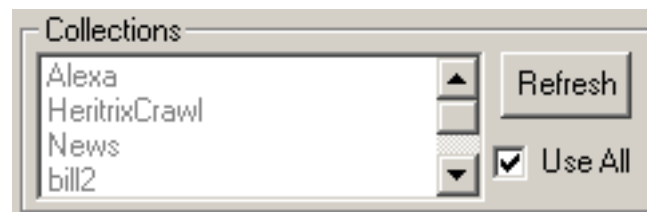
2. Choose a Time Range: If you want to restrict your search to documents that only mention times between certain dates, you can enter those dates and times in the Time Filter interface. Not every document on a GTS appliance has a date and time attached, only those with date or time references in the text. Furthermore, only the first temporal reference in any document is tagged. Therefore, while the Time Filter can be a valuable tool for document searches, be aware that some relevant documents may not display when you are using the Time Filter.



3. Choose a GTS server: In the search window there is a *Server* drop down menu that allows you to choose the desired GTS appliance to search for documents. If this field is blank, you can click on the *Ellipsis Button* and enter the GTS appliance address, obtainable from your system administrator.



4. Choose a named collection: Click "Refresh" to get a list of all named collections on your appliance. (In some cases, there will be no named collections; select "Use All.") You may select one or more of these collections to search; if you select no collections and try to search, a pop-up window will ask if you want to search all collections.



5. Geographic Text Search: Enter single or multiple keywords in the *Keywords to search in Document Collection* form field, then click the *Search* button, or press the Enter key. Leaving this form field blank and clicking *Search* will perform a geographic search for documents that are relevant to this particular map view without filtering on any keywords. This query answers the question "What information do we have about this area?"

The table below shows the formats for entering keywords and for entering some advanced search operators. Keyword searches are not case-sensitive.

Operator	Meaning	Example
<i>keyword</i>	results must contain <i>keyword</i>	Frost
phrase in quotes	results must contain those words in that order	"Robert Frost"
- <i>keyword</i>	exclude results that contain <i>keyword</i>	-Frost
<i>keyword</i>	increase relevance of results that contain <i>keyword</i>	Frost
site: <i>domain keyword</i>	search only the specified Web domain	site:example.com Frost
"url: <i>url keyword</i> "	search only the specified URL	"url:http://example.com/index.html Frost"

6. You can also specify a *Results Layer Name* for the search results layer before you do your search. This name will be visible in the Table of Contents area of ArcMap and can be used when saving individual search layers (see page 14). If the Table of Contents is not visible, then select it from the *Window* menu.

Results Layer Name:

7. Results: Search results are displayed as a new layer on the map. Results are visible as 3 different types of colored icons. The symbol color will vary with each search layer, but the symbol styles correspond to the result type at each location. Depending on the scale of on the map, as well as the locations of the search results, the results will be classified as:

- Single Document
- Multiple Documents at Same Location
- Cluster of Nearby Documents

Results are also displayed as a list in the results window under *Visible Results*. As you zoom and pan the map location, the *Visible Results* window will show only the search results that are currently visible on the map.

8. You can set the maximum number of search results in the *Maximum # Search Results* edit box. If you request a large number of results, there is a possibility that the query to the appliance will time out. If this happens, try the query again with a lower value for the *Maximum # Search Results*.

Maximum #  
Search  
Results:

### Refreshing an existing search with new parameters

To rerun an existing document search with a new spatial extent, zoom or pan the map, and click the Refresh command on the Search window. If the mouse cursor is in the *Keywords* or *Results Layer Name* text boxes, the F5 key will automatically refresh the active search. You can also change other search parameters, such as the Time Filter or your search keywords, before clicking Refresh.

If you need to change the active search layer, simply right-click the name of the source layer on the ArcMap Table of Contents, and select "Make Active Search Layer."

## Search Results

### Exporting / Saving the results of a document search

The search results of either the visible or selected search results (depending on the active tab on the results window) can be exported to an HTML document by clicking the Save button in the results window. If the selected results are displayed in the results window, only those results will be saved to the HTML page; otherwise, the visible results will be saved.

You can also export an individual search layer as a shapefile; simply right-click the name of the search layer and select "Export to Shapefile." Results in a shapefile are not clustered; each result is saved as an individual point. The columns in the shapefile data are as follows:

- **FID:** Unique identifier.
- **Shape:** The geographic point data used by ArcMap to plot the result on the map.
- **Title:** The title of the document represented by this point.
- **Confidence:** GTS's confidence that the point represented on the map is actually the point intended by the authors of the document.
- **Geography:** The text in the document that GTS has decided is a geographic reference.
- **Summary:** Text extracted from the document to provide context to the user.
- **Latitude:** Latitude of the point in DMS format.
- **Longitude:** Longitude of the point in DMS format.
- **URL:** The URL at which the document can be accessed.
- **FromTime:** Lower bound of Time Search used in creating the current layer.
- **ToTime:** Upper bound of Time Search used in creating the current layer.
- **XtractTime:** The text in the document that GTS has decided is a temporal reference.

### Viewing a search result document

A search result document can be opened by clicking a hyperlinked title from either the *Visible Results* or *Selected Results* tab of the results window. You can also open a search result document by holding down the Control key and clicking directly on the icon in the map.

**Note:** If the icon is a multiple document or cluster icon, only the top document will be opened.

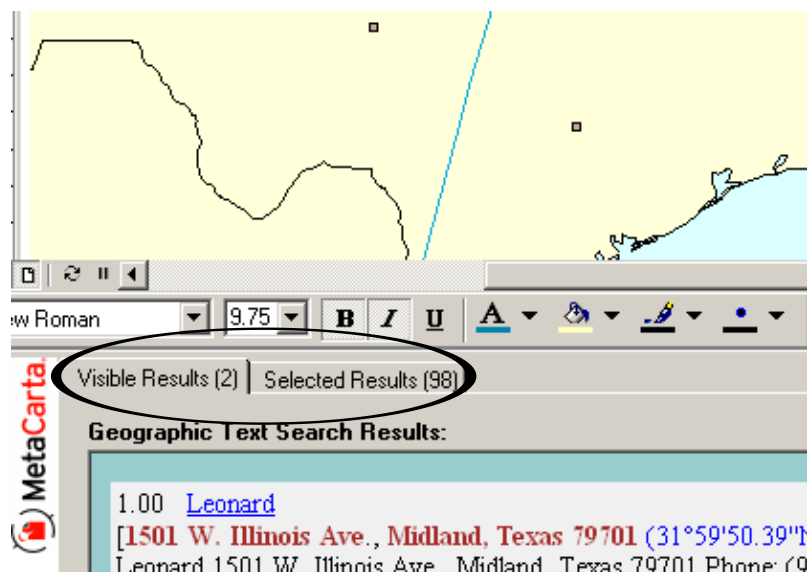
Sometimes the original versions of the documents on a GTS appliance are not available by clicking on the "original" link in the results window. To view the full text of these documents, click on the "cached" link in the results window. The documents will be fetched directly from the GTS appliance for viewing. Cached documents have been processed by GTS and may not be formatted the same as the original documents.

**Note:** The “cached” link will only be available if your GTS administrator has turned on this feature. In some sites, this link will not be available.

### Selecting search results

Click on the results selection tool on the MetaCarta toolbar (the icon on the right). This tool will allow you to select a single icon by clicking on a search result location on the map, or draw a box around several search results by left clicking in the map and drawing a square around your desired results. The results that have been selected will be highlighted on the selected results tab of the results window. Note that both the multiple and cluster document icons contain several documents each.

Although the current extent of the map will limit the search results listed in the Visible Results tab, those results which you add to the Selected Results tab will remain until you select a new set of results, even if you change the map extent. For example, in the image below, more results have been selected than are currently visible on screen.



### Changing a search layer symbology and colors

The symbology of a search layer can be changed by clicking on one of its legend items in the map's Table of Contents. A left mouse click will open the symbol chooser for extended symbol selection. The default symbols are:

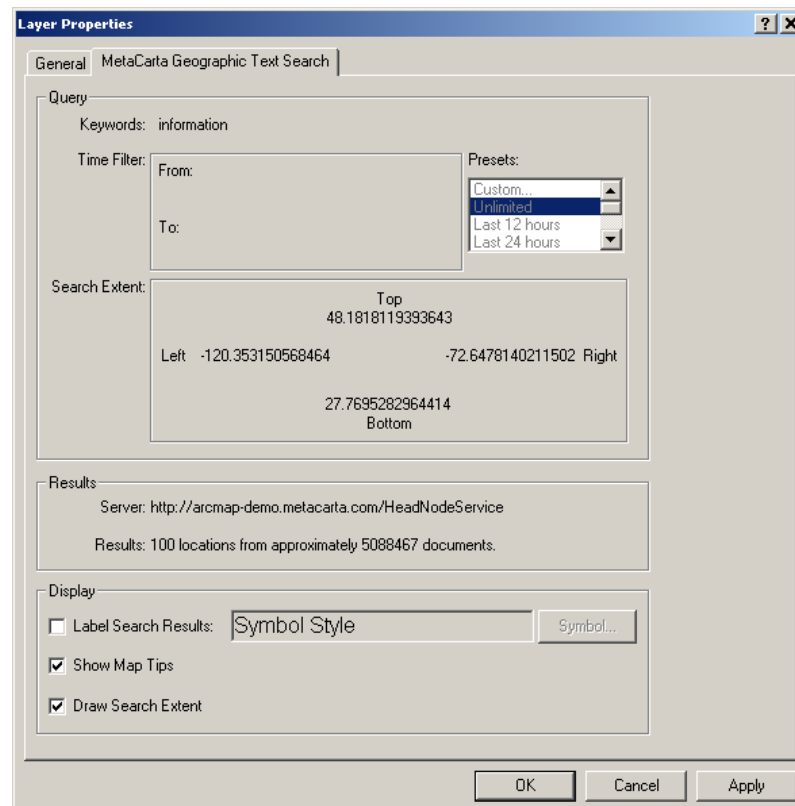
- Single Document
- Multiple Documents at Same Location
- Cluster of Nearby Documents

The initial choice of colors is arbitrary; if you wish, you can change the colors of your results icons. To do so, either change the color in the extended symbol selection dialog, or right-click an icon in the Table of Contents window to bring up a color palette.

**Note:** To access the Table of Contents, select “Table of Contents” from the Window menu.

## Setting options for result labels, map tips, and search extent

Open the search layers property sheet by double clicking the layer name in the Table of Contents (or right-click the layer name to display a contextual menu for the layer) and choose Properties.



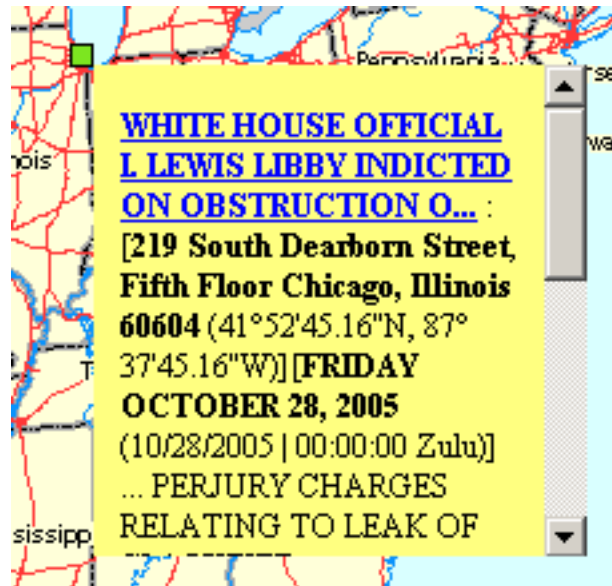
On the search layers *MetaCarta Geographic Text Search* property tab, you can specify the search criteria as you would in the search window.

This dialog also displays the number of locations returned and the total number of documents that match your search criteria (both map and keywords). To save all of these document results as a shapefile layer, right-click the layer name in the Table of Contents, and select “Export to Shapefile.”

To draw the layers search extent on the map, place a check in the *Draw Search Extent* check box. This is the default.

To activate Map Tips for the search results when the Results Selection Tool hovers over the result symbols, place a check next to *Show Map Tips*. This is the default.

When hovering over a search result with the Results Selection tool, a map tip will be displayed highlighting the search result extract which is underneath, as follows:



**Note:** This feature will only work in data mode, which can be accessed by clicking on the globe in the bottom-left-hand corner of the main ArcMap pane.

To label the search results on the map, place a check in the *Label Search Results* check box. To change the default text symbol, choose the Symbol command to open a text symbol editor dialog where the text font, color, size, and other properties can be edited.

## Troubleshooting

### Slow Search Performance

If you have many searches open, performing individual searches may take a long time. To improve performance, uncheck all search layers (in the Table of Contents) but the search you are currently processing.

### Support

If you have further questions about the ESRI Arcmap Extension for Metacarta GTS, or require support, please contact MetaCarta support at +1 617 661 6382 or [support@metacarta.com](mailto:support@metacarta.com).