How Secure is My Device

APCUG Virtual Technology Conference

21 February 2015

apcug

An International
Association of Technology
& Computer User Groups

Jere Minich

Jminich@apcug.org

Board Of Advisors – Region 5 - Florida

What Devices will I cover?

- PC – Windows Vista, 7, & 8/8.1
- Tablets - Android
- Smart Phones – iPhone, Android

I am not at risk

- There is malware out there targeting every mobile platform:
    - Apple iOS
    - WinMobile
    - Blackberry
- The vast majority of mobile malware programs today target Google Android users

The Infection Cycle

1. The Hacker generates a program and puts it on the Internet or in email.
2. Your anti-virus company discovers the hacker's program.
3. The anti-virus company writes a software program to block or delete the hacker's program.
4. You get an update from the anti-virus company, usually daily.
5. You install the update – some are auto-installed.

What is the Time span from Step 1 to 5.?

Bottom Line – everyone can get infections.

Symptoms of Malware - PC

- Sudden - Poor Performance
- Lots of Stuff running in the Background
- The Following Programs fail to work:
    - Task Manager
    - Anti-virus Program
    - Regedit = Registry Editor
    - System Restore
    - Msconfig = System Configuration

Symptoms of Malware – PC

Unwanted Changes

- Can’t turn off a toolbar
- Can’t delete a Toolbar
- Browser Home Page Changes
- Search Engine Page Changes
- **Assume that your Antivirus has been compromised**
  - Scan with something else
    - Eset Online Scanner – www.eset.com/online-scanner
    - Trend Micro Housecall – www.housecall.trendmicro.com
      - **Neither program requires installation**

Symptoms of Malware Mobile Devices

- Noticeable performance issues
  - Everything taking longer than usual
- Using up data at a faster rate than before
- Battery seems to be running down much faster
- Calls being dropped or interrupted with weird noises
- Unwanted behaviors
- Frozen apps
- Failure to reboot
- Difficulty connecting to the network
- Racked-Up Phone Bills

Cell Phone Terms

- IMEID = International Mobile Equipment Identity
- ICCID = Integrated Circuit Card Identity
- MEID = Mobile Equipment Identity
- 3G = Third Generation cell phone signals – speed
- 4G= Forth Generation - + High Speed Packet Access
- LTE= Long Term Evolution – a standard for wireless communication of high-speed data for mobile phones and data terminals
- SIM Card = **s**ubscriber **i**dentity **m**odule – 3 sizes
  - Standard; Micro; Nano
- Major Cell Phone Networks =
  - CDMA – Verizon & Sprint - Code division multiple access = USA
  - GSM – AT&T & T-Mobile- Global System for Mobile Communications = <u>Most of the world</u>
- Note: 5C, 5S &6 iPhones contain antenna for both = World phone = Going overseas = call carrier

The 15-digit serial or IMEI number helps to identify your phone and can be accessed by:

(International Mobile Equipment Identity)

- keying ***#06#** into most phones
- looking behind the battery of your phone
- checking in the phone's settings
- **Make a note of this number and keep it separate from your phone:**
  - as this number could help to trace and prove ownership quickly if it is stolen
- If you report your phone stolen, the service provider should then be able to stop further use of your phone
- However, registering it means your phone usage is tied to your identity

Security - Smartphone malware is easily distributed through:

- an insecure app store
- hidden in pirated versions of legitimate apps, which are then distributed through 3rd party app stores
- an "update attack"
  - where a legitimate application is later changed to include a malware component
  - which users then install when they are notified that the app has been updated

Information is vulnerable when sent from a mobile phone

- Each mobile phone provider has full access to:
  - all text and voice messages sent via its network
- Phone providers are legally obliged to keep records of all communications
- Voice and text communication can also be tapped by third parties in proximity to the mobile phone, using inexpensive equipment

Information is vulnerable within the sender's and the recipient's phones

- Mobile phones can store all sorts of data:
  - call history
  - text messages sent and received
  - address book information
  - photos
  - video clips
  - text files
- Modern mobile phones are pocket-sized computers
- With more features comes higher risk
- **In addition, phones that connect to the Internet are also subject to the insecurities of computers and of the Internet. (Malware)**

Phones give out information about their location

- As part of normal operation, every mobile phone automatically and regularly:
- informs the phone service provider where it is at that moment
- Many phones nowadays have GPS functions,
- and this precise location information may be embedded in other data such as:
- **photos,**
- **instant messages**
- **and internet requests that are sent from the phone**

What are the different kinds of infections?

- **Malware** – a general term - malicious software disguised as legitimate software
  - designed to collect and transmit private information
    - such as passwords, without the user's consent or knowledge
- **Viruses** – program replicates by inserting copies of itself into other computer programs, data files, or the boot sector of the hard drive
  - Can create a **BotNet**
  - **Botnet = Robot Network**
- **Worms** - a stand-alone malware program that actively transmits itself over a network to infect other computers.

What are the different kinds of infections?

- **Rootkits** – stays concealed, to avoid detection; invisible in the system's list of processes
- **Backdoors** - bypass normal authentication procedures; usually over a connection to a network such as the Internet
- **Trojan Horses** - a program disguised as something normal
- **Ransomware –** restricts access to the system that it infects, and demands a ransom paid

How does Malware get into my device?

- Security defects in software –
- Malware exploits security defects
  - security bugs or vulnerabilities
- in the design of the:
  - operating system
  - applications (Apps)
  - browsers
    - browser plugins such as:
    - Adobe Flash Player
    - Adobe Acrobat
    - Adobe Reader
    - or Java

Basic Security Setup for Android Devices

Access to your phone

Step 1. Set up **Sim Card Lock**, found under: System > Security > Sim and Lock Settings.

you must enter a PIN number in order to unlock your SIM card each time your phone is switched on

Step 2. Set up a **Screen Lock**, found under: System > Security > Screen Lock

which will ensure that a code, pattern or password needs to be entered to unlock the screen

Step 3. Set the **security lock timer**: which will automatically lock your phone after a specified time of no action

specify a value which suits you, depending on how regularly you are willing to have to unlock your phone

Basic Security Setup for Android Devices

Device Encryption

Step 4. If your device uses latest Android version you should turn on **device encryption**

- This can be done in: Settings > Security > Encryption
- Before you can utilize device encryption, you will be required to set a screen lock password

Note: Before starting the encryption process, ensure the phone is:

- fully charged
- and plugged into a power source

Basic Security Setup for Android Devices

Network settings

Step 5. Turn **off** Wi-Fi and Bluetooth by default

> Ensure that Tethering & Portable Hotspots are switched off when not in use

Step 6. If your device supports Near Field Communication (NFC), this **will be switched on** by default, and so must be **switched off manually**

Basic Security Setup for Android Devices

Location settings

Step 7. Switch off Wireless and GPS location:

under Location Services

and mobile data

under data manager > data delivery

Note: Turn **ON** location settings as you need them. It reduces:

the risk of location tracking,

saves battery power

reduces unwanted data streams initiated by applications running in the background or remotely by your mobile carrier

Basic Security Setup for Android Devices

Step 8. Caller Identity

If you want to hide your caller-ID, Go to:

Phone Dialer > settings > Additional Settings > Caller ID > hide number

Often-overlooked Security Settings for iPhone and iPad

- Check privacy controls = Settings > General > Privacy
- Enable Find My iPhone = Settings > iCloud > Find my iPhone/iPad
- Separate your iTunes and iCloud passwords = do not use the same
- Enable a Passcode = Settings > Passcode > Require Passcode
- Enable Erase Data – ten attempts = Settings > Passcode > Erase Data
- Turn on Find My iPhone/iPad - incorporated a new technology called "Activation Lock," which is effectively Apple's version of the Kill Switch
- Enable Backup Encryption – found in iTunes
- Keep iOS Updated – iOS 8.1.3 = Settings > General > Software Update = update with Power Plugged in.
- Disable Bluetooth = Settings > Bluetooth > Turn it Off

Often-overlooked Security Settings for iPhone and iPad

- Enable Fraud Warnings & Pop Up Blocker = Settings > Safari
- Restrict purchases and media content = Google all purchases for safety/security
- Use Find My iPhone Activation Lock = Settings > iCloud > Google it.
- Control what's displayed on the lock screen = Settings > Notifications Select
  - manage certain categories
- Block unwanted calls and texts on iPhone = Recent > select > Scroll Down to Block
- Enable Do Not Track (DNT) in Safari and block cookies

Often-overlooked Security Settings for iPhone and iPad

- View a link's URL before tapping it – press and hold
- Enable - Lost Mode
- Maintain Physical Security – keep it close to you.
- Do Not Jailbreak your iPhone or iPad
  - lowers security,
  - disables the enforcement of code signatures,
    - which is an important security feature

Often-overlooked Security Settings for iPhone and iPad

- Do **Not**
  - Join **Untrusted** Wireless Networks.
  - Allow less secure apps to access your account.
    - Some examples of apps that do not support the latest security standards include:
      - applications that send your credentials directly to Gmail
      - digital credential = proof of qualification, competence, or clearance that is attached to a person
      - credentials may contain personal information such as the person's name, birthplace, birthdate, and/or biometric information such as a picture or a finger print

What to do about downloading Apps

Check app reviews.

- always read the reviews first.
  - If the app is problematic in any way, some of the reviews will make note of it and you can move on.
  - If the app doesn't have any reviews, you may want to steer clear until it does.

Check developer's track record.

- check the developer's other apps to see if they have a reputable track record.

Be wary of third-party app markets.

- all app markets have some degree of risk to them.
- stick to the reputable App stores.

Be careful when granting Superuser privileges.

- limit Superuser privileges only to the apps you trust 100%.
- If you grant Superuser access to every app that asks for it, then you're just asking for malware to gain full control of your device.

Run malware scans regularly.

- schedule scans.
- make a routine out of scanning, whether it's once a day or once a week.

Email & Malware

- Email ‘attachments’ carrying malware are the most common way attackers get into your device, such as:
    - a file sent along with an email message
        - You can see all attachments in email – ‘file extension’
    - Pictures
    - .exe files (a common filename extension denoting an executable file)
    - Some viruses use files with two extensions to make dangerous files look like safe files.
    - For example, Document.txt.exe or Photos.jpg.exe

Email Protective Measures

- **Delete** - suspicious emails with attachments
- **Disable** –Wi-Fi & Bluetooth when you are not using them
  - **Beware** of “disguised” attachments
  - Example: Hogcaller.gif.exe
- **Keep** email software up-to-date
  - Use alternative email software - ‘client email’ vs ‘Web Email’
    - Microsoft Outlook , Mozilla Thunderbird , Eudora. (‘Client’ Email Programs)
- **Disable** automatic reading of emails
  - ‘Webmail’ - make sure that your email provider offers an antivirus tool

How to avoid trouble in Email

- If in any doubt, **don’t open it**
- **Delete** anything from someone you don’t know
- **Never**:
  - click on anything from an unknown source
  - open an attachment from an unknown source
  - download from an unknown source

Keeping All Software up-to-date

- Keep your apps up-to-date at the pace you want
  - When security vulnerabilities are discovered by the OEM:
    - they are patched with security updates
- When you have auto-update turned on:
  - apps that require new permissions in the latest update will always require your confirmation before updating
  - regardless of the setting
- All Software - should be kept up-to-date
  - with the newest security updates
- It keeps you safe

How to keep Software/Apps Updated

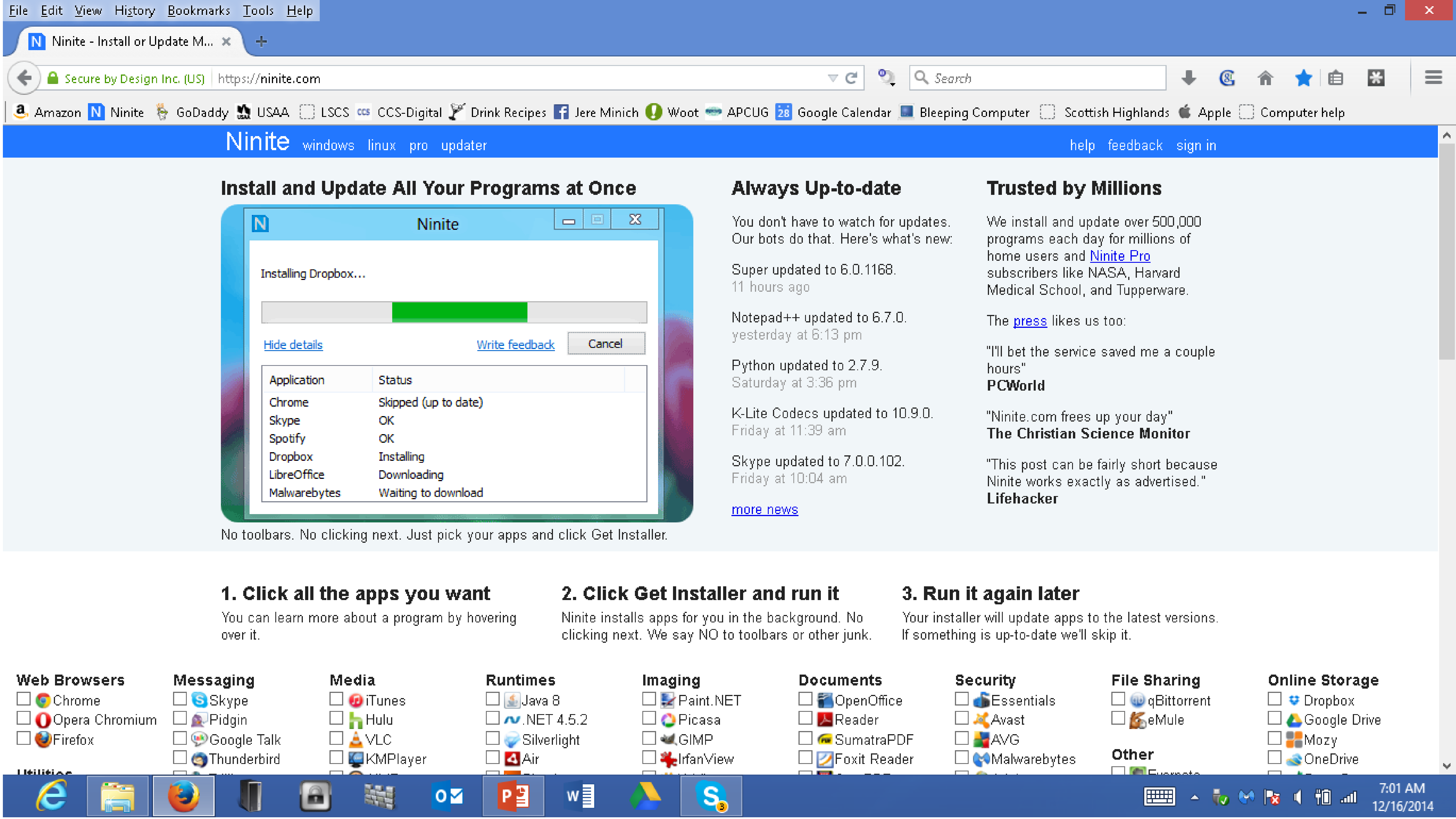
- Check for Updates to your device
  - Go to Settings
  - Click on Software Updates
- Connect your device to its Power Source
  - Do not update Operating System while running on battery
- Connect to the Internet and the Program Website
  - Click on Updates

Here's how to update your apps on Android

- Find the Android Marketplace on your home screen;
  - or in your app drawer
- Tap it to open it up
- Once the Android Marketplace loads:
  - tap the menu button on your device
  - choose the ‘My Apps’ option
- In a few seconds you should see a list of your apps
- If there are available updates you'll see red/orange text that says Update to the right of the app's name
- Tap Update All at the top of the screen to update your apps
- You can update them individually by tapping and holding down the app you want to update and then choosing Update from the resulting menu

Best Update Checker tools – PC's

- Ninite Update Checker
  - www.ninite.com
- Secunia PSI (Windows, Free)
  - http://secunia.com/vulnerability_scanning/psi-android/
  - http://secunia.com/vulnerability_scanning/personal/



Install and Update All Your Programs at Once

Installing Dropbox...

Application	Status
Chrome	Skipped (up to date)
Skype	OK
Spotify	OK
Dropbox	Installing
LibreOffice	Downloading
Malwarebytes	Waiting to download

No toolbars. No clicking next. Just pick your apps and click Get Installer.

Always Up-to-date

You don't have to watch for updates. Our bots do that. Here's what's new:

Super updated to 6.0.1168.
11 hours ago

Notepad++ updated to 6.7.0.
yesterday at 6:13 pm

Python updated to 2.7.9.
Saturday at 3:36 pm

K-Lite Codecs updated to 10.9.0.
Friday at 11:39 am

Skype updated to 7.0.0.102.
Friday at 10:04 am

more news

Trusted by Millions

We install and update over 500,000 programs each day for millions of home users and Ninite Pro subscribers like NASA, Harvard Medical School, and Tupperware.

The press likes us too:

"I'll bet the service saved me a couple hours"
PCWorld

"Ninite.com frees up your day"
The Christian Science Monitor

"This post can be fairly short because Ninite works exactly as advertised."
Lifehacker

1. Click all the apps you want

You can learn more about a program by hovering over it.

2. Click Get Installer and run it

Ninite installs apps for you in the background. No clicking next. We say NO to toolbars or other junk.

3. Run it again later

Your installer will update apps to the latest versions. If something is up-to-date we'll skip it.

Web Browsers

□ Chrome
□ Opera Chromium
□ Firefox

Utilities

Messaging

□ Skype
□ Pidgin
□ Google Talk
□ Thunderbird

Media

□ iTunes
□ Hulu
□ VLC
□ KMPlayer

Runtimes

□ Java 8
□ .NET 4.5.2
□ Silverlight
□ Air

Imaging

□ Paint.NET
□ Picasa
□ GIMP
□ IrfanView

Documents

□ OpenOffice
□ Reader
□ SumatraPDF
□ Foxit Reader

Security

□ Essentials
□ Avast
□ AVG
□ Malwarebytes

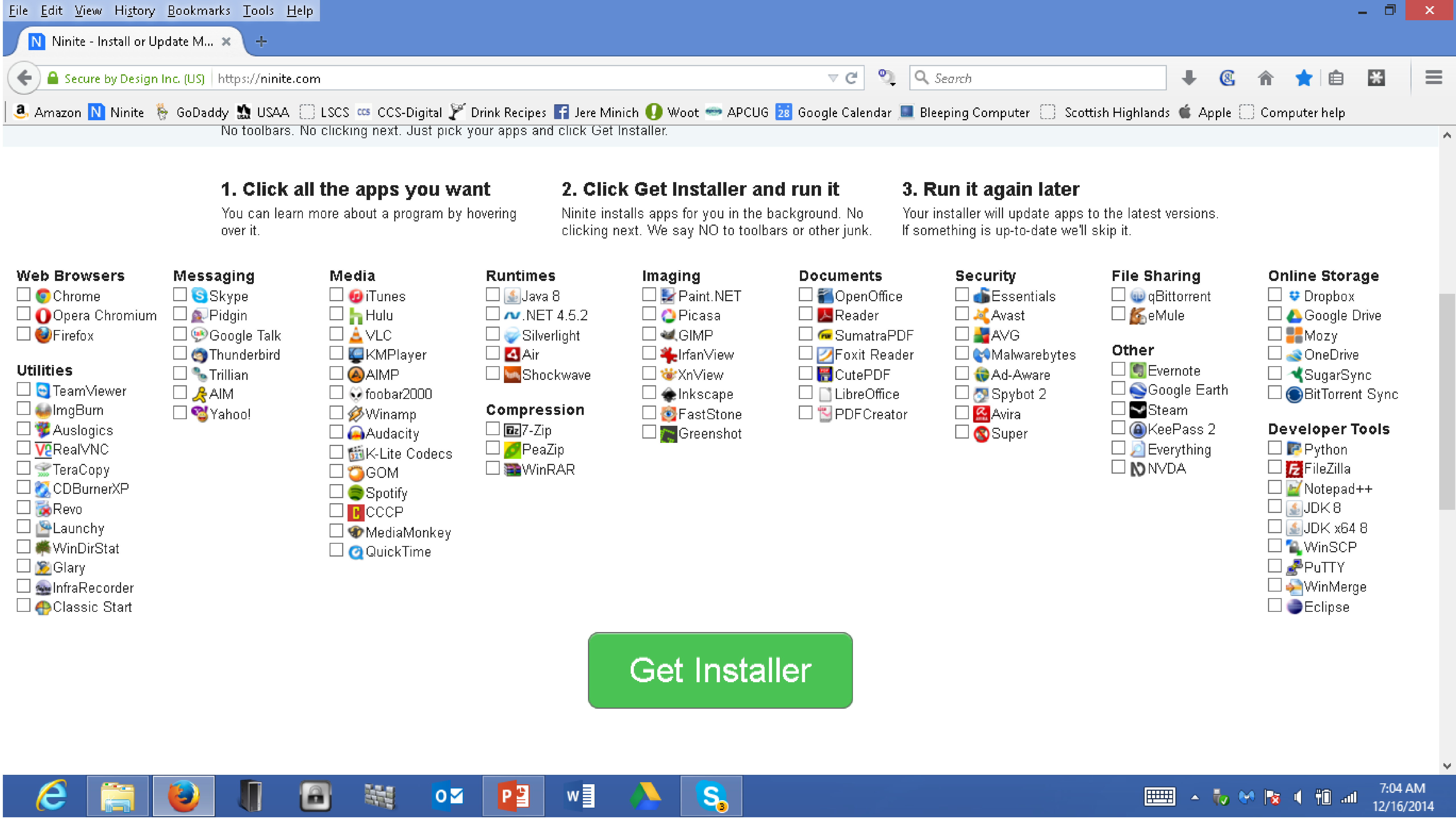
File Sharing

□ qBittorrent
□ eMule

Other

Online Storage

□ Dropbox
□ Google Drive
□ Mozy
□ OneDrive



No toolbars. No clicking next. Just pick your apps and click Get Installer.

1. Click all the apps you want

You can learn more about a program by hovering over it.

2. Click Get Installer and run it

Ninite installs apps for you in the background. No clicking next. We say NO to toolbars or other junk.

3. Run it again later

Your installer will update apps to the latest versions. If something is up-to-date we'll skip it.

Web Browsers

- □ Chrome
- □ Opera Chromium
- □ Firefox

Utilities

- □ TeamViewer
- □ ImgBurn
- □ Auslogics
- □ RealVNC
- □ TeraCopy
- □ CDBurnerXP
- □ Revo
- □ Launchy
- □ WinDirStat
- □ Glary
- □ InfraRecorder
- □ Classic Start

Messaging

- □ Skype
- □ Pidgin
- □ Google Talk
- □ Thunderbird
- □ Trillian
- □ AIM
- □ Yahoo!

Media

- □ iTunes
- □ Hulu
- □ VLC
- □ KMPlayer
- □ AIMP
- □ foobar2000
- □ Winamp
- □ Audacity
- □ K-Lite Codecs
- □ GOM
- □ Spotify
- □ CCCP
- □ MediaMonkey
- □ QuickTime

Runtimes

- □ Java 8
- □ .NET 4.5.2
- □ Silverlight
- □ Air
- □ Shockwave

Compression

- □ 7-Zip
- □ PeaZip
- □ WinRAR

Imaging

- □ Paint.NET
- □ Picasa
- □ GIMP
- □ IrfanView
- □ XnView
- □ Inkscape
- □ FastStone
- □ Greenshot

Documents

- □ OpenOffice
- □ Reader
- □ SumatraPDF
- □ Foxit Reader
- □ CutePDF
- □ LibreOffice
- □ PDFCreator

Security

- □ Essentials
- □ Avast
- □ AVG
- □ Malwarebytes
- □ Ad-Aware
- □ Spybot 2
- □ Avira
- □ Super

File Sharing

- □ qBittorrent
- □ eMule

Other

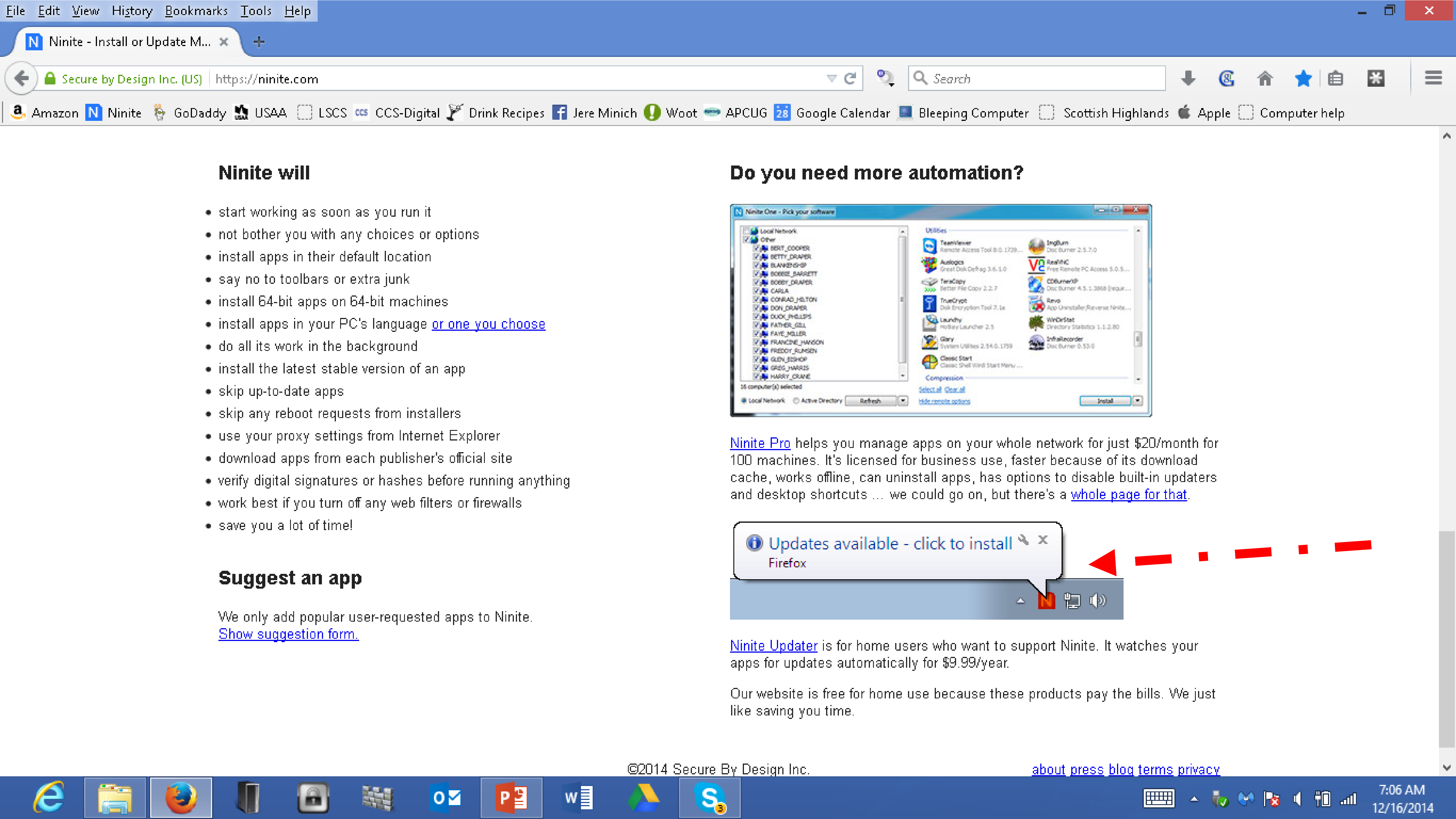
- □ Evernote
- □ Google Earth
- □ Steam
- □ KeePass 2
- □ Everything
- □ NVDA

Online Storage

- □ Dropbox
- □ Google Drive
- □ Mozy
- □ OneDrive
- □ SugarSync
- □ BitTorrent Sync

Developer Tools

- □ Python
- □ FileZilla
- □ Notepad++
- □ JDK 8
- □ JDK x64 8
- □ WinSCP
- □ PuTTY
- □ WinMerge
- □ Eclipse


File Edit View History Bookmarks Tools Help
Ninite - Install or Update M...
Secure by Design Inc. (US) https://ninite.com
Search
Amazon Ninite GoDaddy USAA LSCS CCS-Digital Drink Recipes Jere Minich Woot APCUG Google Calendar Bleeping Computer Scottish Highlands Apple Computer help
Ninite One - Pick your software
Utilities
Compression
Install
7:06 AM
12/16/2014

Ninite will

- start working as soon as you run it
- not bother you with any choices or options
- install apps in their default location
- say no to toolbars or extra junk
- install 64-bit apps on 64-bit machines
- install apps in your PC's language or one you choose
- do all its work in the background
- install the latest stable version of an app
- skip up-to-date apps
- skip any reboot requests from installers
- use your proxy settings from Internet Explorer
- download apps from each publisher's official site
- verify digital signatures or hashes before running anything
- work best if you turn off any web filters or firewalls
- save you a lot of time!

Suggest an app

We only add popular user-requested apps to Ninite.
Show suggestion form.

Do you need more automation?

Ninite Pro helps you manage apps on your whole network for just $20/month for 100 machines. It's licensed for business use, faster because of its download cache, works offline, can uninstall apps, has options to disable built-in updaters and desktop shortcuts ... we could go on, but there's a whole page for that.

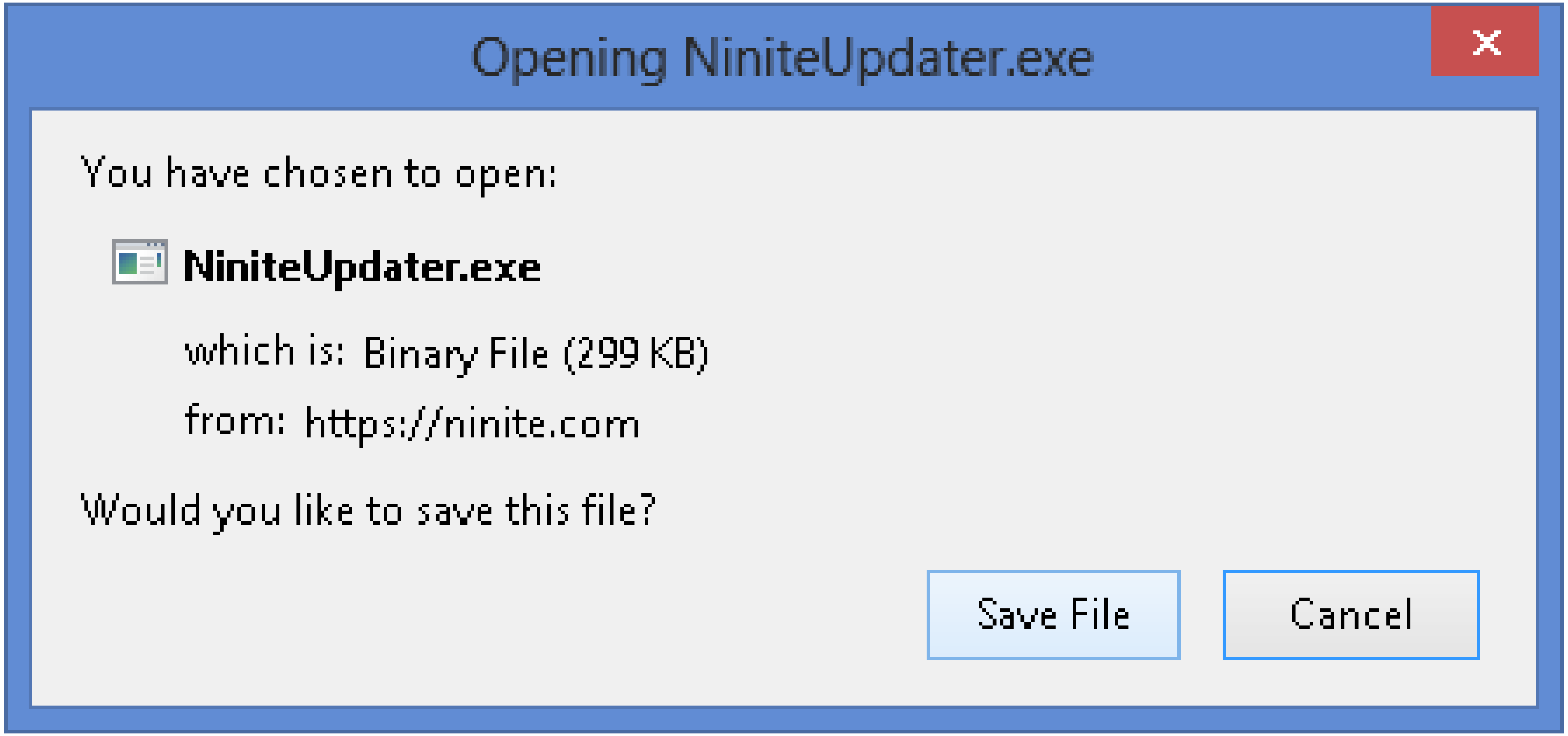
Ninite Updater is for home users who want to support Ninite. It watches your apps for updates automatically for $9.99/year.

Our website is free for home use because these products pay the bills. We just like saving you time.

©2014 Secure By Design Inc.

about press blog terms privacy

Ninite Updater



Opening NiniteUpdater.exe

You have chosen to open:

NiniteUpdater.exe

which is: Binary File (299 KB)

from: https://ninite.com

Would you like to save this file?

Simple Prevention

- Never click to “accept terms” from any company without reading the fine print
  - Accept may = access address book and forward a message to everyone in it!
  - EULAlyzer Personal
    - http://www.brightfort.com/eulalyzer.html
- Use **antivirus** software and keep it up to date
  - 1 program only
  - No reasonable difference between free and $$
  - Run Weekly Quick Scans
  - Run Monthly Full Scans

Simple Prevention

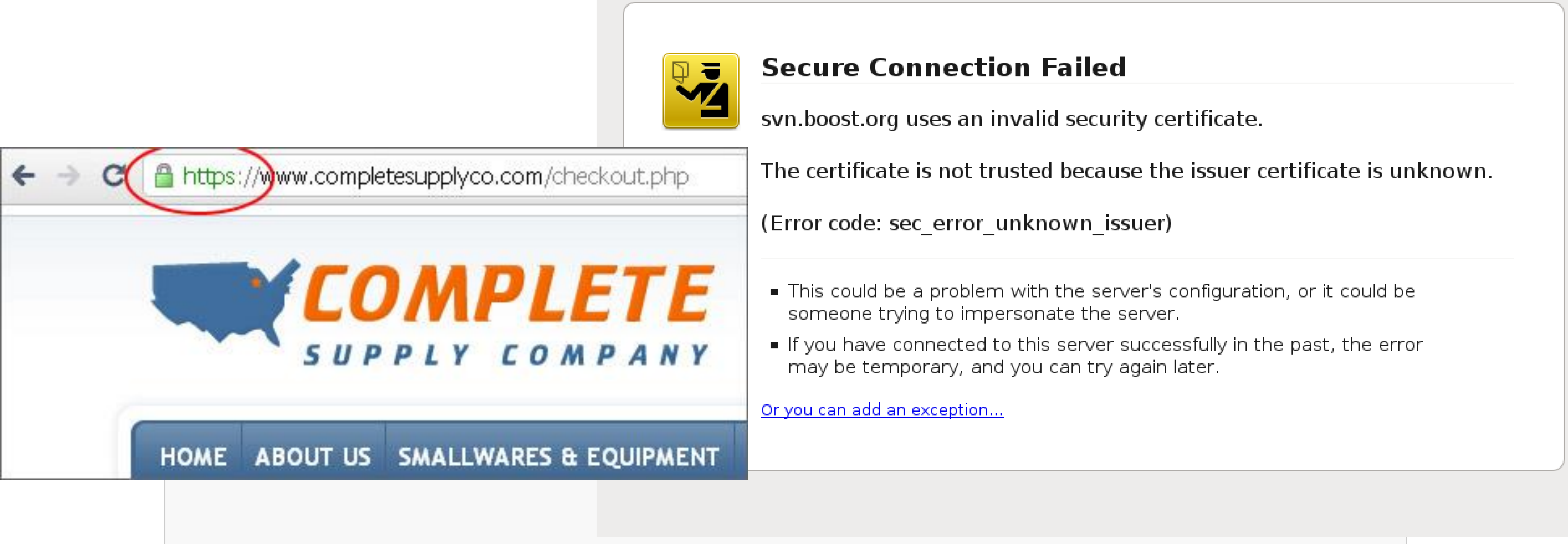
- Be cautious of the internet
- Avoid:
  - misleading ads
  - strangers with offers
  - strange e-mails
  - questionable websites
- Do Google search to verify

Tools to remove Malware - PC

- Use a Malware Removal software program
- **Malwarebytes** – best on the internet
  - https://www.Ninite.com
- **Malicious Software Removal Tool** – Microsoft tool
  - http://www.microsoft.com/security/pc-security/malware-removal.aspx
- **Spybot Search & Destroy** (Windows, Freeware)
  - http://www.safer-networking.org/private/

Secure versus unsecure site

- Hypertext Transfer Protocol Secure (HTTP**S**) is a communications protocol for secure communication over a computer network used on the internet:
  - prevents wiretapping and man-in-the-middle attacks
  - provides bidirectional encryption of communications between a client (you) and server



https://www.completesupplyco.com/checkout.php

Secure Connection Failed

svn.boost.org uses an invalid security certificate.

The certificate is not trusted because the issuer certificate is unknown.

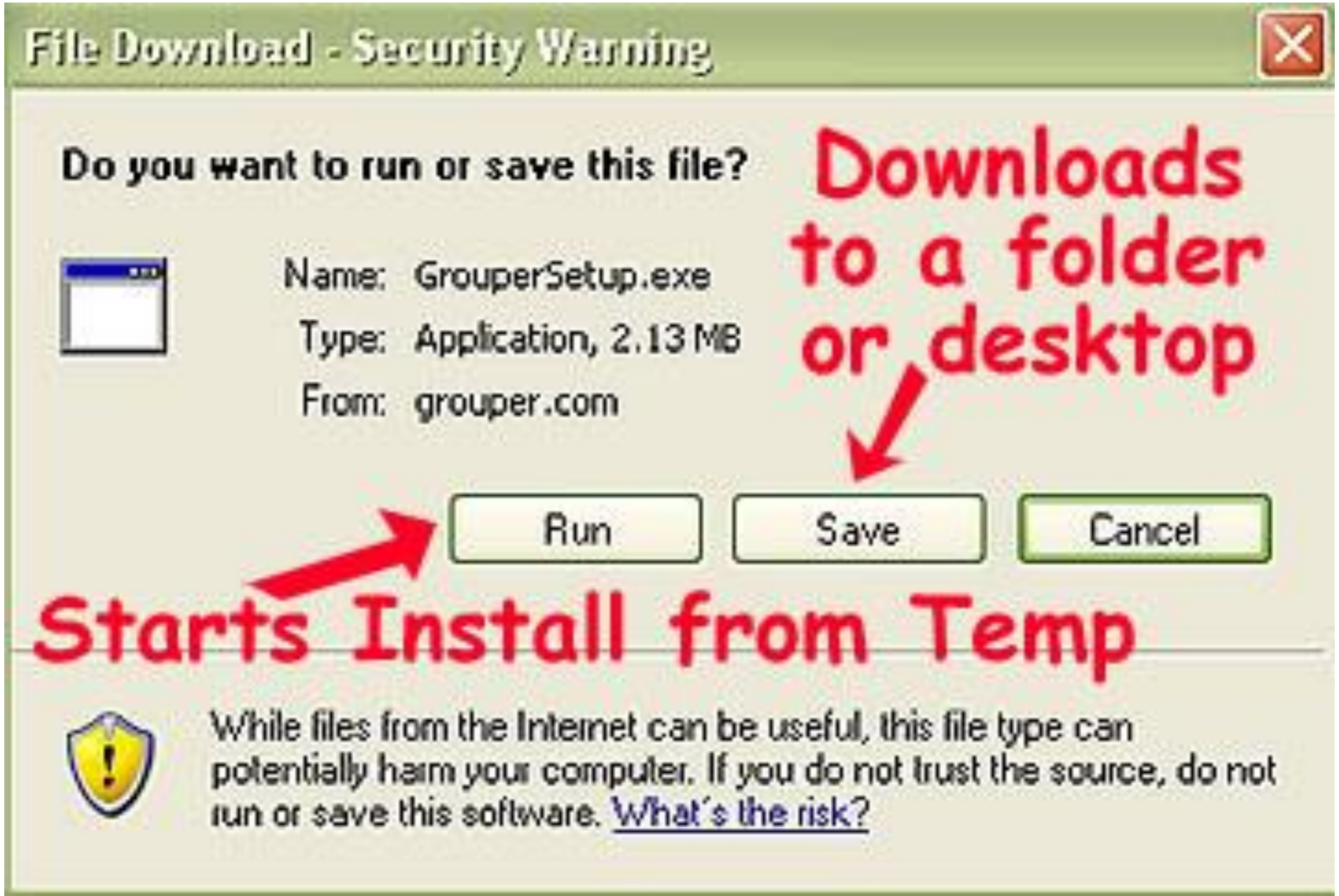
(Error code: sec_error_unknown_issuer)

- This could be a problem with the server's configuration, or it could be someone trying to impersonate the server.
- If you have connected to this server successfully in the past, the error may be temporary, and you can try again later.

Or you can add an exception…

Many web browsers use the address bar to tell the user that their connection is secure, often by coloring the background, adding a Padlock in the locked condition.

Downloading Software without Piggyback Software



File Download - Security Warning

Do you want to run or save this file?

Name: GrouperSetup.exe

Type: Application, 2.13 MB

From: grouper.com

While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

Downloads to a folder or desktop

Starts Install from Temp

When Run is Selected….

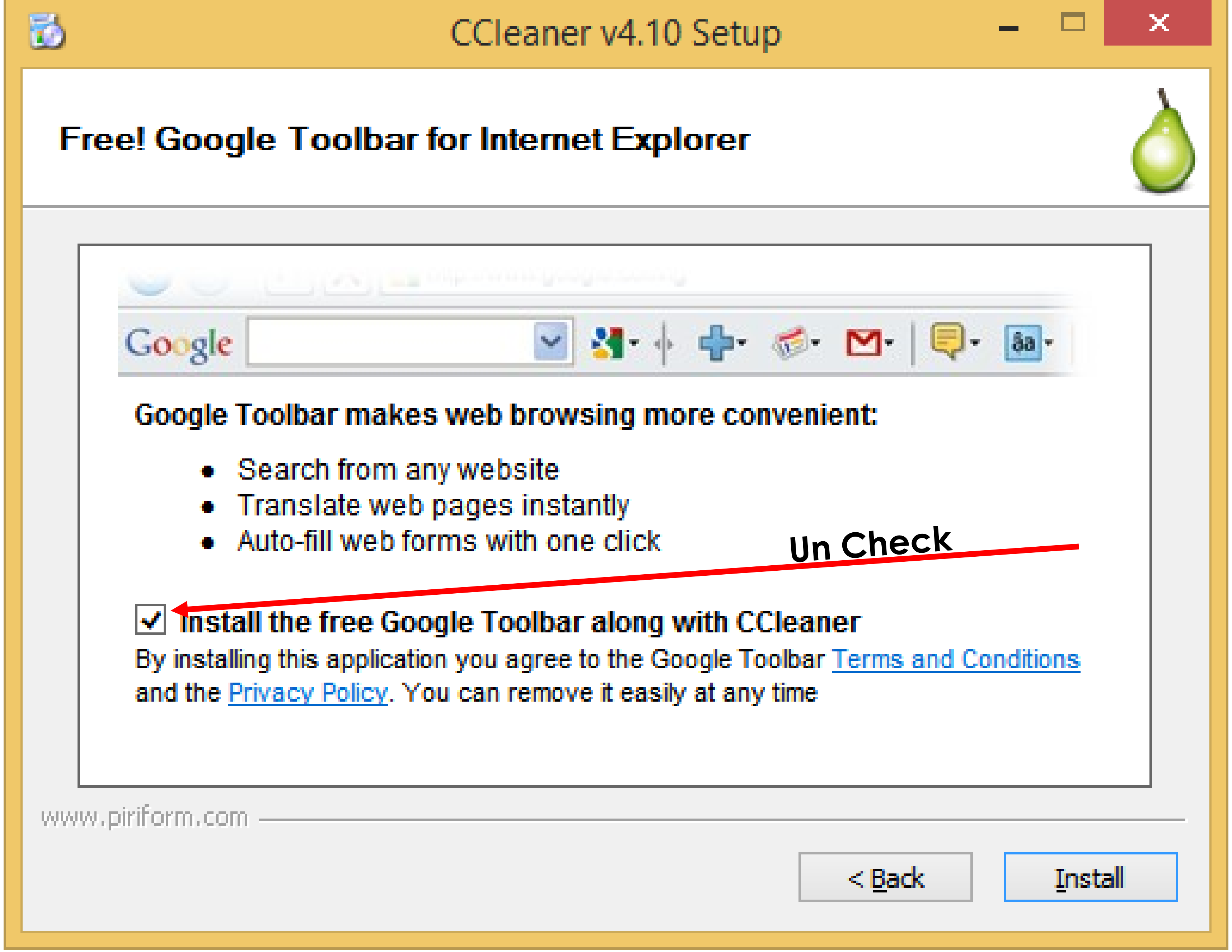
- An automatic two-step process takes place:

1. file(s) downloaded to your Computer
    - a. It's normally placed in your browser's:
        - "Temporary Internet Files"
        - Windows temporary file location
    - b. Piggyback software may also be included
2. The file is automatically:
    - a. installed on your computer
    - b. run on your computer

- You have lost control of your computer

When Save is selected while downloading

- The browser will simply download the file
  - Usually a compressed file
- The file is copied to your hard disk
- You can choose where to save it
  - You install it
  - You select piggyback software to install or not..
- You have control of your computer & programs



Free! Google Toolbar for Internet Explorer

Google Toolbar makes web browsing more convenient:

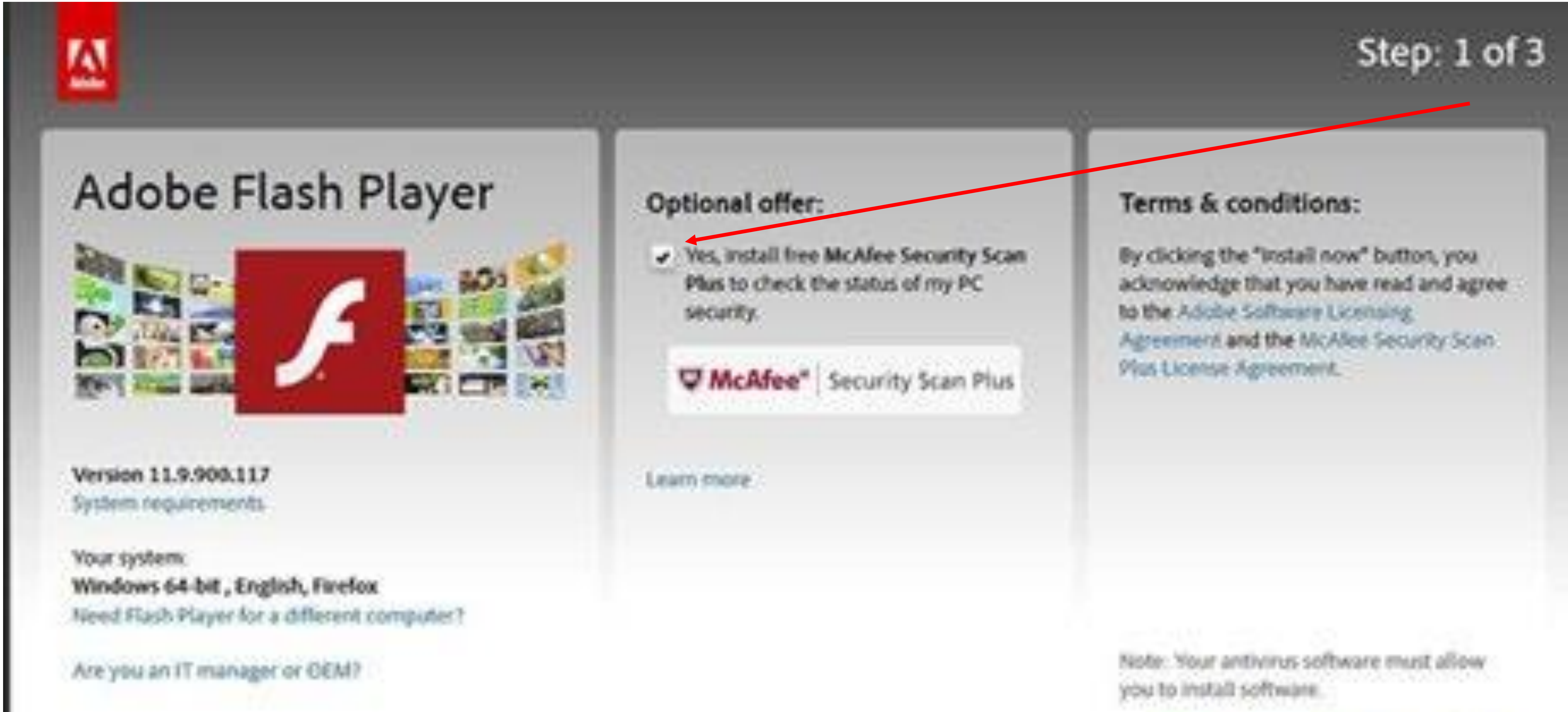
- Search from any website
- Translate web pages instantly
- Auto-fill web forms with one click

☑ Install the free Google Toolbar along with CCleaner

By installing this application you agree to the Google Toolbar Terms and Conditions and the Privacy Policy. You can remove it easily at any time

CCleaner is a good software program, but the free toolbar will hog computer resources.

Piggy Back Software = McAfee Security Scan Plus



Adobe Flash Player

Version 11.9.900.117
System requirements

Your system:
Windows 64-bit , English, Firefox
Need Flash Player for a different computer?

Are you an IT manager or OEM?

Optional offer:

☑ Yes, install free **McAfee Security Scan Plus** to check the status of my PC security.

Learn more

Terms & conditions:

By clicking the "Install now" button, you acknowledge that you have read and agree to the Adobe Software Licensing Agreement and the McAfee Security Scan Plus License Agreement.

Note: Your antivirus software must allow you to install software.

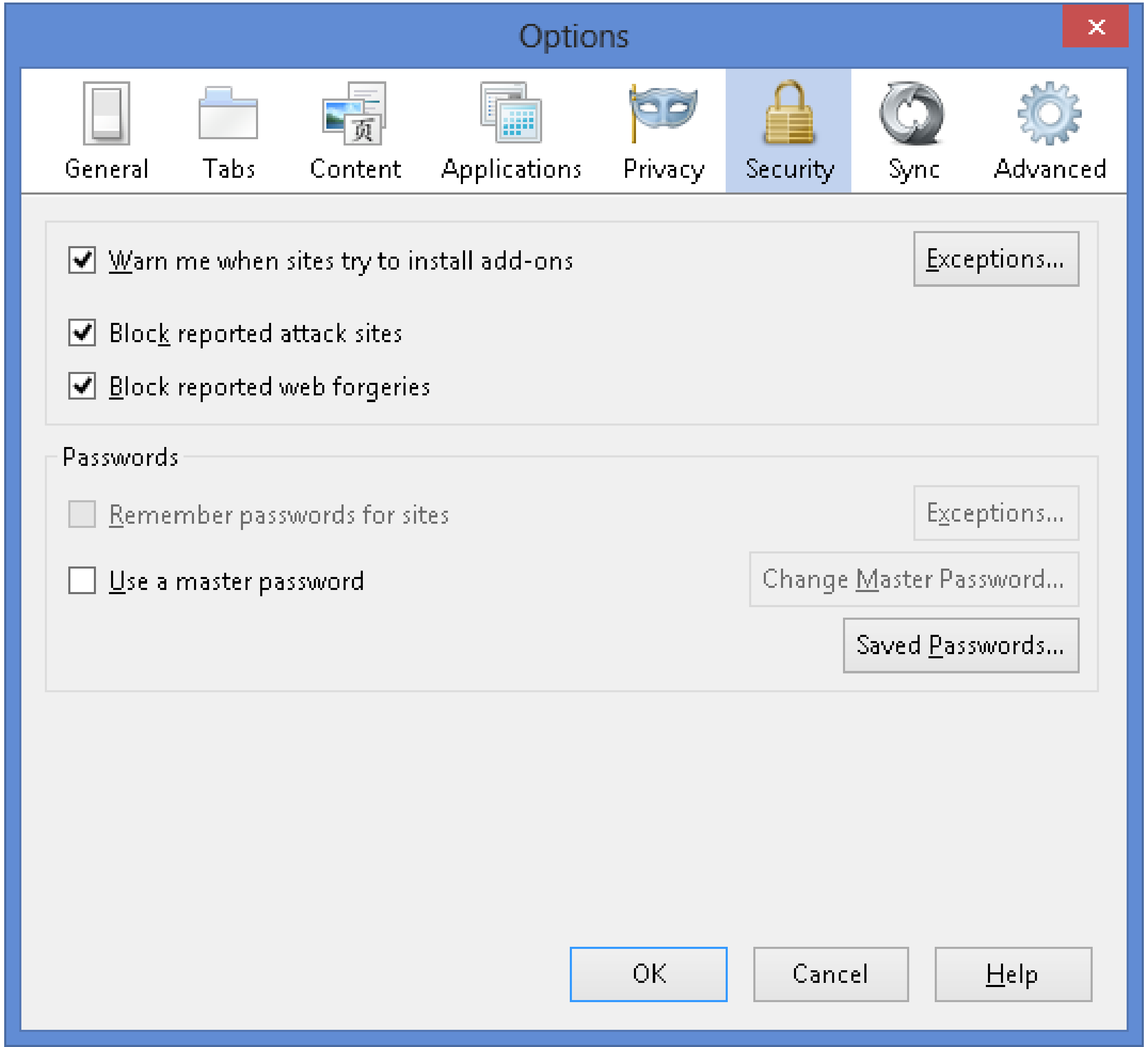
Programs to have on your Computer

My personal selection

- One (1) Antivirus – free is OK
  - Microsoft Security Essentials (Windows 8 = Windows Defender)
  - **Run Scan Weekly**
- A Firewall – Software on Computer / Hardware in Modem Router
- A Malware Removal Program
  - Malwarebytes - Free or Annual Charge of $25.00
  - **Run Weekly**
- A Scanning Program
  - Spybot Search and destroy
  - **Run Weekly**
- An Advertisement Blocker
  - Ad-Aware
  - **Run Weekly**

Setting Security in your Browser

On the Menu Bar: Tools: Options: Security Tab



☑ Warn me when sites try to install add-ons [Exceptions...]

☑ Block reported attack sites

☑ Block reported web forgeries

Passwords

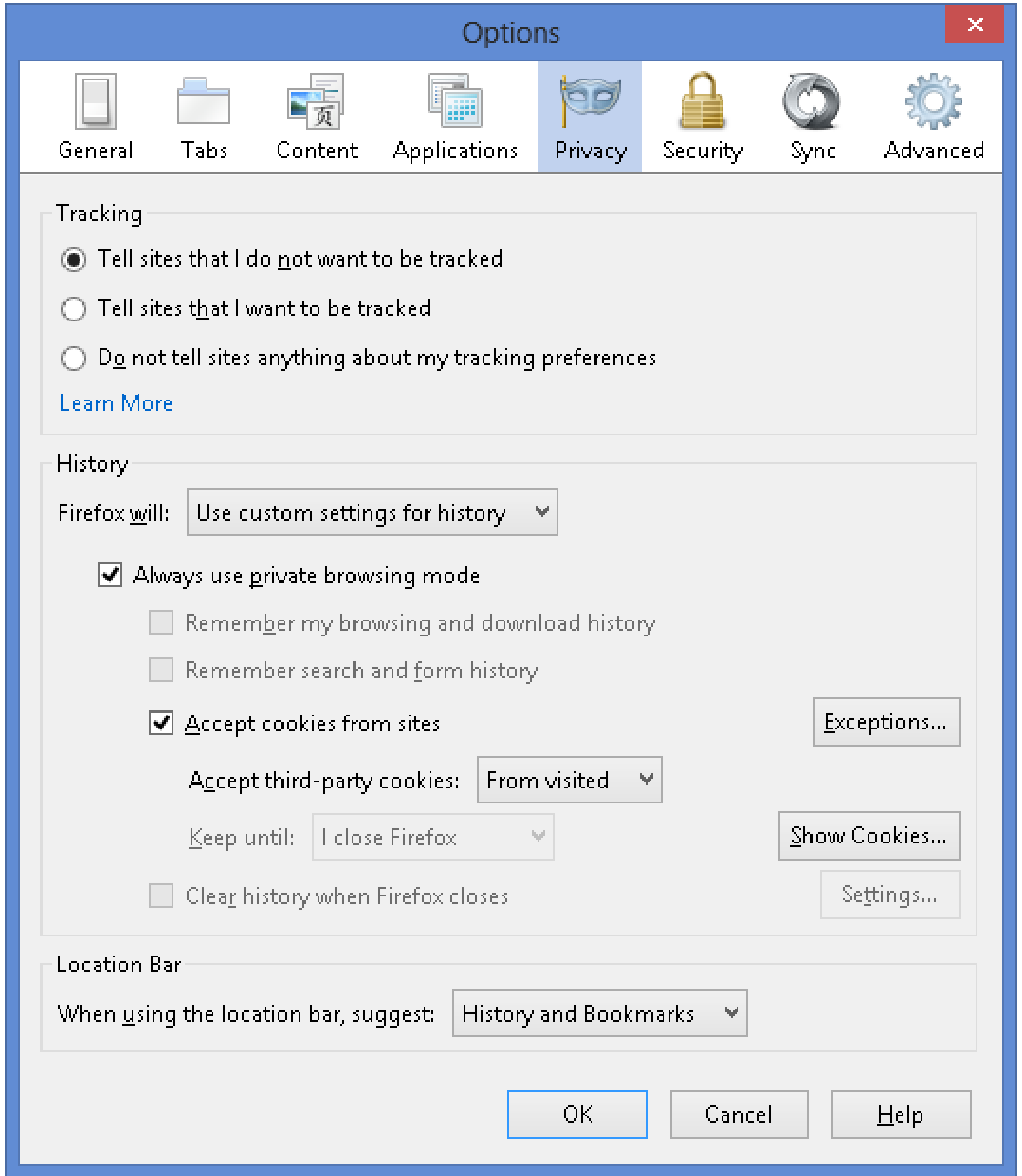
□ Remember passwords for sites [Exceptions...]

□ Use a master password [Change Master Password...]

[Saved Passwords...]

Setting Privacy in your Browser

Tools: Options: Privacy Tab



Tracking

● Tell sites that I do not want to be tracked

○ Tell sites that I want to be tracked

○ Do not tell sites anything about my tracking preferences

Learn More

History

Firefox will: Use custom settings for history

☑ Always use private browsing mode

□ Remember my browsing and download history

□ Remember search and form history

☑ Accept cookies from sites

Accept third-party cookies: From visited

Keep until: I close Firefox

□ Clear history when Firefox closes

Location Bar

When using the location bar, suggest: History and Bookmarks

Bottom Line

- **You** must control your Security – run your own security software.
    - ISP Anti-virus for free = you're not sure it is running or up-to-date.
- Keep Software up to date- OS, Anti-virus, Scanners, Ad-Aware.
- Run Quick Scans weekly and Full Scans monthly.
- Do **NOT** 'Open' or 'Go To' a web page or email if you are not sure.
- Do **NOT** pass-on Emails – "pass this to everyone" emails you may get.
- Do **NOT** allow access to your Contact list – some apps want that.
- Stay Alert when on the Internet.

Jere Minich

Board of Advisors – APCUG – Region 5 Florida

Jminich@apcug.org

apcug

An International
Association of Technology
& Computer User Groups