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Cybersecurity Inventory at Home

GIAC (GCCC) Gold Certification

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Accepted: December 29, 2015

Abstract

Consumers need better home network security guidance for taking stock of the hardware and software applications installed on their network and devices. The primary sources of information security advice for the average person are TV, magazines, newspapers, websites and social media. Unfortunately, these sources typically repeat the same advice, provide limited guidance and miss key areas of security that should be taken into consideration when securing home networks. On the other hand, enterprises receive comprehensive, prioritized guidance such as the Critical Security Controls from The Center for Internet Security. Unfortunately, these controls were not designed with securing home networks in mind. The wide gap between consumer-media advice columns and highly professional corporate security controls needs to be bridged. This can be done by using the Critical Security Controls as a comprehensive foundation from which to craft an authoritative yet easy-to-understand set of home network security recommendations for individuals. The first step is distilling the guidance for inventorying hardware and software applications.

1. Introduction

Consumers need better home network security guidance for managing the inventory of devices on their home network as well as the apps installed on the many devices attached to their network. The United States government has a treasure trove of special publications from NIST. The Center for Internet Security has provided a similar, more digestible set of Critical Security Controls for industry. Yet consumers do not have a similar set of guidelines to reference and assess their networks against.

Just what exactly do they have? The primary sources of consumer security advice are television, print media like magazines and the Internet, including Google searches, blogs and social media. But these sources typically repeat the same, often incomplete or outdated advice and provide limited guidance while missing key areas of security.

Using the Center for Internet Security's Critical Security Controls as the basis and distilling from it the necessary home network security guidance solves this problem. The first two Critical Security Controls (Center for Internet Security, 2015) are foundational and can be used to generate consumer guidelines for a Cybersecurity Inventory at Home. These controls are:

- CSC 1: Maintain a list of devices on your network.
- CSC 2: Maintain a list of all software/apps installed on your devices.

2. How to Inventory Network Devices

CSC 1: Maintain a list of devices on your network

Network security, like all security controls and safeguards, is best and most cheaply applied proactively (Tipton, 2010). One of the most fundamental proactive tasks for securing a home network is making a list that includes all devices on the network or that could later join the network. A simple spreadsheet can be created to document a comprehensive inventory of these devices.

Why should components that are not even connected to a network be inventoried? Devices that are off a network still need to be managed to keep them protected, up-to-

date and backed up. Having a complete inventory is also helpful when investigating unknown devices that show up on the home network. All devices must be listed because even if a device is not on the network at the moment, an attacker at some point could still use it in the future.

Steps for inventorying network devices:

1. Create a hardware inventory list.
2. Scan the network for devices.
3. Perform a manual network discovery.
4. Create a network diagram.
5. Maintain hardware inventory list.

2.1. Create a Hardware Inventory List

Creating and populating a hardware list for the first time takes a lot of time and effort. Fortunately, there are multiple tools available to make the process as efficient and stress-free as possible. One such tool is the Hardware Inventory List template (Excel spreadsheet) located in the Appendix. In the template, the information fields are ready to be populated with the documentation for each device.

A	B	C	D	E	F	G	H	I	J	K	L
1	Name	IP Address	MAC Address	Device Type	Manufacture Make	Model Num	Serial Number	Purchase Date	Warranty Ex	Firmware	Operating S
2	Tanya's Mac	10.0.1.1	B8:C7:8D:X0:67:8W	Laptop	Apple	MacBook Air	13 C13MCELSG032	2/18/14	5/18/14	41.8.9	OS X
3	Gary's Dell	10.0.1.10	K9:58:EP:EJ:98:PV	Desktop	Dell	Dimension	2736 DIM3828FK3KL	10/29/13	10/29/16	15.0.15	Windows
4	Modem	10.0.0.1	98:28:13:46:CK:95	Modem-Wireless	Motorola	BitSurfer Pro	BSP4000 SDFJKSENVBGT	8/23/12	8/23/13	2.3.7	N/A
5	Gary's Phone	10.0.1.5	98:88:E3:98:23:W7	Phone-Mobile	Apple	iPhone 6s	MD689LL/A F3KJE926F89B	11/15/15	2/15/16	10.00.00	iOS
6	Tanya's Phone	10.0.1.7	98:88:E3:14:83:66	Phone-Mobile	Apple	iPhone 6s	MD689LL/A F8EKL138CV2W	11/15/15	2/15/16	10.00.00	iOS
7	Xbox	10.0.1.6	A0:03:DC:W0:19:TY	Gaming Console	Microsoft	XBOX	XB001 4743972363	12/4/12	12/4/13	6.3	N/A
8	TV	10.0.1.8	CF:3K:0D:17:9A:B3	TV	Samsung	Smart TV	SMART1839 S282JKJDD025	2/22/15	5/22/15	2.1	N/A
9	Printer	10.0.1.9	64:76:U9:38:X8:09	Printer	HP	All-In-One	AIO2000 282923853	6/3/14	7/3/14	2.0.2	N/A
10											
11											
12											

Steps for creating a hardware inventory list:

1. Determine what program you will use (e.g. Excel, Sheets).
2. Identify all device types that will be inventoried.
3. Identify all relevant information fields associated with the devices to be inventoried.
4. Create the list template in the chosen program with relevant fields created and ready for input.

Suggested device types to be captured by the inventory process:

- Desktop

- Laptop
- Phone-Mobile
- Phone-IP
- Tablet
- Printer
- Scanner
- Server
- Virtual machine
- Access point: SSID
- Modem
- Modem-Wireless AP
- Firewall
- Router
- Switch
- TV
- Streaming device (e.g. Apple TV, Chromecast, Amazon Fire, Roku)
- Gaming Console (e.g. Xbox, PlayStation, Nintendo)
- Cable box
- DVR
- IP security camera
- Photo camera
- Electronic thermostat
- Electronic refrigerator
- Storage system
- Removable media containing sensitive data (e.g. CD-R, DVD-R, USB Flash Drive)
- Electronic Photo Frame
- Uninterruptable Power Supply (UPS)
- Other Internet of Things (IoT) device

Author Name, email@address

Suggested hardware inventory list fields:

- Name
- IP Address
- MAC Address
- Device Type
- Manufacturer
- Make
- Model Number
- Serial Number
- Purchase Date
- Warranty Expiration Date
- Firmware
- Operating System
- OS Version
- Primary User
- Function
- Location
- On Network?
- Mobile

2.2. Scan the Network for Devices

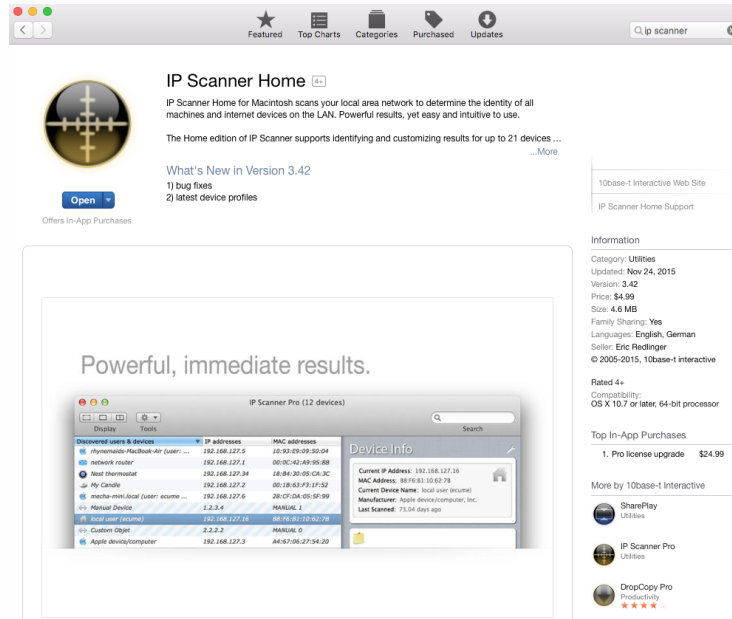
One of the easiest ways to begin documenting the devices on a home network is to conduct a scan. There are several options for scanning a network. A Mac, PC or even a mobile device can be used to perform the scan and the software options range from easy-to-use (e.g. IP Scanner, Fing) to complex (e.g. Nmap, Wireshark). Whatever scanning solution is selected, it must have a good reporting function. Any security tool is only as useful as the output it generates (Lyon, 2008).

2.2.1. Network Scanning from a Computer

Whether or not the devices on the home network are wired or wireless, a scan can be completed using software installed on a computer. Here is an example that shows how

to perform a wireless scan on a Mac using an app called IP Scanner (10base-T Interactive, 2015), which can be downloaded from the Apple App Store:

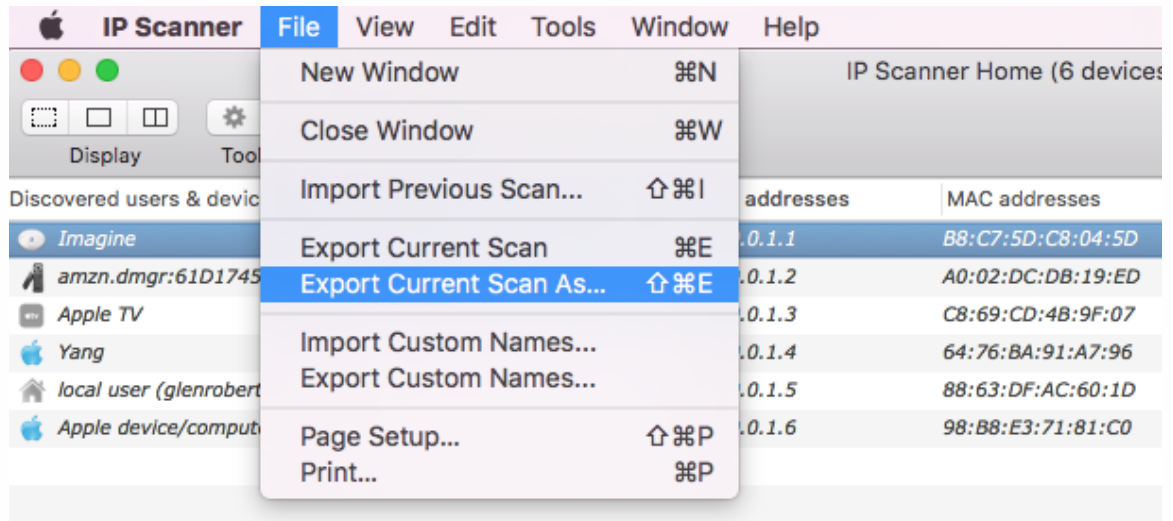
Step 1: Download and open the IP Scanner app.



Step 2: Perform the scan.



Step 3: Export the results and update the software application inventory list with the IP addresses, MAC addresses and device types.



	A	B	C	D	E	F
1	IP Scanner Log for 12-19-2015	14:04 America/New_York				
2						
3	Name	Device Type	IP	MAC	DNS	Last Seen
4	Imagine	Airport	10.0.1.1	B8:C7:5D:C8:04:5D	UNKNOWN	12/19/15 14:04
5	amzn.dmgr:61D1745AFBD8A0	FireStick	10.0.1.2	A0:02:DC:DB:19:ED	UNKNOWN	12/19/15 14:04
6	Apple TV	AppleTV	10.0.1.3	C8:69:CD:4B:9F:07	UNKNOWN	12/19/15 14:04
7	Yang	Mac	10.0.1.4	64:76:BA:91:A7:96	UNKNOWN	12/19/15 14:04
8	local user (glenroberts)	Home	10.0.1.5	88:63:DF:AC:60:1D	UNKNOWN	12/19/15 14:04
9	Apple device/computer	Mac	10.0.1.6	98:B8:E3:71:81:C0	UNKNOWN	12/19/15 14:04
10						
11						

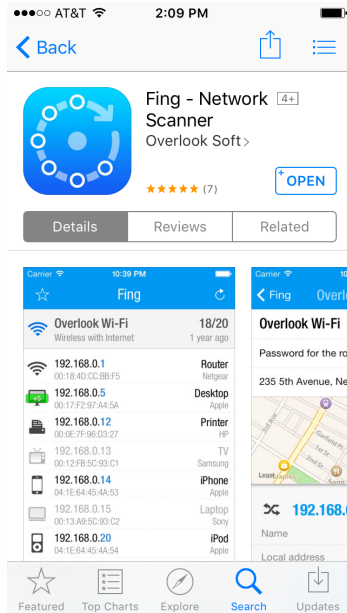
Note: The IP Scanner app has several other features to explore including labeling components, sending alert notifications if a new device joins the network and whitelisting devices on the network that have been confirmed to be authorized. Whitelisting can be a timesaver on subsequent inventory reviews.

2.2.2. Wireless Scanning from Your Mobile Device

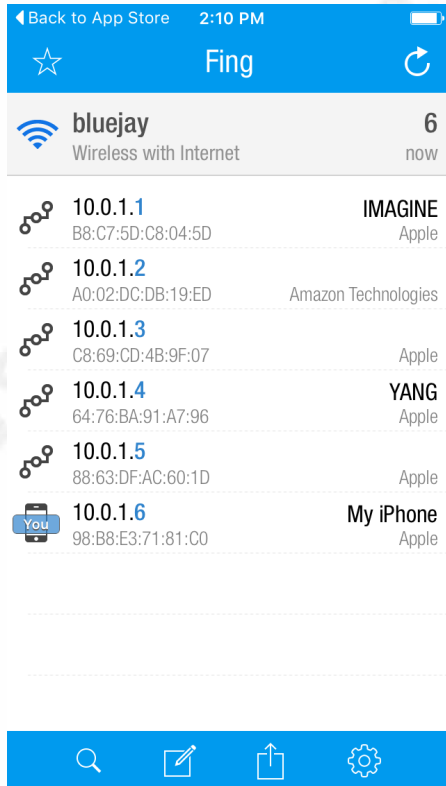
It has become increasingly convenient to use mobile devices for just about everything and network scanning is no different. Scanning from a mobile phone or tablet, an inventory of wireless devices can be created. While useful, the inventory will need to be supplemented using a wired computer and manual discovery to inventory non-wireless components. Here is an example that shows how to perform a wireless scan on an iPhone

or iPad using an app called Fing (Overlook Soft., 2015), which can be downloaded from the Apple App Store:

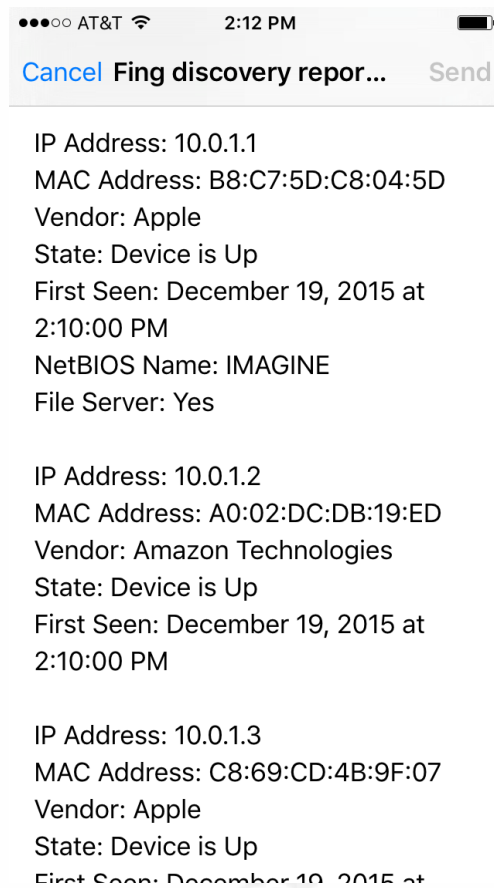
Step 1: Download and open the Fing App.



Step 2: Perform the scan.



Step 3: Export the results and update the hardware inventory list with the IP addresses, MAC addresses and device types.



2.3. Perform a Manual Network Discovery

Even after performing scans, many devices that should be on the hardware inventory list must be manually added. This could be due to a weak wireless signal or the device may be off the network for some other reason such as being powered off or taken away from the residence. Perform a manual discovery and to add devices not covered by the scan and fill in all gaps on the list. Include anything on the network as well as anything that *could* get on the network. Consider adding off-network storage such as thumb drives and backup DVD-Rs. Here are the steps for performing a manual network discovery.

Step 1: Walk all rooms, including outdoor living spaces.

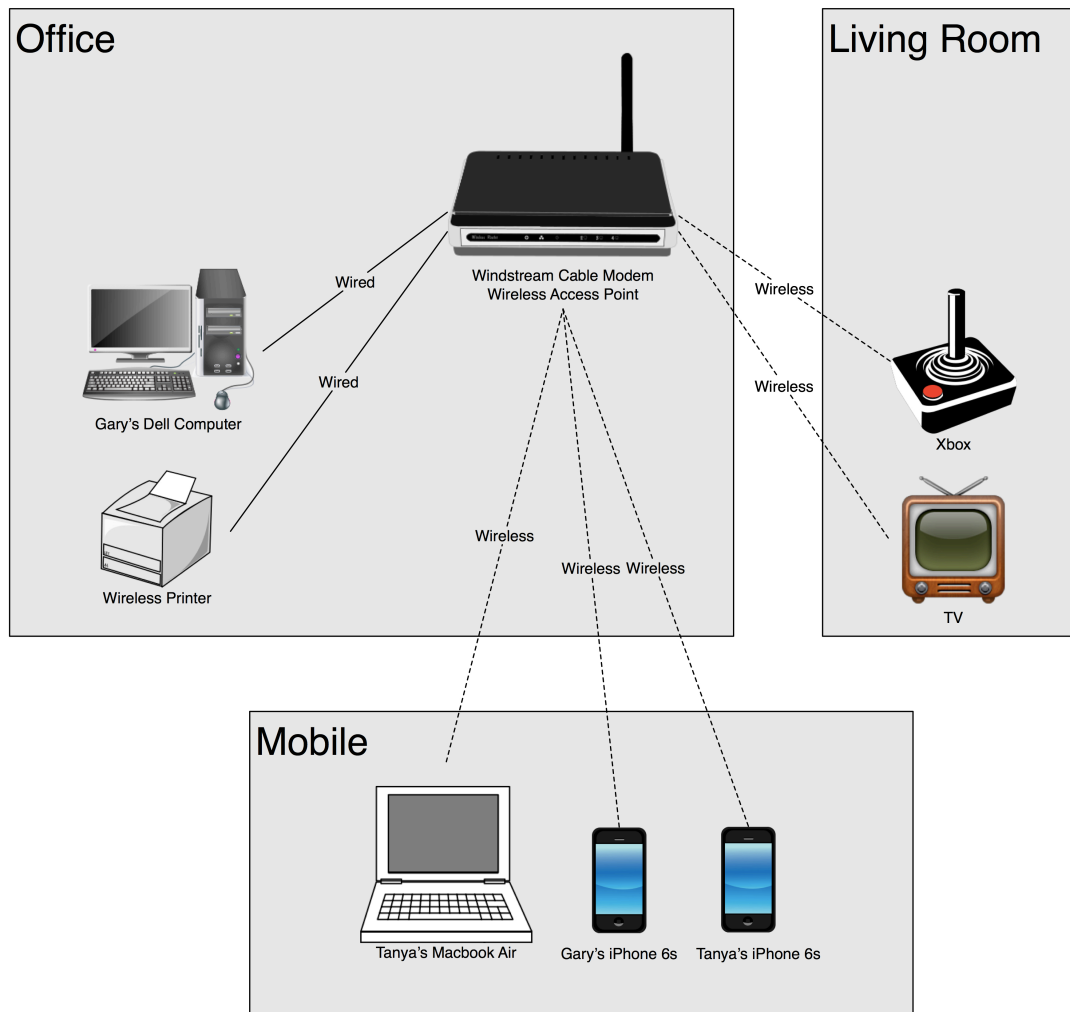
Step 2: Identify components that are off the network or need to be added to the hardware inventory list.

Step 3: For all devices on the hardware inventory list, finish populating all fields to complete the list.

2.4. Create a Network Diagram

A natural add-on to the inventory list is a visual diagram of the home network showing all devices and how they are connected, or not. This could be as simple as a hand-drawn diagram or it could be a diagram created using a tool like Visio or xDiagram. A network diagram can prove invaluable for memory refreshes about how the home network is configured and can also aid in troubleshooting network issues.

Here is an example of a home network diagram produced in xDiagram:



2.5. Maintain Hardware Inventory List

Hardware inventories should be updated at least once per quarter. The hardware inventory process is a great way to identify unknown devices that may represent a threat to security. Here are the steps to take to ensure your hardware inventory list is kept up-to-date:

Step 1: Do a complete hardware inventory.

Step 2: Compare current inventory to previous inventory to find additional devices.

Step 3: Determine if the added devices are authorized or if they should be removed from the network.

Step 4: Update hardware inventory list with any changes that need to be made.

3. How to Inventory Software Applications

CSC 2: Maintain a list of all software/apps installed on your devices

Consumers need to maintain a list of the software applications installed on the devices in their hardware inventory. Limiting app installs to the devices on the authorized hardware inventory list reduces the risk of malware on the network. For most families, the ability to install software applications should be limited to a parent who also maintains a software application inventory list.

Steps for inventorying software applications:

1. Create a software application inventory list.
2. Query computers for software applications.
3. Query mobile devices for software applications.
4. Maintain software application inventory list.

3.1. Create a Software Application Inventory List

Creating and populating a software application list, like the hardware inventory list, is time-consuming. Using the same tool for tracking both the software and hardware inventories can make the process more efficient. There is a Software Application Inventory List template (Excel spreadsheet) located in the Appendix that can be leveraged as well.

Author Name, email@address

	A	B	C	D	E	F	G
1	Manufacturer	Software Application Name	Software Type	Function	Installed Version	Current Version	License Nun
2	Microsoft Corporation	Microsoft Lync 2013	PC Download	Productivity	15.0.4569.1506	15.0.4569.1506	03318-293-
3	Microsoft Corporation	Microsoft Lync MUI (English) 2013	PC Download	Productivity	15.0.4569.1506	15.0.4569.1506	03318-293-
4	Microsoft Corporation	Microsoft Office 64-bit Components	PC Download	Productivity	15.0.4569.1506	15.0.4569.1506	03318-293-
5	Microsoft Corporation	Microsoft Office Access MUI (English)	PC Download	Productivity	14.0.7015.1000	14.0.7015.1000	03318-293-
6	Microsoft Corporation	Microsoft Office Access Setup Metad	PC Download	Productivity	14.0.7015.1000	14.0.7015.1000	03318-293-
7	Microsoft Corporation	Microsoft Office Excel MUI (English)	PC Download	Productivity	14.0.7015.1000	14.0.7015.1000	03318-293-
8							
9							

Steps for creating a software application inventory list:

1. Determine what program you will use (e.g. Excel, Sheets).
2. Identify all device types whose software applications will be inventoried.
3. Identify all relevant information fields associated with the software applications to be inventoried.
4. Create the list template in the chosen program with relevant fields created and ready for input.

Suggested software application inventory list fields:

- Manufacturer
- Software Application Name
- Software Type (e.g. Desktop, Mobile, Firmware)
- Function (Productivity, Game, Operating System, Hypervisor)
- Installed Version (including patch level)
- Current Version
- License Number
- Serial Number
- Devices Installed On
- Purchase Date
- Activation Date
- Warranty Expiration Date
- License Expiration Date

3.2. Query Computers for Software Applications

Getting a solid list of applications installed on a computer depends on the type of computer in question. In addition, user preference may dictate how the list should be displayed. In the sections below, instructions for listing software are provided for both Mac OS X and Windows PCs using two methods: the GUI and scripting.

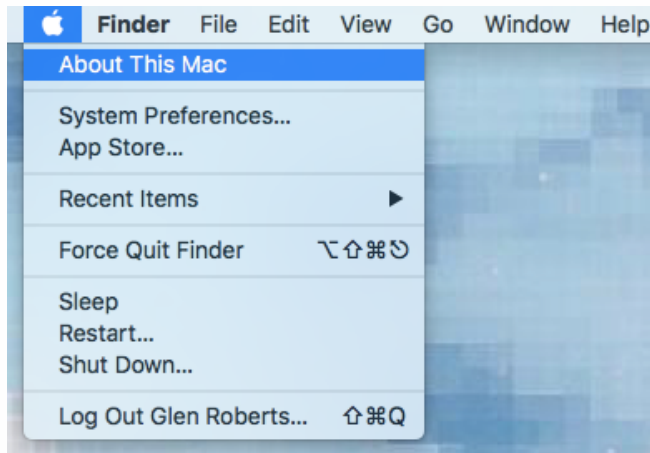
Author Name, email@address

3.2.1. Mac Software Applications

There are a couple of easy ways to get a list of all the applications installed on a Mac. One way is by using the operating system GUI and the other way is to run a script that outputs to a file. The information needed for the inventory list can be retrieved using either method so it is just a matter of personal preference.

GUI Method for Listing Apps on a Mac:

Step 1: Click the Apple icon on the menu bar and select About This Mac.



Step 2: Click the System Report button.



Step 3: On the left pane of the System Report, select Software, and then select Applications. This will show all the applications installed on the Mac.

MacBook Air					
	Application Name	Version	Obtained from	Last Modified	64-Bit (Intel)
Card Reader	Managed Client	8.1	Apple	12/18/15, 2:28 PM	Yes
Diagnostics	Maps	2.0	Apple	12/18/15, 2:28 PM	Yes
Disc Burning	MassStorageCamera	10.1	Apple	12/18/15, 2:28 PM	Yes
Ethernet Cards	Match		Apple	12/18/15, 2:28 PM	Yes
Fibre Channel	Memory Slot Utility	1.5.1	Apple	12/18/15, 2:28 PM	Yes
FireWire	Messages	9.1	Apple	12/18/15, 2:28 PM	Yes
Graphics/Displays	Microsoft Alerts Daemon	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Hardware RAID	Microsoft AutoUpdate	2.3.6	Unknown	7/17/14, 9:30 AM	No
Memory	Microsoft Chart Converter	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
NVMeExpress	Microsoft Clip Gallery	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
PCI	Microsoft Database Daemon	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Parallel SCSI	Microsoft Database Utility	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Power	Microsoft Document Connectio	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Printers	Microsoft Error Reporting	2.2.9	Unknown	7/24/14, 9:40 AM	No
SAS	Microsoft Excel	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
SATA/SATA Express	Microsoft Graph	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
SPI	Microsoft Language Register	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Storage	Microsoft Office Reminders	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Thunderbolt	Microsoft Office Setup Assistan	14.1.0	Unknown	12/18/15, 3:17 PM	No
USB	Microsoft OneNote	15.15.1	Mac App Store	11/11/15, 8:54 AM	No
▼ Network	Microsoft Outlook	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Firewall	Microsoft PowerPoint	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Locations	Microsoft Query	12.0.0	Unknown	12/18/15, 3:17 PM	No
Volumes	Microsoft Ship Asserts	1.1.4	Unknown	7/24/14, 9:40 AM	No
WWAN	Microsoft Upload Center	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
Wi-Fi	Microsoft Word	14.5.9	Identified Developer	12/18/15, 3:17 PM	No
▼ Software	Migration Assistant	10.11	Apple	12/18/15, 2:28 PM	Yes
Accessibility	Minecraft	285	Identified Developer	9/16/15, 8:48 AM	Yes
Applications	MiniTerm	1.9	Apple	12/18/15, 2:28 PM	Yes
Components	Mission Control	1.2	Apple	12/18/15, 2:28 PM	Yes
Developer	Motion	5.2.2	Mac App Store	9/8/15, 1:03 AM	Yes
Disabled Software	MRT	1.5	Apple	12/17/15, 9:52 PM	Yes
Extensions					
Fonts					
Frameworks					
Installations					
Logs					
Managed Client					
Preference Panes					
Printer Software					
Profiles					
Startup Items					
Sync Services					

Scripting Method for Listing Apps on a Mac:

Step 1: Open the Terminal

Step 2: Copy/Paste this script into the Terminal and hit Enter:

```
system_profiler -detailLevel full SPApplicationsDataType > apps.txt
```

```

glenroberts — -bash — 108x16
Last login: Sun Dec 20 07:38:35 on ttys000
You have mail.
Yang:~ glenroberts$ system_profiler -detailLevel full SPApplicationsDataType > apps.txt

```

Step 3: Open the file created by the script to retrieve information on the installed software applications.

```

apps.txt
IP Scanner Home:
  Version: 3.42
  Obtained from: Mac App Store
  Last Modified: 12/19/15, 6:44 AM
  Kind: Intel
  64-Bit (Intel): Yes
  Signed by: Apple Mac OS Application Signing, Apple Worldwide Developer Relations Certification Authority, Apple Root CA
  Location: /Applications/IP Scanner Home.app
  Get Info String: IP Scanner Home 3.42

Installer:
  Version: 6.2.0
  Obtained from: Apple
  Last Modified: 12/18/15, 2:28 PM
  Kind: Intel
  64-Bit (Intel): Yes
  Signed by: Software Signing, Apple Code Signing Certification Authority, Apple Root CA
  Location: /System/Library/CoreServices/Installer.app

Wireshark:
  Version: 1.12.7
  Obtained from: Identified Developer
  Last Modified: 8/12/15, 3:42 PM
  Kind: Intel
  64-Bit (Intel): No
  Signed by: Developer ID Application: Wireshark Foundation, Inc. (7Z6EMTD2C6), Developer ID Certification Authority, Apple Root CA
  Location: /Applications/Wireshark.app
  Get Info String: 1.12.7, Copyright 1998-2014 Wireshark Development Team

NetSpot:
  Version: 1.3.418
  Obtained from: Mac App Store
  Last Modified: 12/19/15, 5:08 AM
  Kind: Intel
  64-Bit (Intel): Yes
  Signed by: Apple Mac OS Application Signing, Apple Worldwide Developer Relations Certification Authority, Apple Root CA
  Location: /Applications/NetSpot.app

inSSIDer:
  Version: 4.2.2.13
  Obtained from: Identified Developer
  Last Modified: 12/1/15, 4:01 PM
  Kind: Intel
  64-Bit (Intel): No
  Signed by: Developer ID Application: MetaGeek, LLC (8BLZLW84N5), Developer ID Certification Authority, Apple Root CA
  Location: /Applications/inSSIDer.app

WiFi Explorer:
  Version: 2.1
  Obtained from: Mac App Store
  Last Modified: 12/19/15, 5:42 AM

```

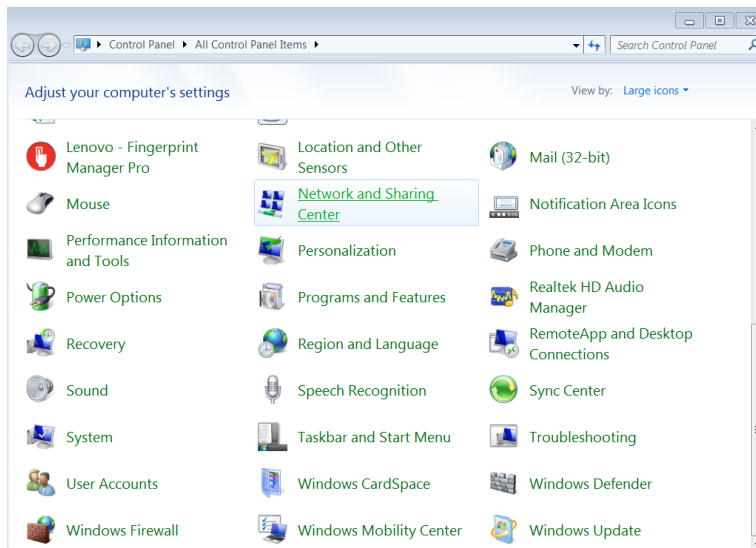
3.2.2. Windows PC Software Applications

Just as there are multiple ways to list applications on a Mac, Windows offers a couple of convenient methods for doing the same. These methods include using the Control Panel and using PowerShell scripting.

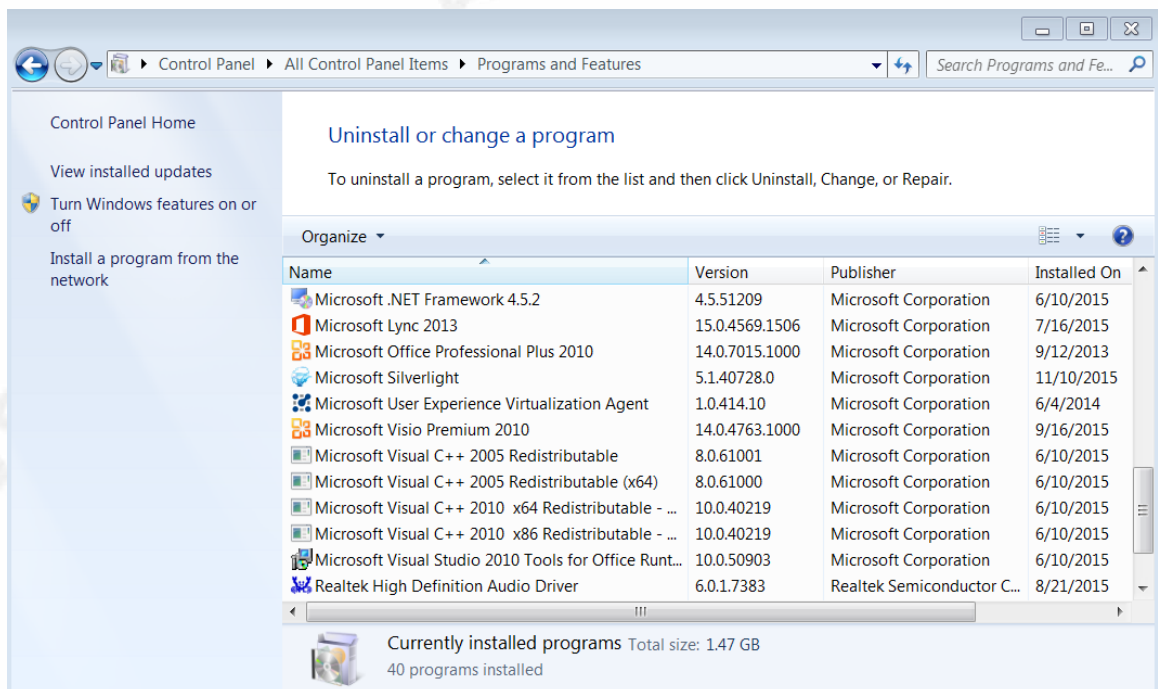
Control Panel Method for Listing Apps on a Windows PC:

Step 1: Hit the Start button and select Control Panel from the pop-up menu.

Step 2: Click Programs and Features.



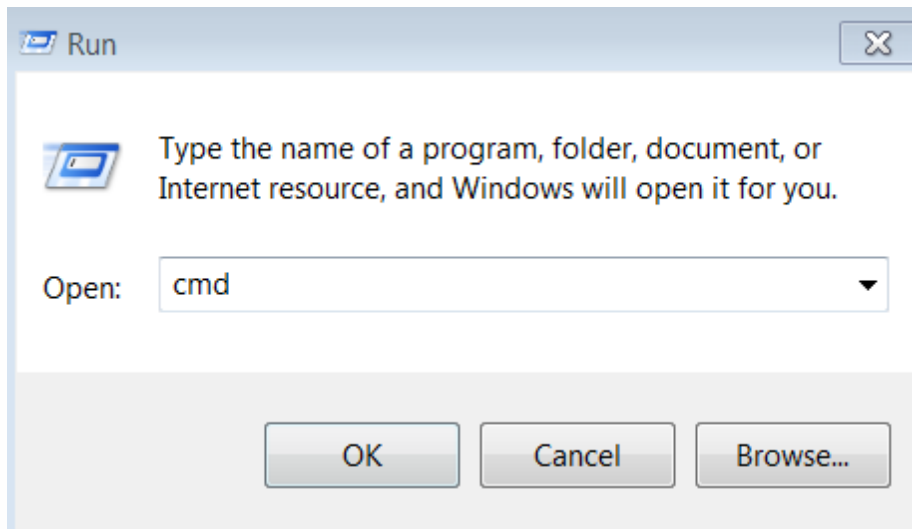
Step 3: Use installed application information to update software application inventory list.



Scripting Method for Listing Apps on a Windows PC:

Step 1: Click the Start button and select Run from the pop-up menu.

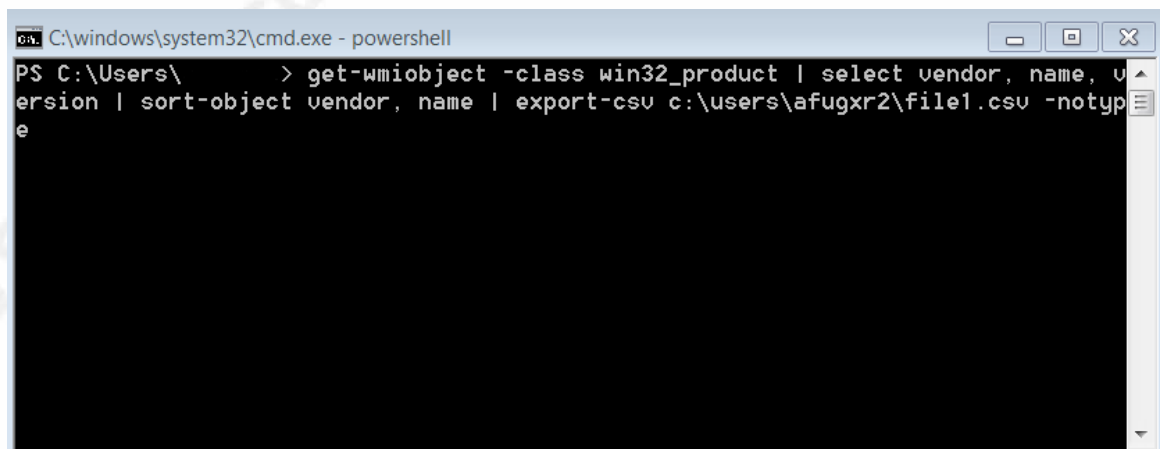
Step 2: Type “cmd” in the Open dialog box and hit OK to open the command prompt.



Step 3: Type “powershell” in the terminal window and hit enter to invoke PowerShell.

Step 4: Copy/Paste the following script into the terminal window and hit Enter.

```
get-wmiobject -class win32_product | select vendor, name, version | sort-  
object vendor, name | export-csv c:\apps.csv -notype
```



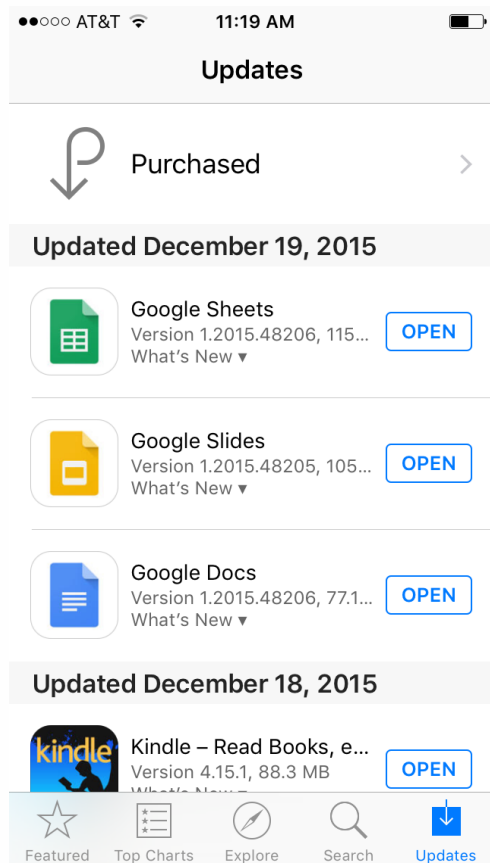
Step 5: Use the file that was just created to update the software application inventory list.

	A	B	C
1	vendor	name	version
2	Microsoft Corporation	Microsoft .NET Framework 4.5.2	4.5.51209
3	Microsoft Corporation	Microsoft Lync 2013	15.0.4569.1506
4	Microsoft Corporation	Microsoft Lync MUI (English) 2013	15.0.4569.1506
5	Microsoft Corporation	Microsoft Office 64-bit Components 2013	15.0.4569.1506
6	Microsoft Corporation	Microsoft Office Access MUI (English) 2010	14.0.7015.1000
7	Microsoft Corporation	Microsoft Office Access Setup Metadata MUI (English) 2010	14.0.7015.1000
8	Microsoft Corporation	Microsoft Office Excel MUI (English) 2010	14.0.7015.1000
9	Microsoft Corporation	Microsoft Office Groove MUI (English) 2010	14.0.7015.1000
10	Microsoft Corporation	Microsoft Office InfoPath MUI (English) 2010	14.0.7015.1000
11	Microsoft Corporation	Microsoft Office Office 64-bit Components 2010	14.0.7015.1000
12	Microsoft Corporation	Microsoft Office OneNote MUI (English) 2010	14.0.7015.1000
13	Microsoft Corporation	Microsoft Office Outlook MUI (English) 2010	14.0.7015.1000
14	Microsoft Corporation	Microsoft Office PowerPoint MUI (English) 2010	14.0.7015.1000
15	Microsoft Corporation	Microsoft Office Professional Plus 2010	14.0.7015.1000
16	Microsoft Corporation	Microsoft Office Proof (English) 2010	14.0.7015.1000
17	Microsoft Corporation	Microsoft Office Proof (French) 2010	14.0.7015.1000
18	Microsoft Corporation	Microsoft Office Proof (Spanish) 2010	14.0.7015.1000
19	Microsoft Corporation	Microsoft Office Proofing (English) 2010	14.0.7015.1000
20	Microsoft Corporation	Microsoft Office Proofing (English) 2013	15.0.4569.1506
21	Microsoft Corporation	Microsoft Office Proofing Tools 2013 - English	15.0.4569.1506
22	Microsoft Corporation	Microsoft Office Proofing Tools 2013 - Espa?ol	15.0.4569.1506
23	Microsoft Corporation	Microsoft Office Publisher MUI (English) 2010	14.0.7015.1000
24	Microsoft Corporation	Microsoft Office Shared 64-bit MUI (English) 2010	14.0.7015.1000
25	Microsoft Corporation	Microsoft Office Shared 64-bit MUI (English) 2013	15.0.4569.1506
26	Microsoft Corporation	Microsoft Office Shared 64-bit Setup Metadata MUI (English) 2010	14.0.7015.1000
27	Microsoft Corporation	Microsoft Office Shared 64-bit Setup Metadata MUI (English) 2013	15.0.4569.1506
28	Microsoft Corporation	Microsoft Office Shared MUI (English) 2010	14.0.7015.1000
29	Microsoft Corporation	Microsoft Office Shared MUI (English) 2013	15.0.4569.1506
30	Microsoft Corporation	Microsoft Office Shared Setup Metadata MUI (English) 2010	14.0.7015.1000
31	Microsoft Corporation	Microsoft Office Shared Setup Metadata MUI (English) 2013	15.0.4569.1506
32	Microsoft Corporation	Microsoft Office Visio 2010	14.0.4763.1000
33	Microsoft Corporation	Microsoft Office Visio MUI (English) 2010	14.0.4763.1000
34	Microsoft Corporation	Microsoft Office Word MUI (English) 2010	14.0.7015.1000

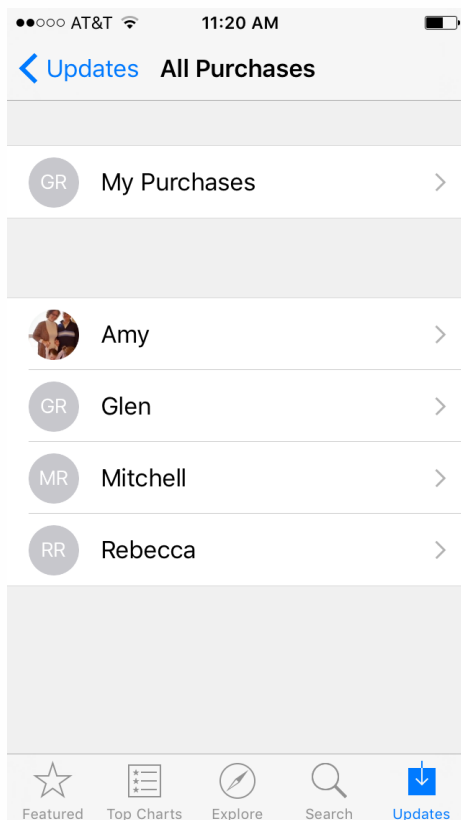
3.3. Query Mobile Devices for Software Applications

Mobile devices, in general, don't make it very easy for consumers to inventory installed apps. Therefore, the first mobile inventory will involve a lot of scrolling and typing. For example, here are the steps required to get a detailed list of the apps installed on an iPhone or iPad:

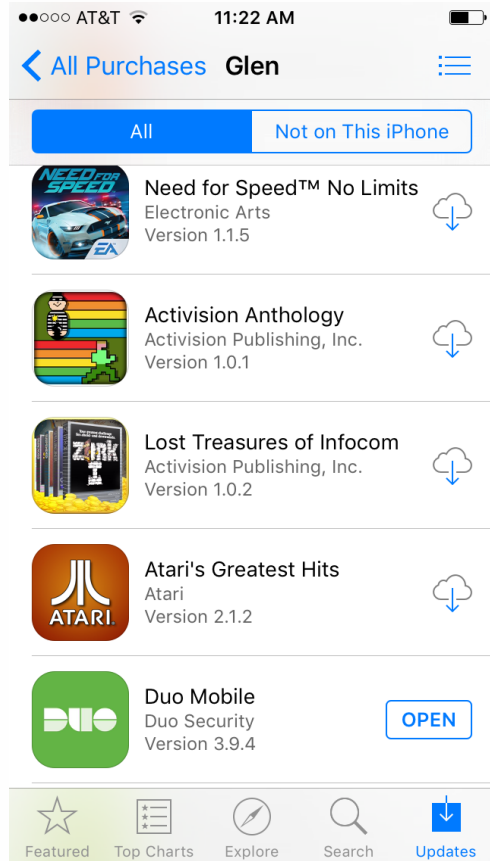
Step 1: Tap the App Store.



Step 2: Tap Purchased.



Step 3: Tap My Purchases.



Step 4: Document app details (app name, manufacturer, version)

Note: The list shows all purchased applications including those that are not installed. The cloud icon indicates a particular app is not installed while the OPEN button appears next to apps that are installed.

3.4. Maintain Software Application Inventory List

Software application inventories should be updated at least once per quarter. The inventory process is a great way to identify unknown or unauthorized software that should be uninstalled. Here are the steps to take to ensure your software inventory is kept up-to-date:

Step 1: Do a complete software application inventory.

Step 2: Compare current inventory to previous inventory to find added apps.

Step 3: Determine if the added apps are authorized or if they should be removed.

Step 4: Update software inventory list with any changes that need to be made.

4. Conclusion

Having a good inventory list is the foundation for being able to identify unknown or unauthorized hardware and software. The Center for Internet Security's Critical Security Controls provide a solid basis for consumers looking to create and maintain hardware and software inventories. These hardware and software inventory lists must be kept up-to-date as components are added to the network.

References

- Center for Internet Security. (2015). *The CIS Critical Security Controls for Effective Cyber Defense Version 6.0*. Retrieved from <http://www.cisecurity.org/critical-controls.cfm>
- Lyon, G. (2009). *Nmap Network Scanning*. Sunnyvale: Insecure.Com LLC.
- Tipton, H. *Official (ISC)² Guide to the CISSP CBK, Second Edition*. (2010). Boca Raton: Auerbach Publications.
- 10base-T Interactive. (2015). *IP Scanner*. Retrieved December, 2015, from <http://10base-t.com/macintosh-software/ip-scanner/>
- Overlook Soft. (2015). *Fing*. Retrieved December 20, 2015, from <http://www.overlooksoft.com/features>

Appendix

Hardware Inventory List Template:



Hardware Inventory List
Template.xlsx

Software Application Inventory List Template:



Software Application
Inventory List Tem