



Using the MySpace Friend Mapper to Build Connections for an Investigation

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Social networking sites are attracting increasing numbers of criminals who are looking for ways to perpetuate illegal activity. Predators, gangs, fraudsters, terrorists and others are leaving a trail that can be tracked if an investigator knows how to follow the information through the complex maze of connections that make up a social networking site.

A mapping tool is available on the Internet for MySpace.com, the popular social networking Web site. The tool, called the MySpace Friend Mapper, was invented by United Kingdom-based Web site developer Thomas Whiteley “for fun,” but it could be a key advantage for law enforcement in their efforts to investigate criminal activity. This tool uses an individual’s MySpace profile to create a visual diagram of the connections between that person and his or her top MySpace “friends” – in other words, a clickable map of these relationships.

Value of the Mapping Tool

SEARCH looked at the mapping tool and recognized the value this diagram could have to investigators. The diagram:

- Automatically builds the connections between MySpace friends without investigators having to manually click between profiles.
- Allows investigators to visually see connections between people without having to build a graph of these connections themselves.
- Builds connections to a person that might not have been available by just viewing that person’s top friends.
- Provides a useful diagram that can be added to a case file and used in court.
- Potentially builds connections to a private profile, that might not have been available otherwise.

- Allows the page source of the MySpace profile to be viewed and saved.
- Allows the map network to be searched by keyword.
- Allows multiple saving output formats of the map network.

The mapping tool could be used to link suspected predators to their targets or drug dealers to their contacts, and it could be especially useful in linking the MySpace profiles of gang members. In these cases, it creates a visual network of connections based on a single point profile within the gang.

Social networking Web sites work by creating connections between people. The largest of these social networking Web sites in the United States is MySpace.com, which contains more than 250 million user profiles. MySpace handles these connections through the process of a “friend request.” Person A sends a friend request to Person B. Person B logs into his (or her) MySpace account, sees he has a new friend request and then can choose to either approve or deny the friend request of Person A. If he denies the friend request, no connection is made; if he approves the request, the profiles of the two individuals become connected as part of a “friend network.” (Figure 1 shows a diagram of a friend network.)

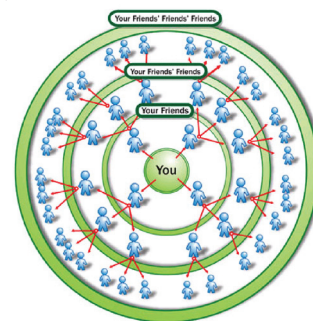
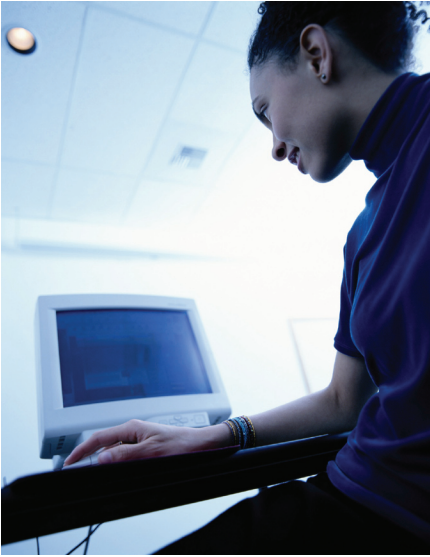


Figure 1: Diagram of a friend network from <http://computer.howstuffworks.com/myspace.htm>



How the Tool Works

The MySpace Friend Mapper developed by Thomas Whiteley, available from the Web site www.lococitato.com (*loco citato* is Latin for “in the place previously cited”), makes a visual diagram of a person’s friend network. This tool takes the person’s top friends on MySpace and plots their connections and the connections of these people and *their* top friends (and on and on) for up to 75 people. “Top friends” are defined as the people the MySpace user selects to be displayed in the Friend Space of his MySpace profile. A person can have, in increments of four, anywhere from one to 40 top friends. It is usual for a person to have many more friends than can be displayed in the top friend area.

It is important to remember that not all connections will be visible on the map. First, only the person’s top friends will be plotted. Second, the map can only make connections that are available to the public. If a MySpace user has his profile set to “private,” the tool cannot make connections *from* that profile.

A profile on MySpace.com can be set to either public or private. If the profile is set to private, only the people that the user has accepted as his friends can view the information on his profile. A public profile can be viewed by any other user. Since the information on a private profile cannot be searched using the MySpace Friend Mapper, the top friends of the person with the private profile are not added to the MySpace connections map. However, the tool can make connections to that private profile if another person on the MySpace map who has a publicly available profile has the person with the private profile listed as one of his top friends.

For example, let’s look at a very small friend network. Person A has Persons B, C, D and E as his top friends. Person B has Persons A, C, F and G as his top friends. Person C has Persons A, D, H and I as his top friends. If neither Persons A, B or C have their profiles set to private, a friend map started with Person B would look like this:

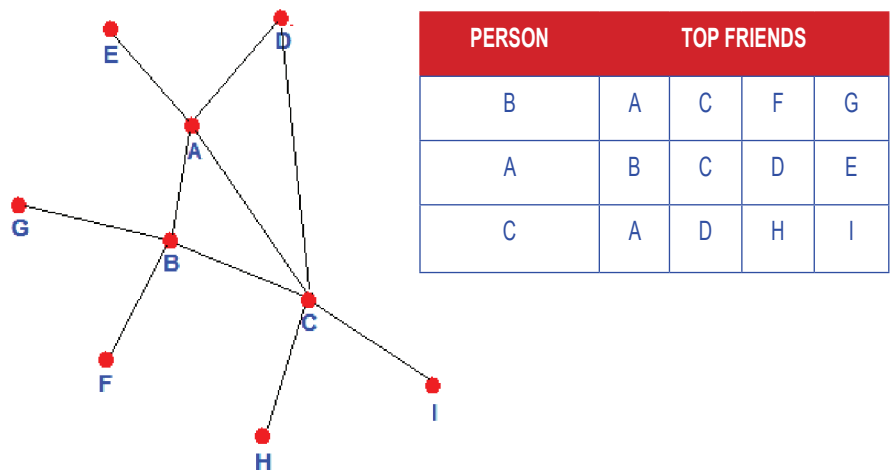


Figure 2: Friend map centered around Person B, with Persons A, B, and C having public profiles

Now, if all the top friends stayed exactly the same, but person A made his profile private, then the same friend map would look like this:

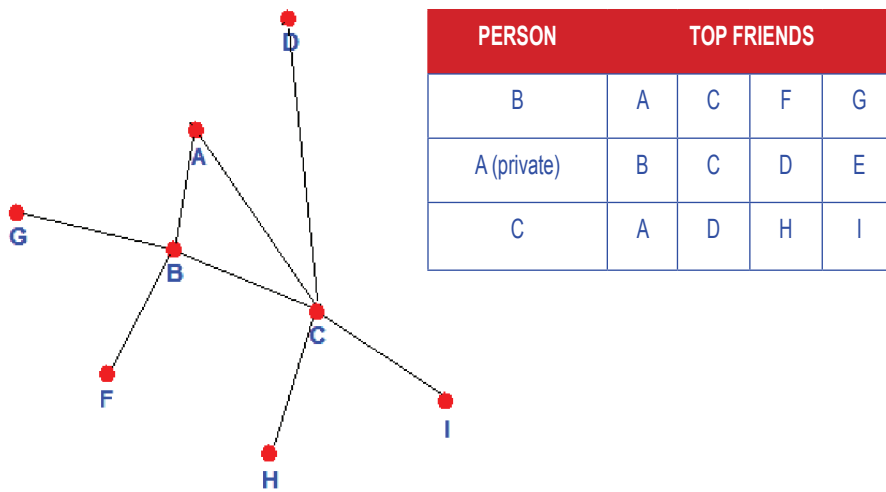


Figure 3: Friend map centered around Person B, with Persons B and C having public profiles, and Person A having a private profile

You can see that Person E disappeared from the friend map in Figure 3 because there was no publicly available connection from persons B or C. The connection between Persons A and D disappeared because the mapping tool could not access that connection because of Person A's private profile. The connections between Persons A and B, and Persons A and C still remained because these connections were publicly available from the public files of Persons B and C, respectively.


Based on these concepts, it is important to remember that you cannot start the MySpace Friend Mapper with a private profile because it will have nothing to build from. Even if you are friends with another MySpace user and are able to view his private profile, if you enter that private profile into the MySpace mapping tool, nothing will build. Also, if the MySpace profile is not working (currently displaying an error on the site), the mapping tool will not work.





How to Use the Tool (Online Version)

The MySpace Friend Mapper is available at <http://www.lococitato.com/myspacefriends/myspacefriends.html>. There are 2 different versions of the tool – an online free version, and a standalone pay-for version. While the process to create a map using the online free version will be outlined, it is recommended that the standalone pay-for version is used instead. The standalone pay-version is much more robust and useful, and only costs a nominal fee. For the online free version to work, you must be able to run Java. If you do not have Java, you must install it.


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Hi. This website exists to share various pieces of software over the web as free services. Everything here relates in some way to the internet, hence the name, *loco citato* is Latin for "In the place previously cited". I hope you find something amusing and perhaps useful.

MySpace Visualizer



This tools generates animated clickable maps of the relationships between [MySpace](#) users.

We have **vastly** improved the mapper engine and now you can download it as a [free desktop application](#) to map and search more pages. [You can also purchase a license to unlock even more features.](#)

Requires [Java](#) to run.

Figure 4: The Free Online MySpace Friend Mapper from www.lococitato.com

To start the Java applet, click **MySpace Visualizer**, select the MySpace URL you want to use as your starting point and copy that into the **Starting MySpace page** text box. Click **Go**.

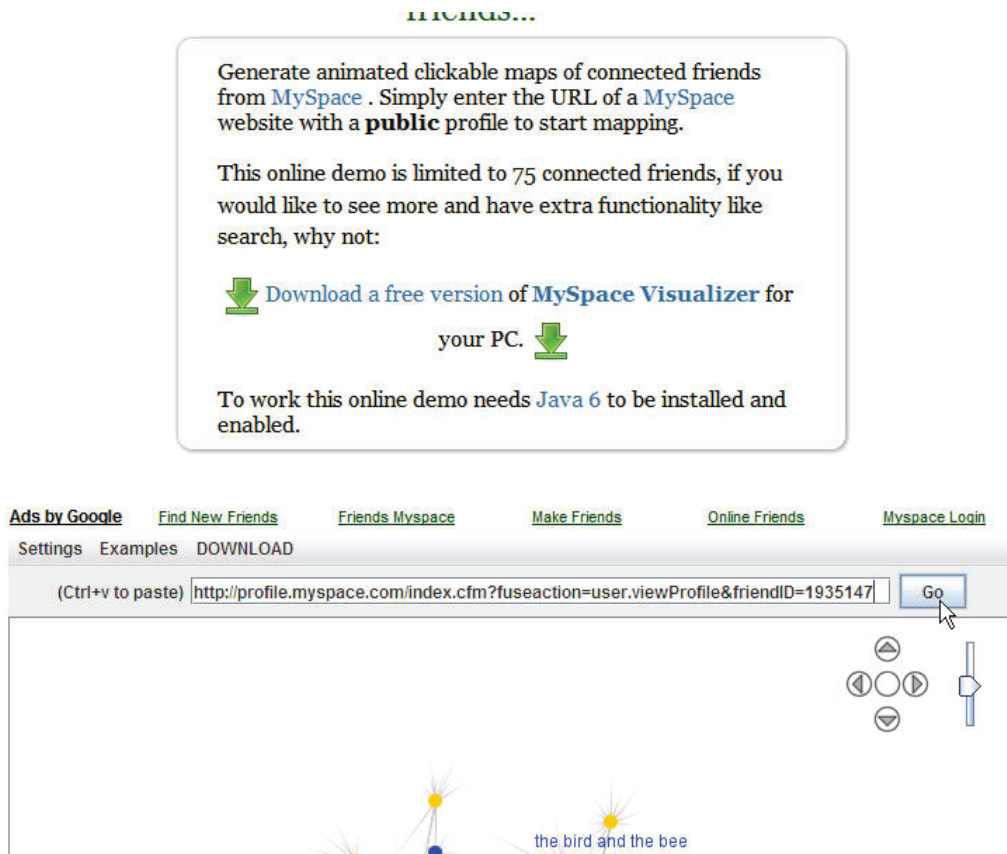


Figure 5: The Free Online MySpace Friend Mapper from www.lococitato.com

The Java applet will start to run and colored dots with grey connections will start to appear and move around the page. The applet is running and continuing to build connections as long as the dots are moving. Once the movement stops, the map is ready to explore. The dots are color coded according to the specified gender of the person in the MySpace profile. Red indicates the target of the map, pink indicates a female person, blue indicates a male person and yellow indicates that no gender was specified. (Note that the color coding for the free online MySpace friend mapper is different than the color coding for the standalone version.) A completed map will look like Figure 6:

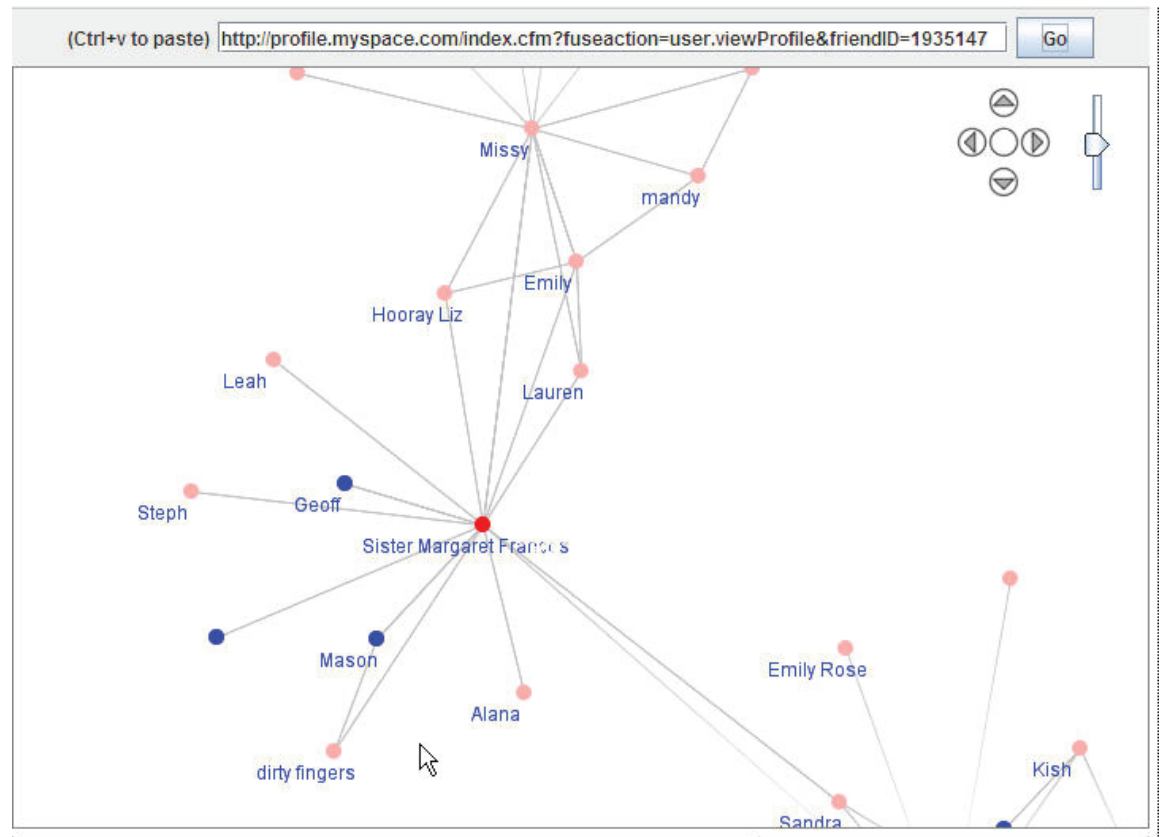


Figure 6: A Completed Free Online MySpace Friend Map from www.lococitato.com

This map was centered around Sister Margaret Francis. Sister Margaret Francis has a total of 152 friends, but only 12 top friends. Therefore, only the 12 top friends will be mapped. Since the site maps connections of up to 75 people, it will then go to Sister Margaret Francis's top 12 friends and build from there. This will continue until 75 profiles have been detected.

Of these 12 top friends, seven of them have private profiles. Therefore, the connections based on these seven people are only available if *another* one of Sister Margaret Francis's friends has a publicly available connection to one of these people.

Also, notice that Sister Margaret Francis has more than 12 connections to her dot. This is because there are other people who have her as one of their top friends, even though she doesn't have them in her top friends area. Thus, the connection is made not *from* Sister Margaret Francis *to* them, but rather *from* them *to* Sister Margaret Francis. See Figure 7.

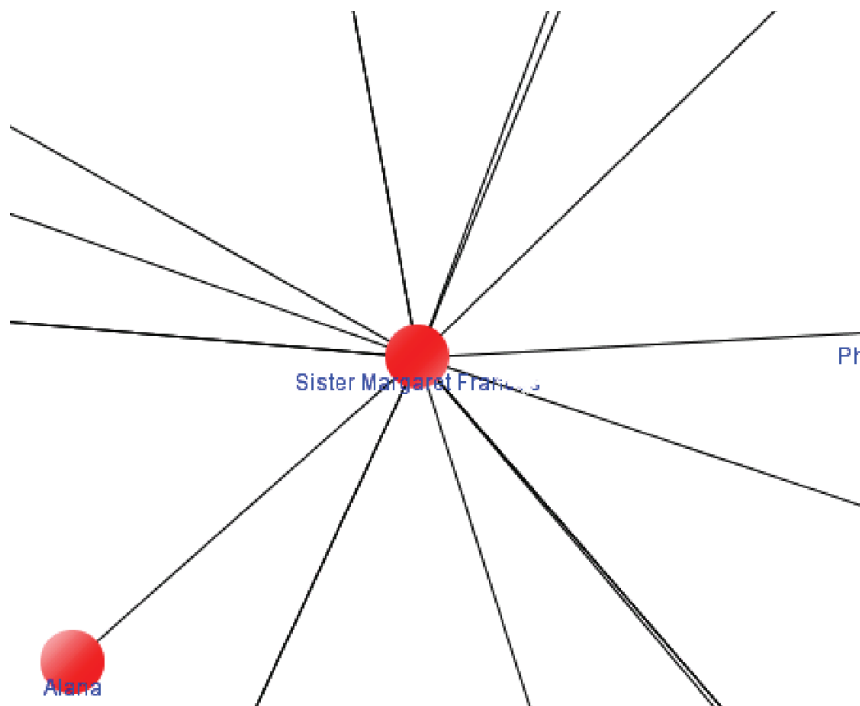


Figure 7: Fourteen connections to Sister Margaret Francis

The MySpace Friend Mapper will display the profile picture and basic information (age, gender, and last login) of the person when you hover your mouse over the dot in the completed MySpace connection map, as seen in Figure 8. This information will be shown for all profiles, whether private or public. This display works with FireFox, Internet Explorer and Opera. This information will appear as a pop-up window inside the map. New features on this tool are constantly in development. The features are first configured to work for FireFox, so to most effectively use this tool, FireFox is recommended.

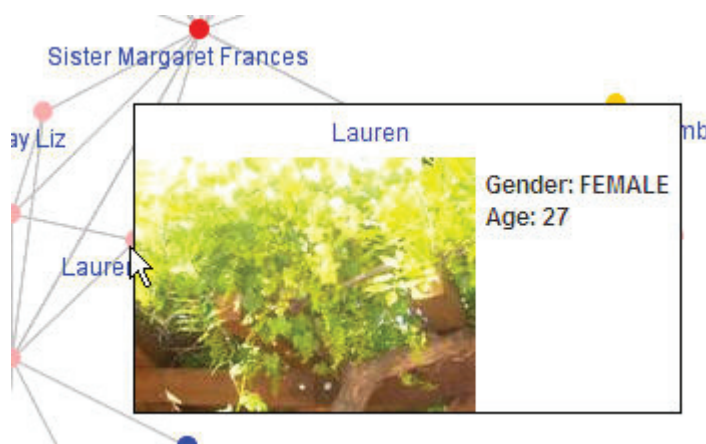


Figure 8: Display shown when your mouse is hovered over a red dot using FireFox

You can left-click on the dot to display that person's MySpace profile page. You can hold the left mouse button down to move the map. You can hold the right mouse button down and move your mouse up or down to shrink or expand sections of the map.

How to Use the Tool (Standalone Version)

As stated above, the standalone pay-for version of the tool is much more robust and useful. For a small fee, you can access many more features. The fee will give you a license key to access the current version of the MySpace Visualizer, as well as all minor upgrades (for example 1.11 to 1.12). Major upgrades (for example 1.14 to 2.1) will require the purchase of another license key. Each license key will only work with 1 computer. When the license key is entered, the MAC address of the computer will be recorded; therefore, only enter the license key on the computer where you want the MySpace Visualizer to be run from. System requirements for the standalone version can be seen in Figure 9.

Minimum Requirements

- 1.4 GHz processor
- 500Mb RAM
- Java 6 (Windows installer will automatically download as required)
- Windows 2000/XP/Vista (Linux versions coming soon)

Figure 9: System requirements for the standalone MySpace Visualizer

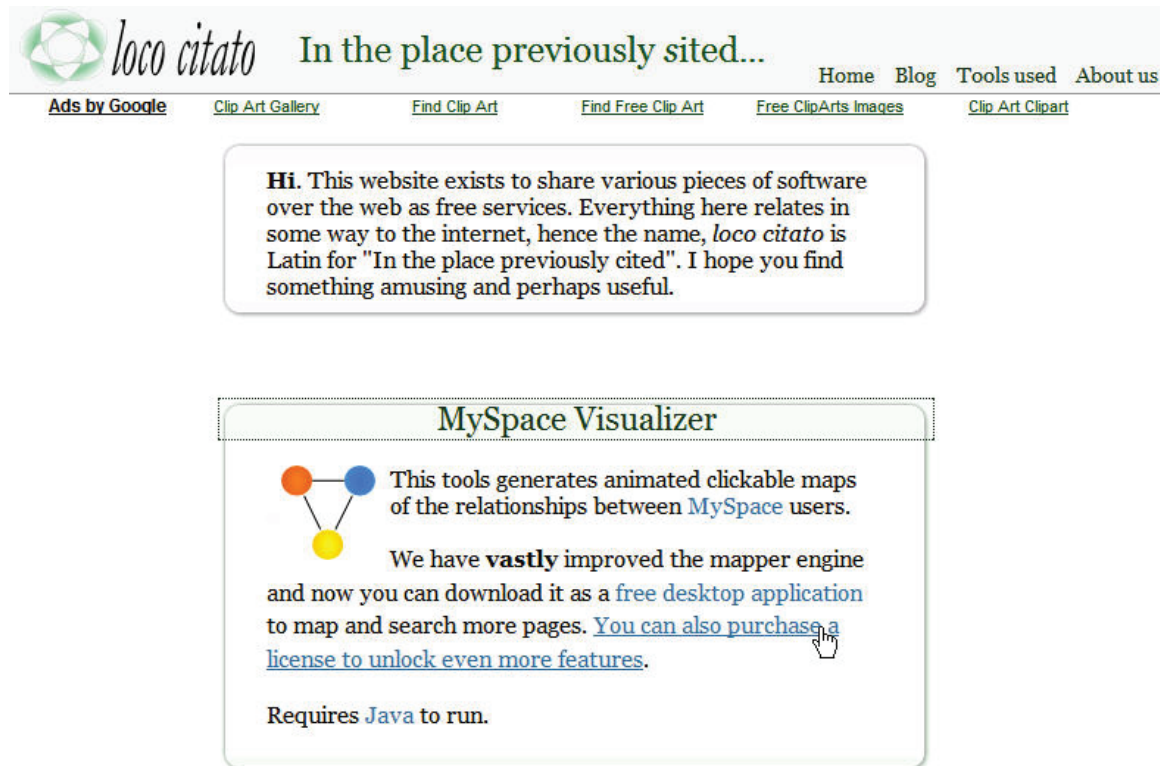
A trial version of the standalone MySpace Visualizer can also be downloaded. The differences between the free standalone trial version and the full purchased standalone version can be seen in Figure 10.

Features

Free Version	Licensed Version
<ul style="list-style-type: none"> Explore up to 200 pages at once Search through all downloaded pages Export the network as a jpg Export the network as a csv file for import into Excel or other applications View the downloaded page source 	<p>Buy a license for just £12.50 (approx. \$18.67) per PC and unlock these features.</p> <ul style="list-style-type: none"> Explore up to 1000 pages at once Load and save all the information downloaded, including a permanent record of the page source Print the network straight to printer or pdf

Figure 10: The differences between the free standalone trial version and the full purchased standalone version

To download the standalone MySpace Visualizer click **You can also purchase a license to unlock even more features** from the main lococitato Web site, as seen in Figure 11.



The screenshot shows the homepage of the 'loco citato' website. The header includes the site logo and navigation links: Home, Blog, Tools used, and About us. Below the header is a horizontal menu with links: Ads by Google, Clip Art Gallery, Find Clip Art, Find Free Clip Art, Free ClipArts Images, and Clip Art Clipart. A central text box contains a message from the site creator. Below this is a section titled 'MySpace Visualizer' which includes a diagram of three connected nodes (red, blue, and yellow) and text describing the tool's functionality and where to find the download link.


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Hi. This website exists to share various pieces of software over the web as free services. Everything here relates in some way to the internet, hence the name, *loco citato* is Latin for "In the place previously cited". I hope you find something amusing and perhaps useful.

MySpace Visualizer

 This tools generates animated clickable maps of the relationships between **MySpace** users.

We have **vastly** improved the mapper engine and now you can download it as a [free desktop application](#) to map and search more pages. [You can also purchase a license to unlock even more features.](#)

Requires [Java](#) to run.

Figure 11: Starting place to download the standalone MySpace Visualizer

Enter the number of license keys that you want to purchase in the box as seen in Figure 12, and click the blue **Buy Now** button. Use Google Checkout to complete the purchase. A license key will be emailed once the purchase has been completed.



The screenshot shows a purchase page with a 'Buy' header. It features a 'Buy Now' button with a shopping cart icon and the 'Google Checkout' logo. Below this is a quantity selector set to '1' and the text 'Licenses @£12.50 (approx. \$18.67) each (One license is required per PC)'. Further down, it states 'Each license is valid for all current and future MySpace Visualizer versions starting with 1.' and 'Your license/s will be emailed to you in around 15 mins, although this may take longer if the credit card or Google take longer to check and charge the account.'

Buy

Buy Now 

Google Checkout

Licenses @£12.50 (approx. \$18.67) each (One license is required per PC)

Each license is valid for all current and future MySpace Visualizer versions starting with 1.

Your license/s will be emailed to you in around 15 mins, although this may take longer if the credit card or Google take longer to check and charge the account.

Figure 12: Starting place to download the standalone MySpace Visualizer

Return to the lococitato Web site and again click **You can also purchase a license to unlock even more features**. Then click the blue hyperlink that lists the latest MySpace Visualizer version (in this case 1.14) to initiate the download starting process, as seen in Figure 13.



Figure 13: Click the MySpace Visualizer Version (in this case 1.14)

Figures 14-18 show the rest of the download process.

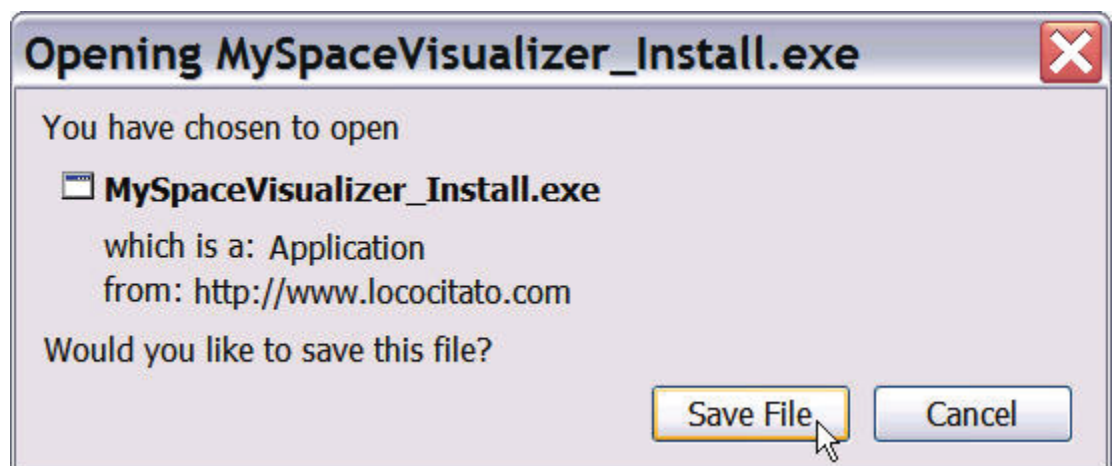


Figure 14: Click 'Save File'



Figure 15: Click 'Run'



Figure 16: Read the terms and click 'I Agree'

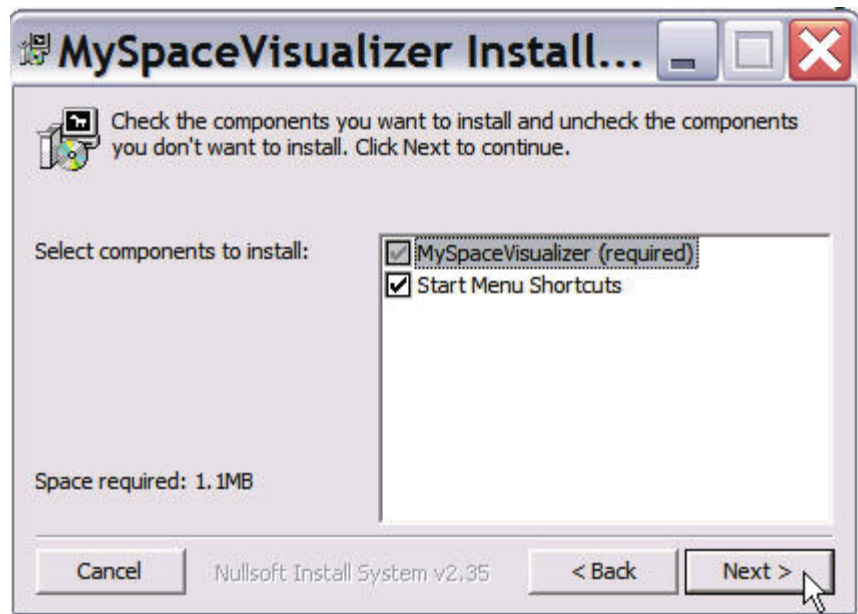


Figure 17: Select which components to install and click 'Next'

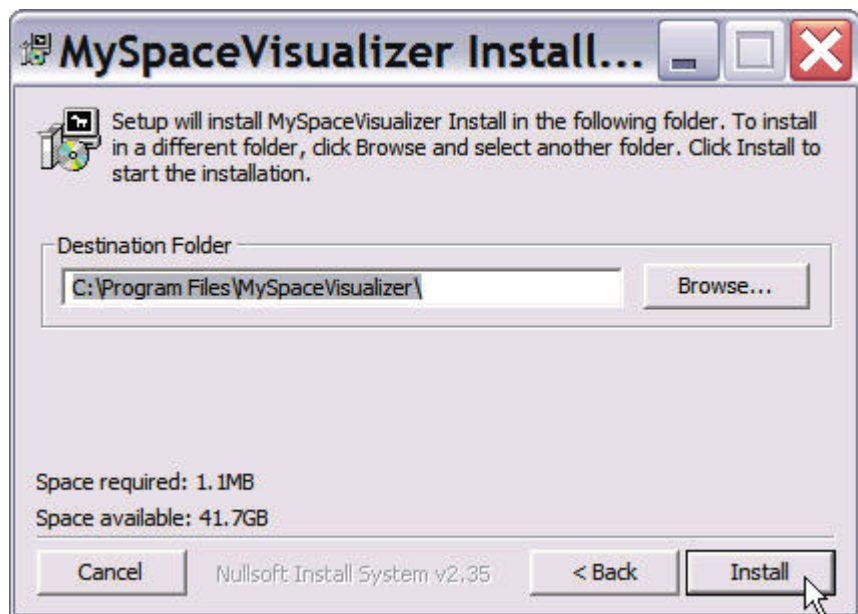


Figure 18: Click 'Install' to finish the download

The standalone version of the MySpace Visualizer is now installed and ready to use.

Open the Visualizer and paste the complete URL of the MySpace page target into the blank box. Click **Go**.



Figure 19: Copy MySpace URL and paste into blank box, then click 'Go'

The map will start to generate. The standalone version can map up to 1,000 connections. Mapping this many connections can take a considerable amount of time. If you don't want a map of 1,000 connections, you have two options to make a smaller map. You can start the map and click **Stop** after the portion of the map that you needed has been generated, or you can go to the **Settings** tab along the top of the Visualizer, select **Graph**, and set the maximum number of connections there. A completed map will look like Figure 20.

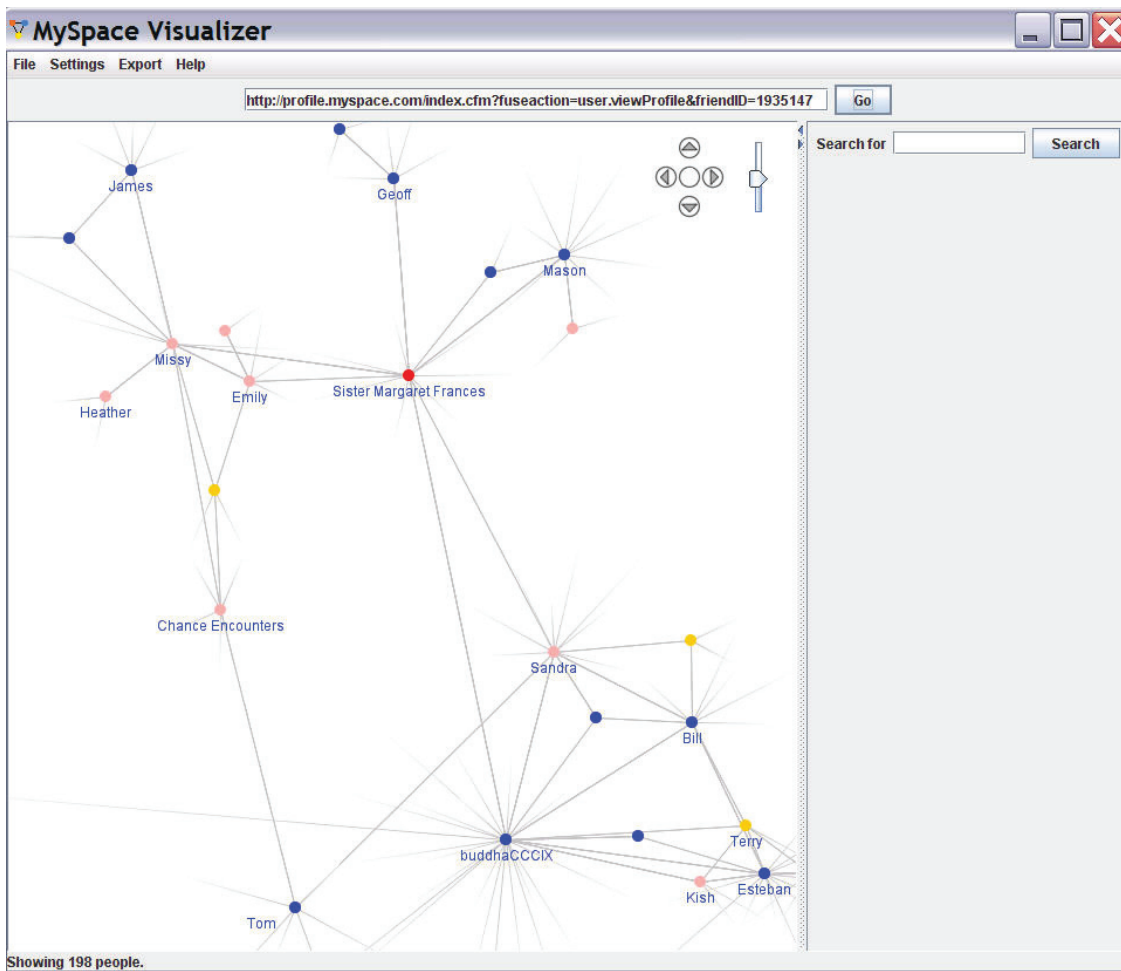


Figure 20: A completed standalone Visualizer MySpace map

The color coding in the standalone Visualizer is different than the color coding in the online free version. In the standalone version, red indicates the target MySpace profile, pink indicates female profiles, blue indicates male profiles and yellow indicates private profiles. All of the colors in the standalone version are customizable and can be changed by going to **Settings** and then **Colors**.

The MySpace Friend Mapper will display the profile picture and basic information (age, gender, and last login) of the person when you hover your mouse over the dot in the completed MySpace connection map, as seen in Figure 21.



Figure 21: Display information shown when your mouse is hovered over a dot using Firefox

You can left-click on the dot to display that person's MySpace profile page. You can hold the left mouse button down to move the map. You can hold the right mouse button down and move your mouse up or down to shrink or expand sections of the map.

Another nice feature of the standalone version is the ability to search the map network for a specific keyword. The Visualizer will search all the profiles in the network for the given keyword. In the example below, the map network was searched for the word **Sacramento**. Enter the keyword into the search box on the right-hand side and click **Search**, as seen in Figure 22.

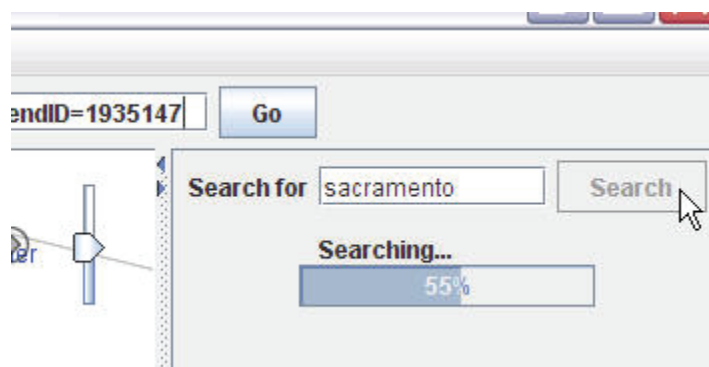


Figure 22: Keyword search in the standalone Visualizer

The results will be displayed once the search is finished. Click **Next** and **Previous** to navigate through the search results (Figure 23). Also, map points that contain the given keyword will become enlarged to make them easily identifiable, as seen in Figure 24. If you want to clear the results, click **Clear**.

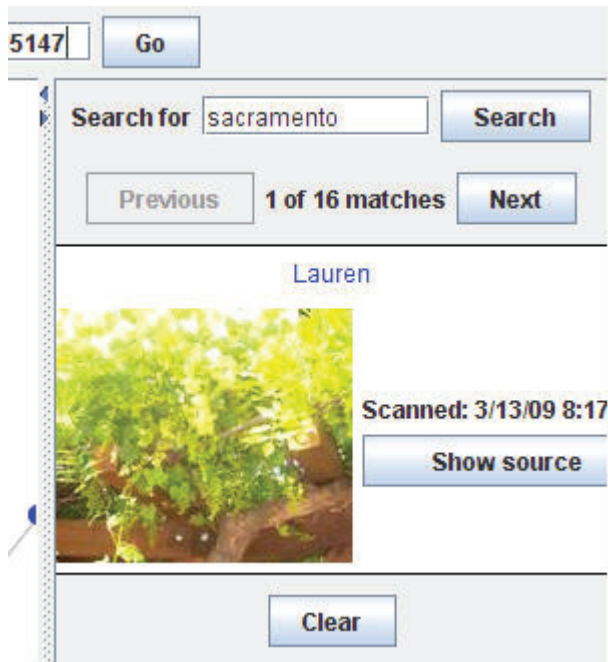


Figure 23: The search feature in the standalone Visualizer

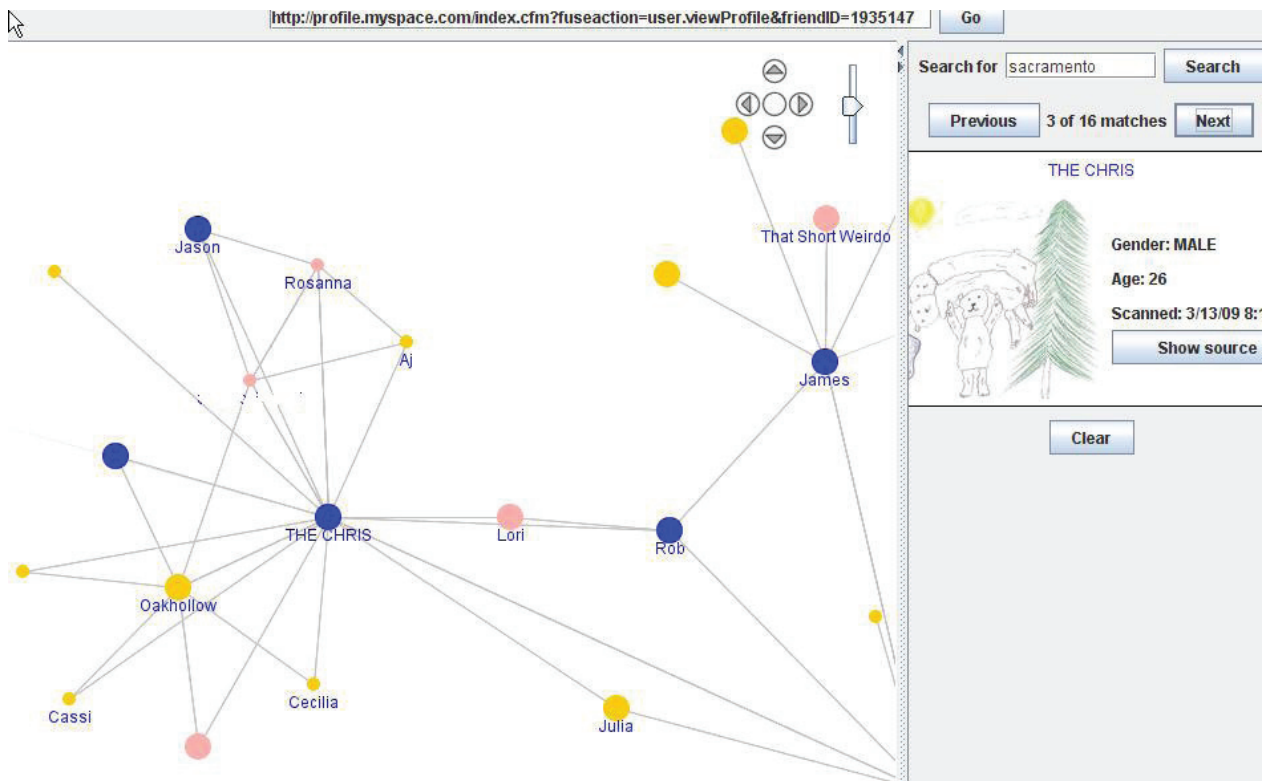


Figure 24: Enlarged dots on the map to show profiles where the keyword exist

With the standalone Visualizer there are also several output functions. The first is jpg. To export a jpg of the map, simply center the section you want to have a jpeg of, and click **Export** and then **To jpg**. You can continue to move the map sections and take different jpg exports. You can also export the map as a Comma Separated Value (CSV), more commonly known as a spreadsheet. This will export four columns of information: target name, target MySpace URL, friend name, and friend MySpace URL. To do this select **Export** and then **To csv**. Both export options can be seen in Figure 25.

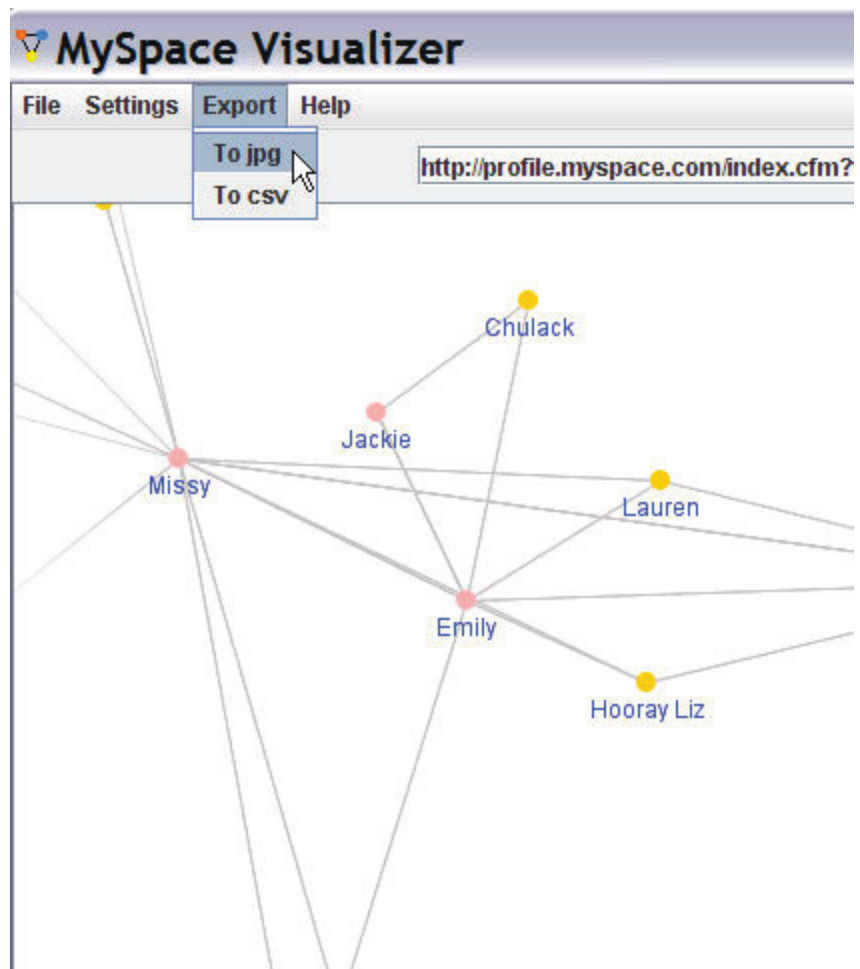


Figure 25: The jpg and csv export functionality

Another output functionality is the ability to export the entire map network as a single file (Figure 26). The file is a MySpace Visualizer File (mys), a proprietary format that can be opened by any licensed copy of the standalone Visualizer. The nice thing about the mys file is it creates a file of the entire map as it was on a specific date and time. This file can be given to any investigators who have their own standalone Visualizer license and software. They can then open the file and see the map exactly as it was at the time of original generation.

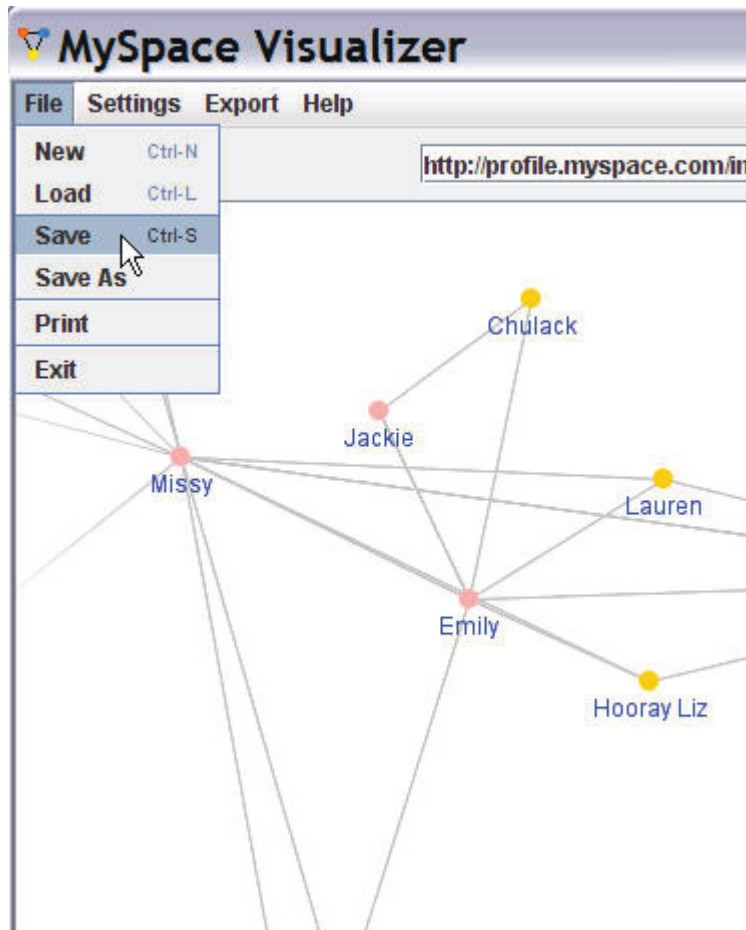


Figure 26: The mys export functionality

The standalone Visualizer also allows access to the page source of all the MySpace pages in the mapped network. An icon will appear in the basic profile information that pops-up when you hover over a dot in the network. This icon will indicate **Show Source** (Figure 27). When you click this icon, another pop-up will appear; this will be the source code of the MySpace page in question (Figure 28). You can then copy and paste this source code into another application, such as Notepad, to save it. Once the page source has been saved, you can view the MySpace page from the saved page source. (If you are unsure of this process, paste the source from the Visualizer into Notepad, select **Save As**, select **All Files in Save As Type**, select **Unicode in Encoding**, and make the file name *displayname.jpg*, as seen in Figure 29).



Figure 27: The Show Source functionality

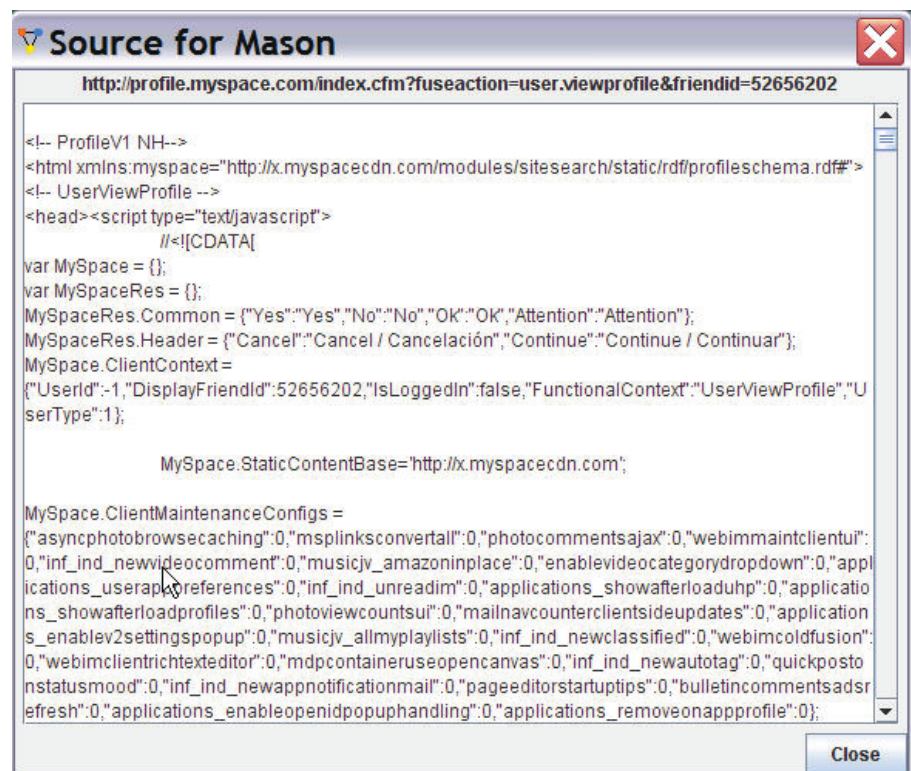


Figure 28: The page source (new image)

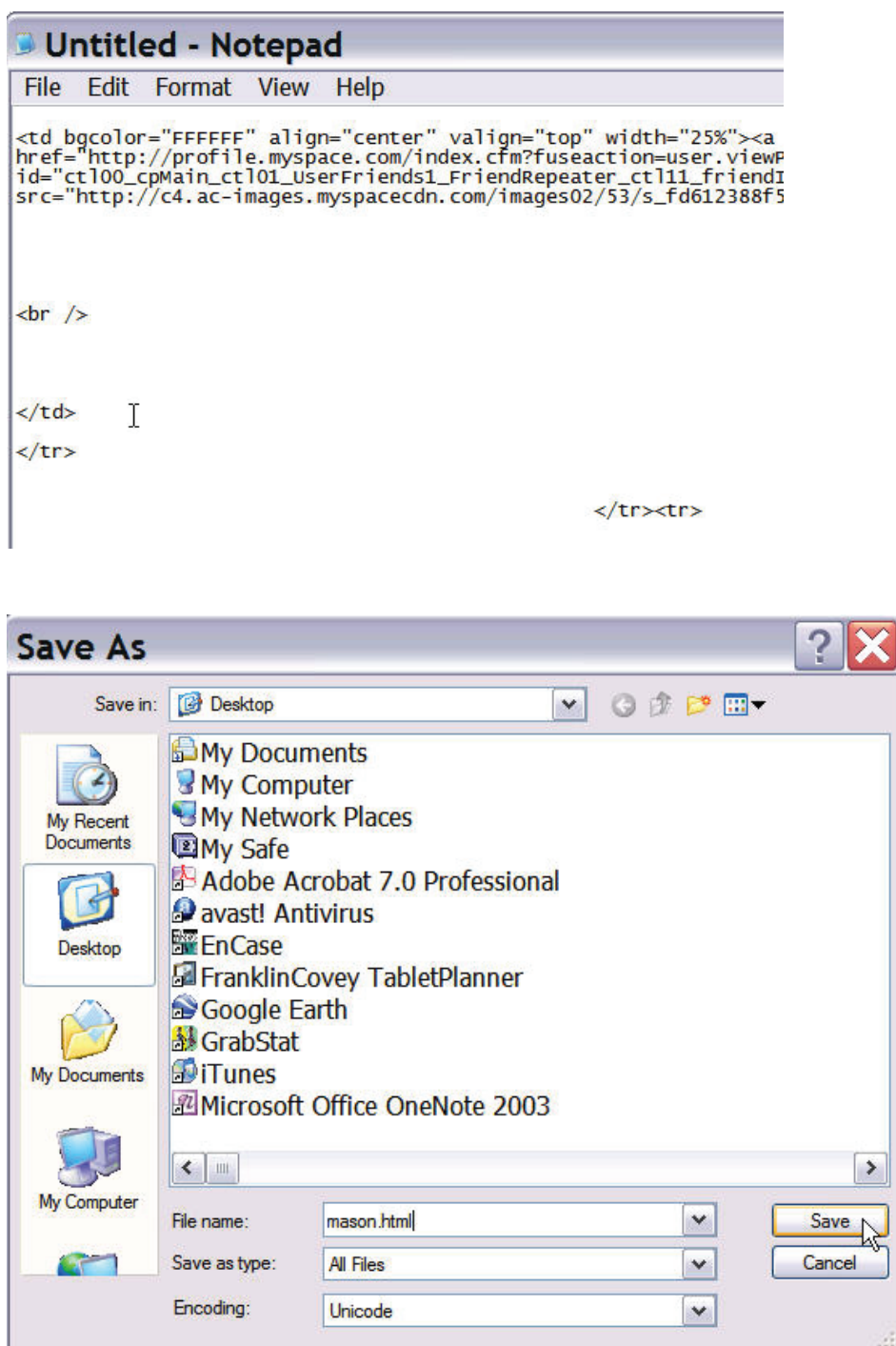


Figure 29: The page source in Notepad and the Save As options

Having access to the latest tools and techniques is crucial for an investigator to stay ahead of criminals in the fight against crime. The MySpace Friend Mapper is useful in a number of ways. A map of friends allows the investigator to easily make connections without hours of manually clicking through MySpace pages to see if a connection exists. While this will not show all connections to a particular profile, it does make a good starting map of the connections, which can greatly aid in an investigation.

