

# **Living with the Microsoft IE Web Browser**

*Dealing with the Temporary Internet Files (caching) Problem  
&  
Remedies for a few other Privacy & Security issues*

## **INTRODUCTION:**

There has never been a piece of software code written, which did not have some bugs of one type or another. E.g., there is no perfect piece of software code. The Microsoft Windows Operating System and the Internet Explorer (IE) web browser are no exception.

The purpose of this document is not to attack or single-out Microsoft or its products, but to address a number of common issues that many technical support experts around the world have encountered within the IE web browser, and to provide some general information and recommendations for configuring the IE web browser in such a way, as may both enhance your security and privacy, help reduce the amount of disk space your IE web browser utilizes on your PC, and help reduce the potential for corruption or other problems with the Temporary Internet Files (caching) system, which have been repeatedly demonstrated by many end users of the IE web browser for more than a decade since it was first introduced.

The following recommendations do not necessarily reflect the views, opinions, or recommendations of Microsoft Corporation with regard to their own default settings for the IE web browser, and the reader is advised to evaluate the implications of all recommended changes, and/or to make note of the original default settings, before making changes to those settings based on the recommendations found in this document.

The recommendations made in this document are not necessarily unique to those recommended by many other industry experts and technical support advisors over many years, and while I have personally tested and verified the effectiveness and/or results of every recommended setting-change found in this document, individual results may vary from one user to another/one computer to another, because of the highly customizable nature of both the Windows Operating System, and of the IE web browser itself.

The Internet, or more specifically, the World Wide Web, is an ever-changing and highly dynamic environment, and can be both a source of invaluable information, as well as a potential threat to your personal information privacy and security. Most responsible web browser software manufacturers and I certainly include Microsoft among them, have made enormous strides over the past 10 years, in developing software applications that can help WWW users protect themselves, but it should never be said, that the software tools are perfect. The individual user is ultimately responsible for protecting their own privacy and security, and for implementing of various configuration settings within their software tools to maximize such protection.

The way in which individual users decide to interact with the Internet, the software tools they use to pursue that interaction, and the way those software tools are employed or configured, can have an enormous impact or consequence for individual privacy and security, not to mention the general function and accessibility of websites or content from or through a given website.

These user-controlled variables being what they are, the manufacturers of the web browser software tools, and the developers or operators of the websites that these tools are used to access, often have little or no control over the final results. Which is to say, 10,000 people could all access the same website with the same web browser, and a couple of dozen may report problems that have nothing whatever to do with the website they're visiting, but rather, with some obscure or even previously unknown configuration issue on their own local web browser.

**DISCLAIMER:**

I make no warranties, either express or implied, nor guarantee of fitness for a particular purpose, with regard to the information, opinions, or recommendations contained within this document.

Use of this document shall be at your own risk, just as your use of the WWW and the software tools used to access it, which are the subject of this document, are also employed at your own risk.

If you have any questions or concerns related to the information or recommendations found in this document, you will not hurt my feelings in the least, if you should desire to contact additional experts for further advice or a 2<sup>nd</sup> opinion. In fact, I would strongly urge you to get a 2<sup>nd</sup> opinion if you are unfamiliar with the issues or concepts being discussed here.

## **Web Content Caching – aka. Temporary Internet Files – What is caching?**

The purpose of caching web content, which involves the saving of a copy of web pages and other content elements on your local PC from those web sites you visit, is to allow your web browser the opportunity to speed up your access, by pulling up a copy of previously viewed content from your local hard drive (cached memory), rather than having to expend the time necessary to download it from the server.

In other words, if the page you looked at 5 minutes ago was 50K in size, and you go back to that page for another look (and that page hasn't changed) there is no reason for your web browser to have to download the same 50K page again. So, the web browser simply pulls up the copy of the page you viewed 5 minutes ago, from the cached copy it saved.

Obviously, to make this work effectively, the web browser must first evaluate the content you are requesting to see if the copy that was previously stored, differs in any way from the same content being served by the website at the time you request it again. Most users are familiar with "Refreshing" (using the Refresh or Reload button) to see any changes that might have occurred.

In the same way, if the cached copy on your local PC is expired, or differs in any way from that which is currently being served by the website, the browser should always download a "fresh" version of the content. So, only if there has been no change to the content, and the content is otherwise "static" or non-dynamic, should the web browser go to the cached memory to get the content.

Problems can occur however, when the web browser fails to recognize dynamic content, fails to adhere to a content expiration flag, or otherwise fails to recognize a change to the content on the server, and instead, presents the user with a "cached" copy of the content, when it should be downloading a fresh copy from the server.

If the content is not current, the user may be getting bad, outdated, or expired information. To make the potential problem even worse, most web browsers, including the IE web browser, do not tell the end user whether they are looking at a cached copy of content vs. a fresh download from the server, and with high-speed access becoming the norm, the user may not even notice the difference between a cache memory access and a fresh download.

The first set of recommendations regarding changes to the IE web browser configuration, involve a problem with the Temporary Internet Files (caching feature), which has been known to exist in the IE web browser for a very long time, and which (incidentally) cannot always be remedied by simply clicking on the Refresh/Reload button.

NOTE: The following recommended changes may be implemented to one extent or another, in virtually all web browser software applications currently on the market, but the problem being addressed here, seems to be one which is virtually unique to the Microsoft IE web browser. If you are running Netscape, FireFox, Safari, or any of a dozen other popular web browsers, you may want to evaluate these same recommendations for those browsers as well, but if your primary (preferred) web browser is IE, then you should definitely consider implementing these changes.

## Temporary Internet Files – Configuration Settings for Browser History – IE Version 7.0

NOTE: The following screens are applicable to the IE7 Browser. Over time, Microsoft has changed the location of some of these settings. And in some earlier versions, these settings either did not exist, or were not user configurable. If you are not running the latest 7.0 version of the IE web browser, I recommend that you STOP RIGHT HERE and install it.

If you would rather not install the 7.0 version then follow along as best you can with the below screens. Most of the options are available in other versions, but may be located in different configuration screens.

To obtain the very latest version of the IE Browser, go to the following link. Be sure to reboot your computer after installation, and then return to this document.

<http://www.microsoft.com/windows/products/winfamily/ie/default.msp>

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Start your IE web browser and make sure that you can see the menu bar. If the menu bar [ File Edit View Favorites Tools Help] is not visible on your IE window, Right-Click on the menu area at the top of the IE window and check "Menu Bar" from the options list to make it available.

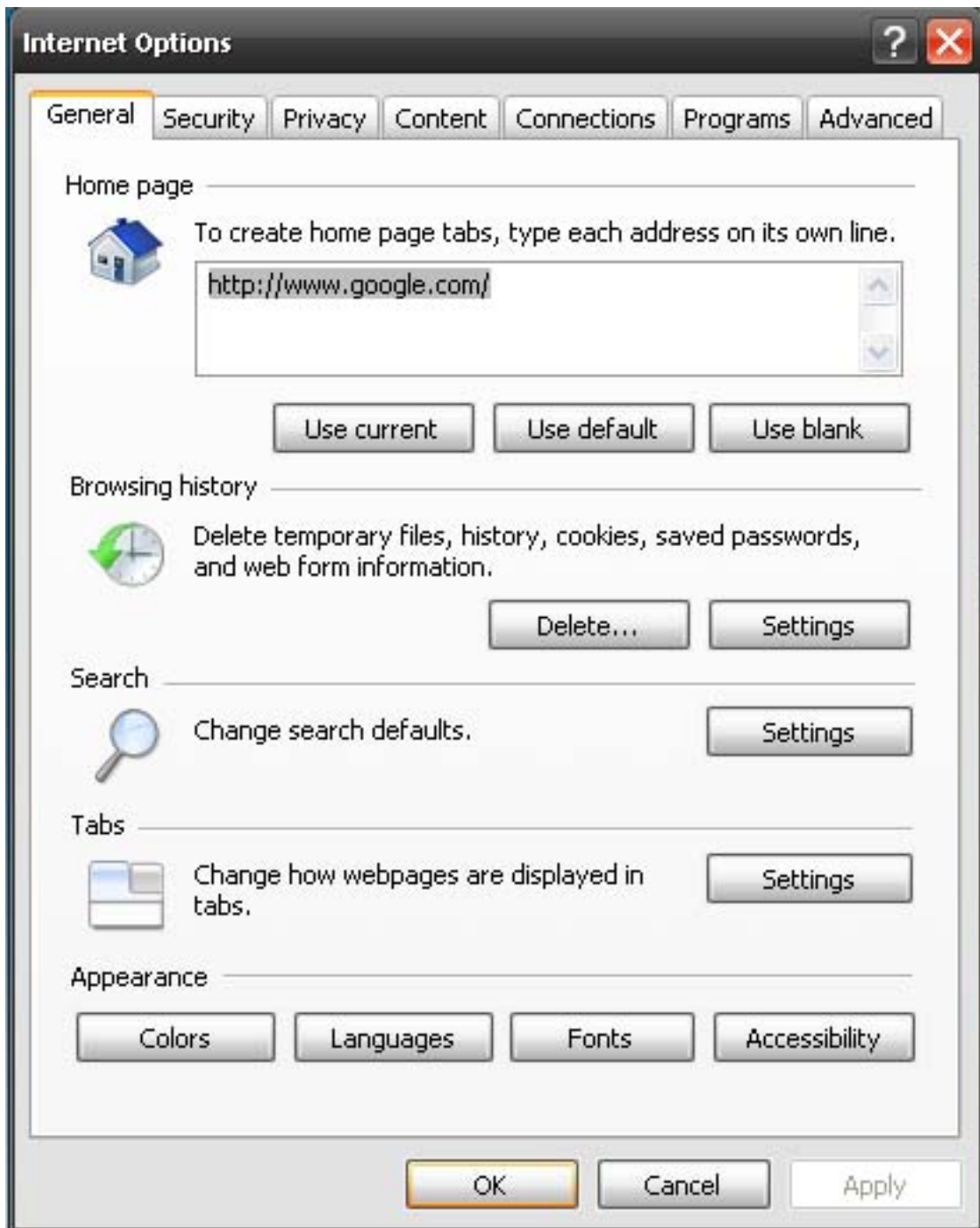
From the menu bar, click "Tools" - then, scroll down the menu list and select "Internet Options" as shown in the screen capture image below:



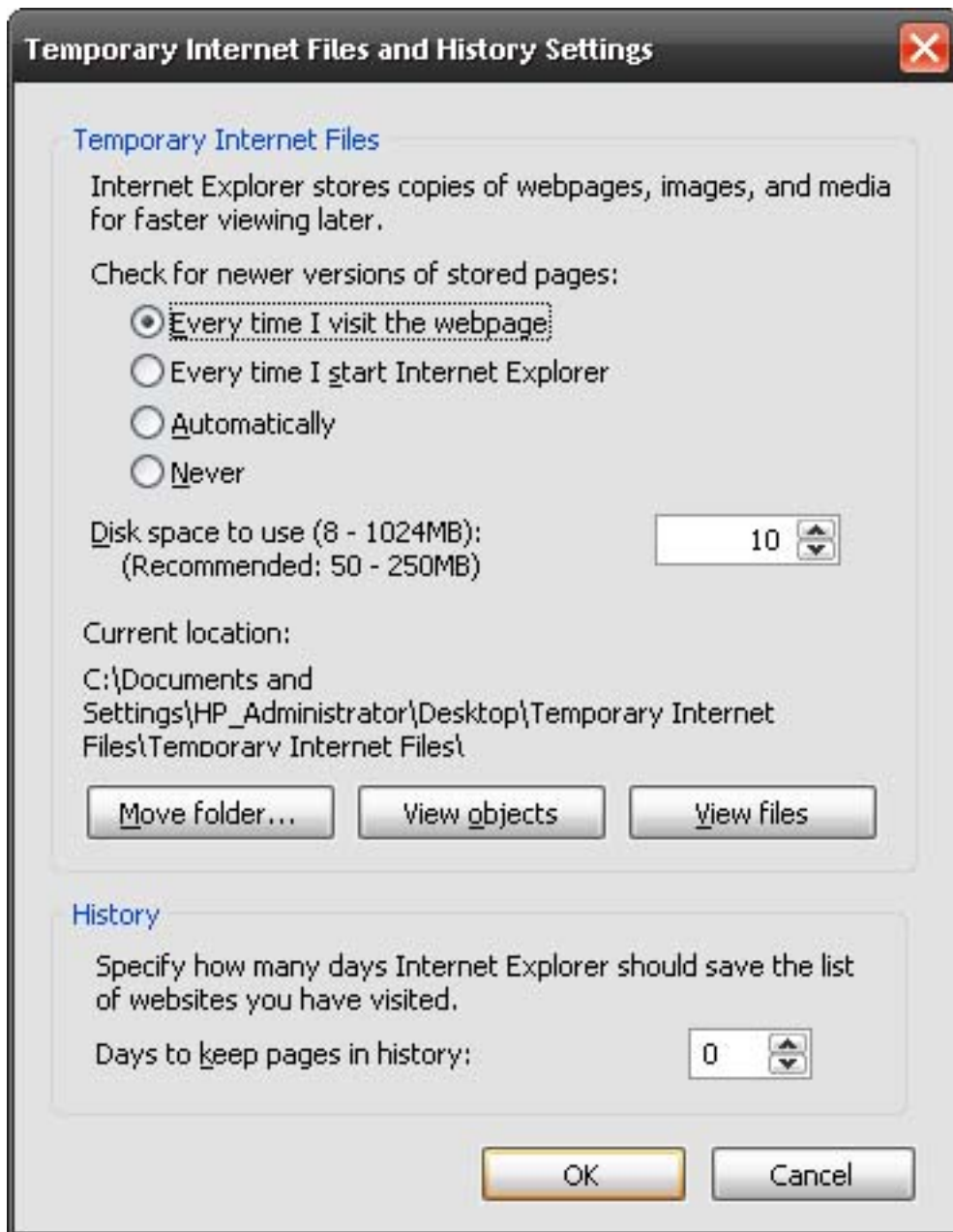
After selecting "Internet Options", a new dialog window will open with a series of tabs displayed. In IE version 7.0, those tabs are:

[General Security Privacy Content Connections Programs Advanced]

We're going to start the recommended changes from the General Tab. Click on the General Tab, and the following screen will appear.



To address the Temporary Internet Files issues, you are going to start under the “Browsing history” section, which is found under the “General” tab. Begin by clicking General, then, on the Settings button under Browsing history – the following screen will then appear:



To address potential problems with caching, you need to set your configuration to match those shown in the above screen.

NOTE: The "Current location" should not be modified, as this will be unique to your own local PC. The Current location is simply the path to the folder on your PC where any cached pages/content will be stored.

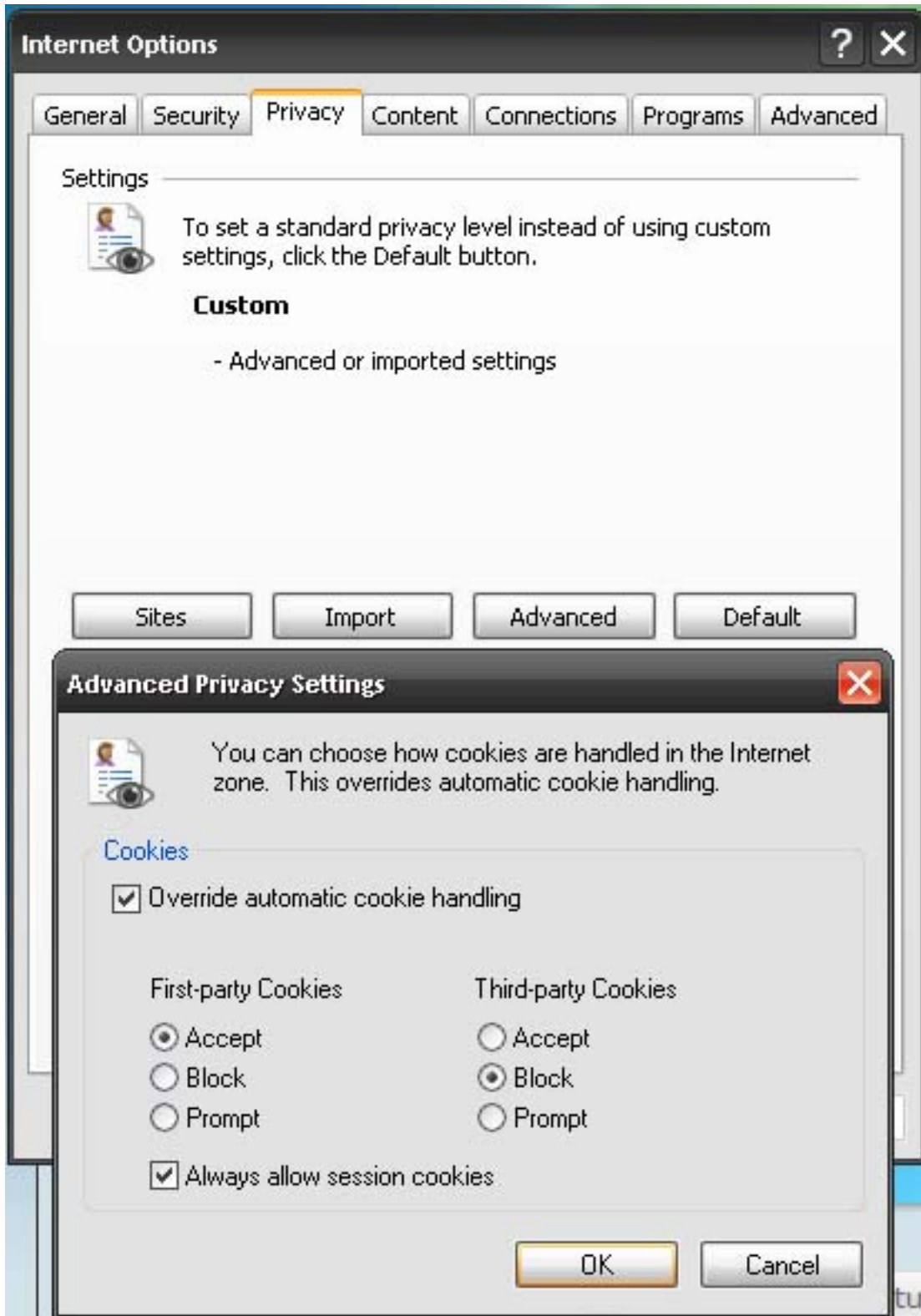
Once you have changed the applicable settings, click the OK button. This will return you to the General Tab.

Next on the list of recommended changes will be Security Level settings for the Internet Zone. To find this setting, click on the **Security Tab**, as shown in the screen below:



For the purposes of document, the Security level for the Internet Zone should be set as indicated in the above screen (as **Medium-high**). Individual users may have need of higher security, or may not feel the need to set this above Medium, but again, for the purposes of this document, Medium-high is recommended.

Next on the list of recommended changes will be to look at the Advanced Privacy Settings (which involves the Cookie Handling Feature) and this will be accessed by clicking on the Advanced Button in the **Privacy Tab**, as shown in the screen below:



The Advanced Privacy Settings should be adjusted to allow you to override the automatic cookie handling policy. It is highly recommended that you never allow third parties to set cookies on your computer, so you should set the policy as noted in the above screen.

NOTE: If for any reason, you have a problem accessing content on the web site, which is determined to be related to your refusal to allow third parties to set cookies, the recommendation would be to first identify who, and to ask why third parties are allowed to set cookies from the website you are visiting.

EX: If you are on the Sears.com shopping website and you can't seem to get access to what you need because Sears.com is allowing XYZ Marketing (a third party) to set cookies through the Sears.com website {and you're blocking those cookies}, then you need to ask Sears.com why they're allow XYZ Marketing to set those cookies on your computer, and ask what those cookies are being used for, and find out what the privacy policies are at XYZ Marketing (and Sears.com) with respect to any information that may be used or determined from those cookies.

If you are satisfied with the answers you get from Sears.com, and you are told that you must allow XYZ Marketing to set those cookies, before you will be allowed the access you want at Sears.com, then you should go back to the Privacy Tab and click on the "Sites" button, where you will then be able to establish an exception, which would allow third parties to set cookies from the primary website (Sears.com and/or XYZ Marketing), while still prohibiting them from being set elsewhere through the main policy.

Setting up a Site exception is always preferable to changing the general restrictions in your privacy or security policy. The above noted change is indiscriminate – it applies to all websites, unless you have an exception. Those exceptions by the way, can also be used to EXCLUDE cookies from a specific site, while still allowing them from all others.

Next on the list of recommended changes will be to look at the **Content Tab**, as shown in the screen below – Specifically, we're going to address the "AutoCompete" feature by clicking on the AutoComplete Settings button:



The AutoComplete settings were originally designed to help remove the sometimes tedious burden of having to remember login names, passwords, or for having to retype redundant information that appears in many common forms, such as names, addresses, phone numbers, etc. Unfortunately, as with most security procedures, if you write down the PIN number for your checking account on a piece of paper in your wallet, it doesn't provide much security for your account if your wallet is ever stolen.

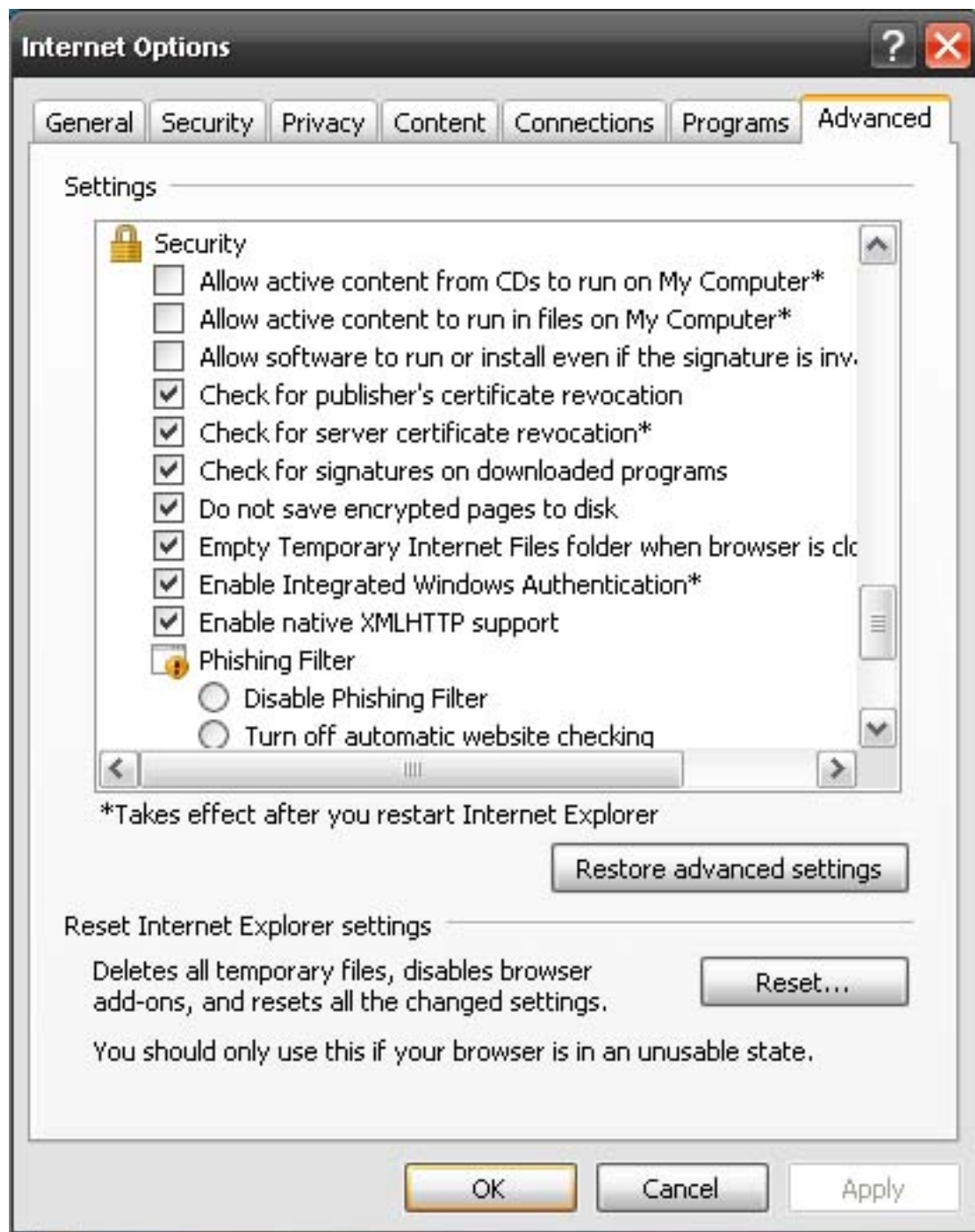
Therefore, while the IE browser allows you to store this information, most security experts believe, and I share this view, that allowing the web browser to store usernames, passwords, and other personally identifiable information from web forms or secure login pages, is NOT a very smart thing to do. It is better that you spend an extra 10 seconds to retype your login and password each time, than risk having that information compromised if your computer is ever stolen or "hacked" by an outside user.

Therefore, it is recommended that the ONLY item checked under AutoComplete should be the "Web addresses" as shown in the above screen.

NOTE: By NOT saving data from forms, users are also less likely to encounter problems with websites that use "dynamic forms" for their login processes, and/or which issue session or persistent cookies at the time of each login, and which therefore do not allow copies of previously stored (cached) login forms to be reprocessed at a later date.

For the purposes of this document, we will *SKIP the "Connections" and "Programs" tabs* of the Internet Options.

Next on the list of recommended changes will be to look at the **Advanced Tab**, as shown in the screen below – Specifically, you will look under the "Security" section which you will need to use the scroll bar to locate (Security settings are towards the bottom), and for the purposes of this document, I am only addressing those specific items noted on the following screen:



Under the Security section, place a check mark in each of the boxes as shown in the example screen above.

NOTE: If you have any of the "Allow active content..." or "Allow software to run..." options already checked on your screen, you need to UNCHECK those items.

Of utmost importance within the Advanced Security section, (and as also relates to the AutoComplete section), you do not want your browser to store encrypted pages to your local disk.

There are many other settings within the Advanced configuration screen. For more information on how they are used, please refer to your web browser documentation.

And to address once more, the overall problem of caching, or problems with corruptions in the Temporary Internet Files (cache) folder, it is recommended that you have the browser "Empty" the Temporary Internet Files folder every time you close the browser.

Be sure to click the "Apply" button if you needed to make any changes to your settings.

Congratulations – you're almost done.

With the basic recommended changes to your web browser now complete, you can return to the main Internet Options menu.

There is one last thing you should do before you restart your computer. You need to go back into the Temporary Internet Files and Delete them, so that after restarting, your browser's Temporary Internet Files folder will be empty, and the browser can start with a "clean slate."

Go back to the General Tab. This time, under "Browsing history", click on the "Delete all..." button.



You can go to the above screen at any time to clear or delete items from your cache. From time to time, you may contact a technical support representative, who may tell you that you need to “clear your cache” or “clear your browser files” – and what they are telling you, is that you need to come to this screen and “Delete all...” – to flush the Temporary Internet Files folder.

As you can see from the screen, you have the option to delete each category of items separately, or to clear them all at once with a single button.

Click “Delete all...” and the following confirmation screen will appear:

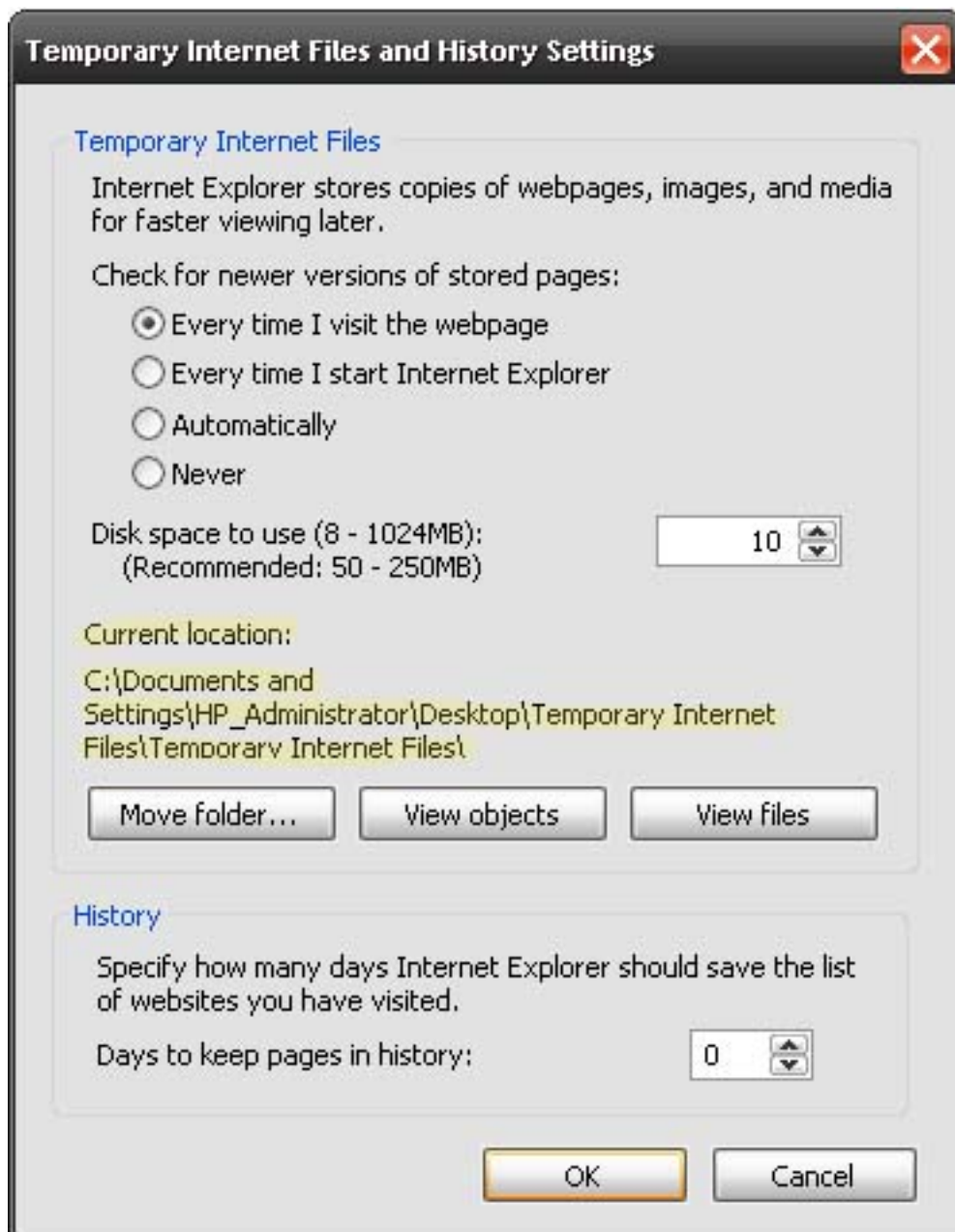


MAKE SURE you check the little box next to “Also delete files and settings stored by add-ons.” before clicking the Yes button. Once you click Yes, your browser will begin removing all of the files from the Temporary Internet Files folder.

NOTE: It may take 5 seconds, or it may take 5 minutes (or more) for this deletion process to complete. It all depends on how large your original cache folder was, how fast your computer is, and/or how long it has been since it was last deleted. Wait until this process completes before moving on to the next step.

NOW... In order to make sure that IE has actually done what you've just instructed it to do, it is always a good idea to go back and check to see that the Temporary Internet Files folder is indeed empty.

If you will remember back now, on the Temporary Internet Files configuration screen, there was a "Current location:" which listed the path on your local PC, to the location (folder) where those Temporary Internet Files were being stored. Let's go back to that screen now and have you jot down that location path name...



Above, you can see the path highlighted in yellow marker. As noted earlier, the path noted on your computer will be different from that of the above example, but take a minute now to jot down the path as noted on YOUR computer.

It is important to note that there are no line breaks in this path, but it may appear that way simply because the screen is not wide enough to allow the entire path to be displayed on a single line. The path in the above example is:

C:\Documents and Settings\HP\_Administrator\Desktop\Temporary Internet Files\Temporary Internet Files\

So, go ahead and write down your path in the space provided below:

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Now that you know where these files are being stored on your computer, you can now close your browser.

FYI: In addition to forcing a "Delete all..." in the last step, you may also recall that under the Advanced Tab Security Settings, you instructed the browser to delete all Temporary Internet Files when the browser closes. So, having forced a Delete all, and instructed the browser to always delete these files when you close the browser and having now closed the browser, there should be no question that the Temporary Internet Files folder should be empty – Right? Right – Well, we'll see if that actually happened in the next step.

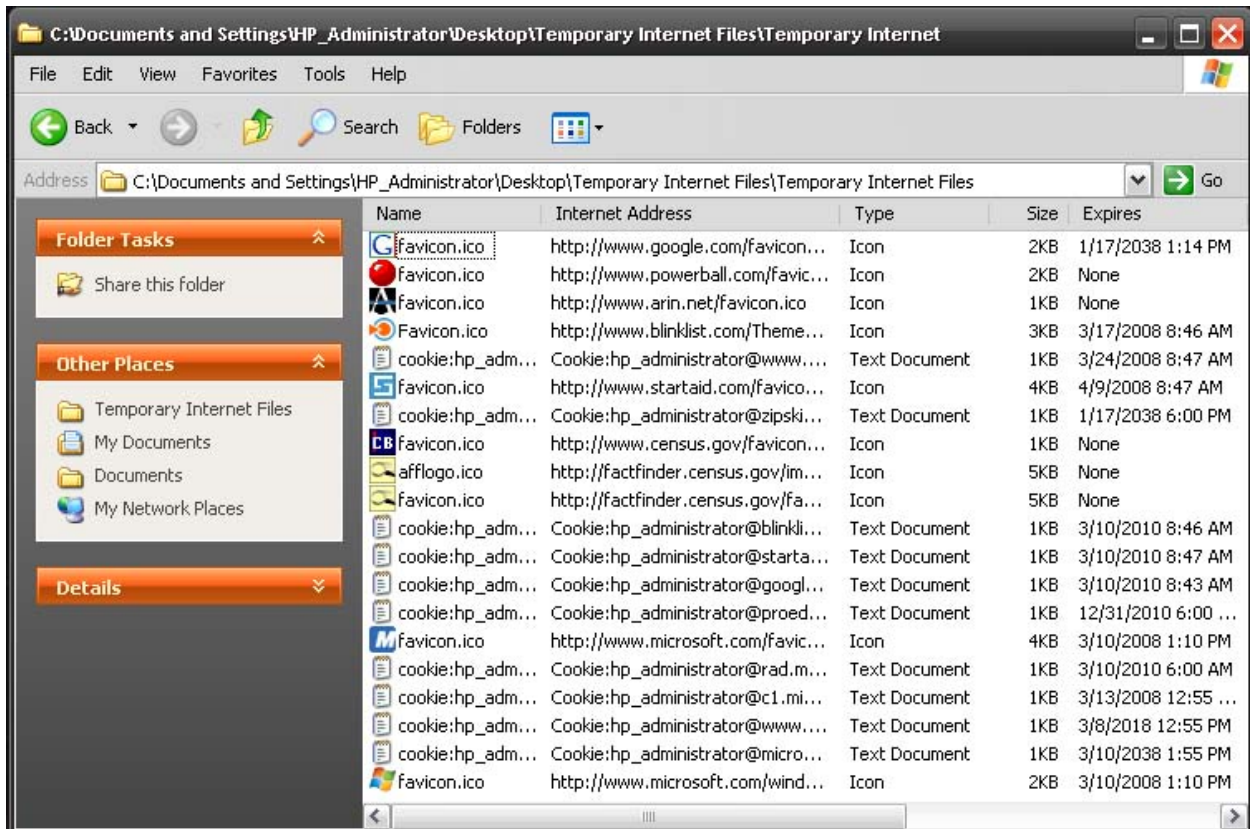
You are now going to open the path to the Temporary Internet Files folder on your local PC, and make sure that it is empty.

Under Windows now, you will simply open My Computer or otherwise navigate to the drive letter that was indicated in the path you jotted down a minute ago.

**IMPORTANT NOTE:** Microsoft IE establishes a Temporary Internet Files folder for EACH user account on your local computer, so if you and your spouse and two children, all share the same computer, but all have separate login names, then each of you will have your own Temporary Internet Files folder. To clear these folders for each individual user, you must be logged into the specific account and/or, to clear the files manually, you must be logged in as a user with Administrative privileges.

See the screen below for an example of how Microsoft's IE web browser sometimes doesn't do what it is told!!

As you can see, despite the fact that the above recommended changes were all being made to the test system as this document was being written, in the end, IE failed to remove all of the files as instructed – e.g., this folder on my test computer SHOULD have been empty at this stage of the process – and clearly, it's not empty!!



Hopefully, when you open your Temporary Internet Files folder, it will be empty at this stage, but if not, (if your folder still has files in it as in the example above), then you will simply need to delete them all manually.

Once this folder is empty, you must then restart your computer. Be sure to save any work that you may have open in other applications, and then close any remaining applications before restarting. Once you have restarted, your IE web browser should be ready to go.

It may be helpful (and I highly recommend) that you go into your browser's Internet Options periodically and force the IE web browser to delete all of the Temporary Internet Files. Then close the browser and navigate to the Temporary Internet Files folder to make sure that all of the files are deleted.

## **CONCLUSION:**

On some computers, the Temporary Internet Files caching problem may never occur, and even if the recommendations are not followed, the user may go for years without any corruptions or problems related to the caching problem.

On other computers however, (far too many in fact) the caching system will fail, become corrupt, or create content validation, login, or other difficulties for the user. And for just as many, the process of forcing IE to delete these files, and setting the configuration such that it is not supposed to keep them after the browser is closed, simply never works, and the user is forced to manually delete these files repeatedly.

Determining if the Temporary Internet Files (caching bug) in IE is actually causing problems for you, can be just as difficult and trying to figure out why it doesn't always work as it should in the first place. My advice is, if a web page isn't loading correctly, and you've repeatedly tried clicking the Refresh/Reload button, or if you login to a secure form, or a restricted access site keeps giving errors (when you know you're entering the correct information), or if you see content that you suspect should have or must have been updated since the last time you viewed it, but the page you're seeing hasn't changed, then it is very likely that you have a problem with the caching system in your IE browser.

This little "bug" in the IE caching system has been a problem since the very first version (IE 1.0) was introduced to the world market back in 1995. And to this day, all the way up to version 7, it is still causing problems for some users. There is simply no way to know if Microsoft's engineers will ever figure out exactly what causes this anomalous behavior with their caching system, and even if they do, the question still remains, will they ever fix it.

About the only alternative to this problem, if it affects your system, and you do not want to have to repeatedly deal with it manually, is to consider installing an alternative web browser. Other web browsers (and there are too many to name here), such as the Netscape, Mozilla FireFox, and Apple's Safari browser to name a few, do not seem to exhibit the same problems within their caching systems, that the IE web browser exhibits. Of course, they may each have their own drawbacks too, which is why many people (including myself) install and use more than one web browser.

As first noted in the introduction, no software program is without a few bugs, so in the end, it is up to you as the consumer to decide which web browser you prefer, and which bugs (or as a programmer friend of mine once called them, "undocumented features") you are willing or able to live with.

I hope you found this information helpful.

Happy Trails!