

SaferSpace™ – Effectively Restrict Access to MySpace®

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ABSTRACT

As parents become more aware of the dangers of MySpace they look for ways to prevent their children from accessing the MySpace website. Our software solution, called SaferSpace, allows parents, schools, and libraries to restrict users' access to MySpace. Unlike traditional filtering software and age verification methods that can be easily defeated, SaferSpace provides protection on multiple levels. As our case study shows, SaferSpace can be very effective for individuals and large organizations.

Keywords

website blocking, parental controls, social-networking

Functional Goals

The primary goal of SaferSpace is to empower parents with the ability to control what websites, especially social-networking websites, their children can access. The checked items below are accomplished by SaferSpace, with respect to MySpace and similar social-networking websites:

- Limit harmful contact between adults and minors
- Limit harmful contact between minors
- Limit/prevent minors from accessing inappropriate content on the Internet
- Limit/prevent minors from creating inappropriate content on the Internet
- Limit the availability of illegal content on the Internet
- Prevent minors from accessing particular sites without parental consent
- Prevent harassment, unwanted solicitation, and bullying of minors on the Internet
- Other – please specify

PROBLEM INTRODUCTION

The dangers of MySpace are in the news almost daily. We hear of missing children who left to meet someone they have met only online. Too many times, their 15 year old online friend ends up being an adult sex offender preying on innocent children. A 2007 congressional report stated that “It takes only minutes to search for and find children who are under 16-years-old on MySpace.” [4] By preventing children from accessing MySpace, we can limit their contact with unknown people.

Our solution to keeping children from MySpace and other social-networking websites is software called SaferSpace. SaferSpace is designed especially for parents, schools, and libraries. In this paper, we use MySpace as an example but SaferSpace is capable of blocking any user-specified webpage, social-networking, or otherwise.

WEAKNESSES OF CURRENT BLOCKING TECHNIQUES

There is internet filtering software available. This type of software commonly works by blocking access to the IP addresses belonging to the MySpace web servers. As a result, there are several well-known methods to bypass these filters. One method is to access MySpace via an online webpage translator [2]. This allows the user to access MySpace through the translator's IP address instead of MySpace's IP address.

Another method is to use one of the many free, online proxy servers to access MySpace [1]. Often, these proxy servers promote themselves by showcasing their ability to access MySpace from school or work.

If administrators have blocked access to MySpace using the Group Policy settings of Internet Explorer, then simply using an alternate web browser such as Firefox will bypass the policy settings [3] permitting access to MySpace.

It was these shortfalls that led us to develop SaferSpace.

PROPOSED SOLUTION

SaferSpace uses two methods to block access to MySpace. In the first method, SaferSpace enumerates all top-level desktop windows using the Windows API. Next, SaferSpace then retrieves the text for each window. If the window's text contains “MySpace” or “myspace.com”, and the current user of the computer is one that is blocked from MySpace, SaferSpace immediately closes the window.

In the second method, SaferSpace can, at the administrator's option, add entries to Windows' hosts file (as shown in Figure 1). These entries cause all requests to a MySpace server be directed to the local host. Optionally, SaferSpace can run a minimal, light-weight web server that can respond to the requests with a custom webpage to inform the user that accessing MySpace is forbidden. (The contents of the webpage can be customized by the administrator.)

```
127.0.0.1 myspace.com
127.0.0.1 www.myspace.com
```

Figure 1: Example Host File Entries – More entries are required to block subdomains such as blog.myspace.com.

We chose to make SaferSpace as a desktop utility instead of a network utility to eliminate any extra configuration steps often required by network utilities, as this has the potential to deter parents from using SaferSpace. Extra configuration steps also slows the installation of SaferSpace on many computers.

Implementation

SaferSpace is implemented as two separate Windows programs. The first program is used to configure SaferSpace (Figure 2). All settings are stored in the Windows registry under the HKEY_LOCAL_MACHINE\ SOFTWARE \SaferSpace key where only administrator users of the computer have write permissions.

The second program is the Windows service. When started, the service loads the settings from the registry key above and begins scanning the desktop for MySpace windows.

If the administrator changes SaferSpace's settings while the service is running, the service will automatically be restarted so the changes can take effect.



Figure 2: SaferSpace's Configuration

Security

To provide additional security, access to SaferSpace's settings can be restricted in one of two ways:

1. By granting access to all administrator users of the computer.
2. By granting access based on a custom password supplied by the administrator. The password is encrypted using AES and stored in the registry.

Customization and Additional Features

The administrator of SaferSpace can customize SaferSpace and extend it in the following ways.

- The administrator can select to block access to MySpace for all users of the computer, or just for particular users of the computer.

- The administrator can choose to display a customizable message to the user that is displayed when a MySpace window is closed.
- The administrator can provide a list of additional websites to block by providing the website's address and title (e.g. facebook.com, Facebook and bebo.com, Bebo).
- The administrator has the option to start SaferSpace's web server or not. An instance when the administrator would choose not to start the web server would be when port 80 is already in use by another program. If SaferSpace's web server is not started and the user attempts to access MySpace, the user will be redirected to the browser's default error page.
- SaferSpace can maintain a log of each attempt to access MySpace or another forbidden website. The log can be saved to a text file on the local computer and to a SQL Server database. The information logged consists of a timestamp, the website blocked, the name of the currently logged on user of the computer, and the name and IP address of the computer.

New User Experience

Because parents may not be very computer savvy, we have simplified the steps necessary to use SaferSpace. A new user would be required to download and run the SaferSpace installation from our website. The installation is wizard-driven with no configuration required. When the installation is complete, the SaferSpace service will be automatically start and the SaferSpace configuration program will run. The parent can now choose which users to restrict and set any other necessary options. The parent does not need to be concerned with operating SaferSpace's service.

SaferSpace is not designed to be clandestine and run unknowingly to the user. By default, SaferSpace is installed to the %Program Files%\SaferSpace folder, but the administrator can choose a different location prior to running SaferSpace's installation. SaferSpace can be removed from the computer using the Add/Remove Programs applet in Windows' Control Panel. Like the installation, uninstallation requires the current user to be an administrator user to prevent against unauthorized modification.

STRENGTHS AND WEAKNESSES

The strength of SaferSpace is its ability to completely block users from the MySpace website. To date, we have not received any reports from users that SaferSpace has been defeated. To the best of our knowledge, there is no way that a Limited User of Windows XP can access the MySpace website if SaferSpace is running.

The primary limitation of SaferSpace is that administrator users of the computer can stop the SaferSpace service if they are aware of its presence. For this reason, we highly encourage all parents to make their children's computer accounts as Limited Users, and not as Administrator users.

EFFECTIVENESS

Beginning in 2007, the Pensacola Junior College of Pensacola, Florida, installed SaferSpace on over 300 campus computers which are still in use. Michael Hual, the college's Academic Technology Coordinator, contacted us after the initial deployment to say:

"SaferSpace has made an impact in many ways. At first, students that were almost exclusively users of MySpace tried to get to the web site several times. After that they begin working on their school work. SaferSpace has made an improvement in many students grades even if they don't really recognize that the reason is that your software is discouraging them from wasting time. We did have a 'tongue in cheek complaint'. One of our instructors complained that we should stop blocking MySpace so he did not have to work so hard on grading. Students are now completing their homework assignments much quicker than before. Well before deadlines. Overall a certain amount of disruptive behavior could be associated to users of MySpace. That is no longer a problem. Those students that want to work on school work stay those only interested in MySpace do not. Thank you again and let others know of our success in using SaferSpace."

A user posted the following review of SaferSpace on the software download website SnapFiles [5]:

"After looking and doing the writing script thing in IE i found this little program that works with all browsers and even email links any thing going to my space will be blocked ..."

Another user posted a review and description of MySpace on a personal blog [6]:

"If you want to keep you kids off of MySpace, the best thing to do is probably supervise your kids and communicate (the stuff parents should be doing anyway). If that doesn't work, there's SaferSpace, which blocks access to MySpace from any computer it's installed on."

The end of the review cites the lack of password protection which we added in a subsequent release.

From these comments, reviews, and other correspondence with users, we are confident in SaferSpace's ability to be an effective tool to protect children from MySpace in the home and to control access to MySpace in a group setting.

FUTURE ENHANCEMENTS

We plan to add the following features to SaferSpace in the

near future.

- Explore the possibility of allowing parents to specify MySpace profiles which can be visited by their children. Because MySpace displays the user number of the profile being visited in the title bar (<http://www.myspace.com/usernumber>), it is our belief that we can easily amend SaferSpace to allow the parents to provide a list of user numbers of profiles that their children can access.
- Instead of completely blocking users from MySpace and other websites, we plan to add controls so that the parents can permit access only between certain hours of the day.
- In addition to logging, we plan to add email notifications that will provide the the parents or administrator with immediate notification when access to a website is blocked.
- We plan to add support for logging events to a MySql database for organizations that do not have the resources to license SQL Server 2005 or wish to integrate SaferSpace with their current IT infrastructure. (We are a MySql Enterprise Ready Partner.)
- We are interested in adding an auto-update feature that would allow mass installations of SaferSpace to easily stay updated.

REQUIREMENTS

SaferSpace requires Windows XP, the .NET Framework 2.0, and administrator permissions to be installed. SQL Server 2005 (all editions) is required to log events to a database.

EXPERTISE

The president and founder of Zemerick Software, Inc. and lead developer of SaferSpace is Jeffrey T. Zemerick. Jeffrey is also a Ph.D. computer science student at West Virginia University. Our flagship product, Chat Watch, was first released in 2001. Chat Watch logs instant messages and is used by parents, businesses, and law enforcement agencies worldwide.

COMPANY OVERVIEW

Zemerick Software, Inc. is a privately owned and privately funded company that was incorporated in 2001. In addition to SaferSpace and Chat Watch, we also provide free software to law enforcement through our SPEAR Forensics initiative to assist officers with investigations involving instant messaging, peer-to-peer file sharing, and other online activities (<http://www.spearforensics.com>).

BUSINESS MODEL OVERVIEW

SaferSpace is currently available to home users for \$19.95, with significant discounts available for schools, libraries,

and other non-profit organizations. An evaluation version is available from our website.

MORE INFORMATION

For more information on SaferSpace, visit <http://www.zemericks.com/products/saferspace/>.

CONTACT INFORMATION

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CERTIFICATION

I certify that I have read and agree to the terms of the Internet Safety Technical Task Force Intellectual Property Policy.

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