



## Java – Usage and Security Concerns

**Most software**, such as your office suite, web browser and email application are developed for specific platforms. For example, software developed for Microsoft's Windows platforms can only be used on computers using Microsoft Windows Operating System (OS); software developed for Apple's Mac OS can only be used on computers using it.

**Java**, introduced in 1995, is a computer programming language that does not follow such programming paradigm. Java allows software developers to “write once, run anywhere”, meaning, the same software works on any operating platforms. It is because of this nature, Java has been a popular choice among software developers. You may not have noticed that the Blu-ray disc player that you have at home also uses Java. Java cross-platform software environment is a mandatory component in Blu-ray disc player standards, as Java is used to implement interactive menus on Blu-ray Discs. The famous virtual world video game – Minecraft – was also developed using Java.

Software developed using Java runs on a multi-platform environment called the Java Runtime Environment (JRE), which allows Java software to be used on any operating system, as long as JRE is installed. Java is not only used to develop software, but also web application. Web application developers can take advantage of JRE to improve users' interaction, by embedding Java program, also known as applets, on their website.



## Java Security Concerns

Java is used extensively in home and business computers, and is installed on more than 80% of the desktop computers and mobile devices across the world<sup>1</sup>. With its extensive usage and indiscriminating nature, Java has become a popular target for cyber attackers.

Following a similar concept of software development, most cyber attackers hack into computers by taking advantage of weaknesses of specific platforms. Weaknesses found on Microsoft Windows platforms are not applicable to Apple Mac platforms, and vice versa. However, by taking advantages of weaknesses found on Java, cyber attackers can hack into any platforms or computers as long as it has JRE installed.


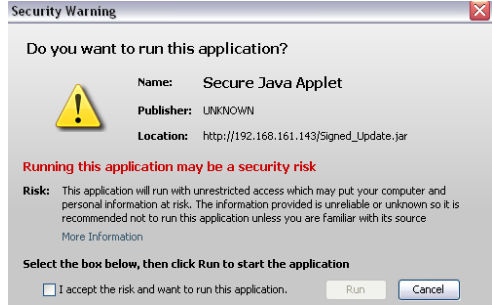
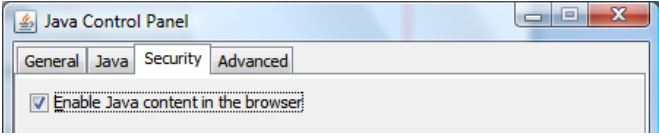
**The most common technique used by cyber attackers** is to trick potential victims to a website embedded with a malicious Java applet. These malicious Java applets may perform action ranging from stealing data from your computer, corrupting data, to infecting your computer with malware.

<sup>1</sup> <http://www.oracle.com/us/corporate/press/1843546>

# Tips On Safe Java Usage

- ✓ **Do not install JRE on your computer** if you do not require it.
- ✓ **Uninstall JRE from your computer** if you have it installed but do not require it.

However, if you need JRE on your computer, use the following tips to minimise your risks:

<p>1</p>	<p><b>Always update your JRE to the latest version.</b> If you are using Microsoft Windows OS, you can update your JRE through the Java Control Panel. As for Apple Mac OS, Java will be kept current as long as your Apple Mac OS version is kept up-to-date.</p>
<p>2</p>	<p><b>Know the risks of running malicious Java applets on your web browser.</b> Java applets require your permission for execution on your web browser. Look out for the security warning messages in the prompt, do not execute applications that are warned to have untrusted or expired certificate, and those with high-risk.</p> <div></div> <div></div>
<p>3</p>	<p><b>Disable Java content on your web browser.</b> This can be done through the Java Control Panel<sup>2</sup>, and will not affect your browsing experience. If you require Java plug-in for some websites, you can always enable it when you are browsing the site, and disable it thereafter.</p> <div></div>
<p>4</p>	<p><b>Select minimally “Medium” (default) security level in the Java Control Panel.</b> This will disallow unsigned and self-signed sandbox (limited access) apps will not run on old or expired Java versions.</p>

<sup>2</sup> In Windows OS, Java Control Panel can be launched by clicking on the Start button doing a control panel search for “Java Control Panel”, or by double clicking on the Java icon. In Mac OS, click on the Apple icon on upper left of screen, go to System Preferences and click on the Java icon.

## Interesting Reads

- What is Java and why do I need it:  
[http://java.com/en/download/faq/whatis\\_java.xml](http://java.com/en/download/faq/whatis_java.xml)
- What should I do when I see a security prompt from Java:  
[http://www.java.com/en/download/help/ap\\_psecuritydialogs.xml](http://www.java.com/en/download/help/ap_psecuritydialogs.xml)
- Risks of Java and Best Defences :  
[http://www.securingthehuman.org/newsletters/ouch/issues/OUCH-201301\\_en.pdf](http://www.securingthehuman.org/newsletters/ouch/issues/OUCH-201301_en.pdf)
- How do I uninstall Java on my Microsoft Windows computer :  
<http://www.java.com/en/download/uninstall.jsp>
- How do I uninstall Java on my Apple Mac OS computer:  
[http://java.com/en/download/help/mac\\_uninstall\\_java.xml](http://java.com/en/download/help/mac_uninstall_java.xml)
- How to Unplug Java from the Browser:  
<http://krebsonsecurity.com/how-to-unplug-java-from-the-browser>



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