



AIR FORCE ASSOCIATION'S

CYBERPATRIOT

NATIONAL YOUTH CYBER EDUCATION PROGRAM

UNIT SIX

Microsoft Windows Basics and MSDN



www.uscyberpatriot.org



Learning Objectives

- Participants will understand what the Microsoft Windows operating system is and its basic history
 - Windows OS Basics
 - Windows Version History
 - Windows-Specific Terms and Definitions
- Participants will understand what MSDN is and how it can be used as a competition training tool



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SECTION ONE

Windows Version History

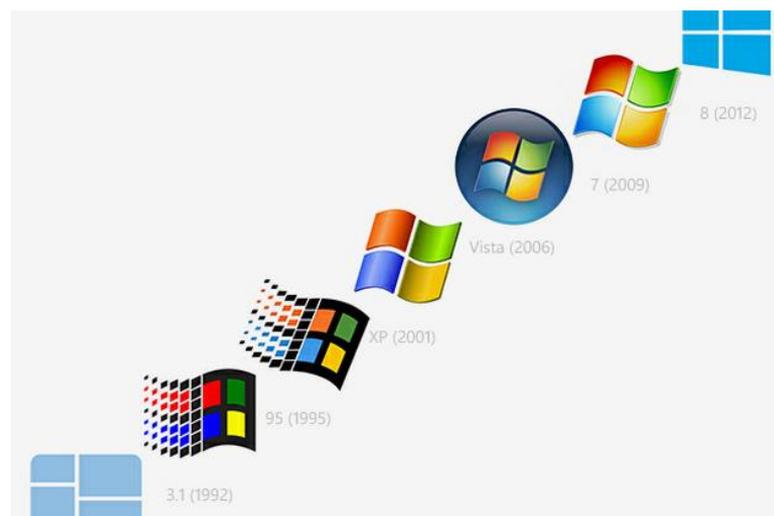


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Version History

- First version of Windows widely released was MS-DOS in 1981
- New workstation and server versions are often released around the same time and are closely related.
- Only OSes that have been used in the competition will be covered.
- Windows 10 just released (Windows Server 2016 coming soon) and will not be in the online rounds.





Windows XP and Server 2003

Release Dates: 2001 (XP) and 2003 (Server 2003)

Major Features

- Lightweight – Only requires 64 MB of RAM and 1.5 GB of hard drive space
- Focus on user eXPerience – sleek graphics, simplicity, and basic features
- XP has been updated with three Service Packs and Server 2003 has two
- XP is the first version to include Remote Desktop, which allows a user to connect to a system remotely

Notable Security Concerns

- In 2014, Microsoft discontinued support and updates for Windows XP and Server 2003, meaning systems running those OSes may now be more vulnerable to attack.
- Almost 250 million people still use Windows XP
- Many systems running these OSes may also have outdated hardware and applications that also have security concerns.



Source: <https://redmondmag.com/articles/2015/04/08/windows-xp-usage.aspx>



Windows Vista and Server 2008

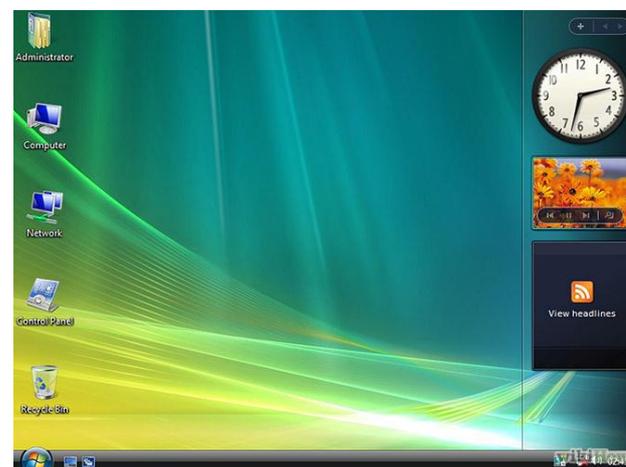
Release Dates: 2006 (Vista) and 2008 (Server 2008)

Major Features

- Updated GUI and a Windows Sidebar where users can place Desktop Gadgets, like weather and time applets
- Windows Defender – security tool featuring antispyware capabilities
- Backup and Restore Center – allows users to more efficiently back up files and create system images
- User Account Control (UAC) – informs user when a program requires administrator-level permission
- Bitlocker – Full disk encryption
- Vista and Server 2008 each have two Service Packs

Notable Security Concerns

- Vista included major architectural changes, making it significantly more secure than base Windows XP.
- While UAC is a useful security tool, it caused major usability issues for the average user.





Windows 7 and Server 2008 R2

Release Date: 2009 (Both)

Major Features

- Significant speed improvements that Vista lacked due to bloated OS size
- Windows 7 and 2008 R2 each have one Service Pack
- Improved searching and more nuanced UAC, which provides the ability to slide between different security levels
- Action Center – centralized location to notify user of major security issues
- Windows now allows for biometric authentication

Notable Security Concerns

- Initial launch only had minimal security fixes over Vista.
- As the most widely used OS, Windows 7 is the most targeted by malicious users and software.





Windows 8 (8.1) and Server 2012

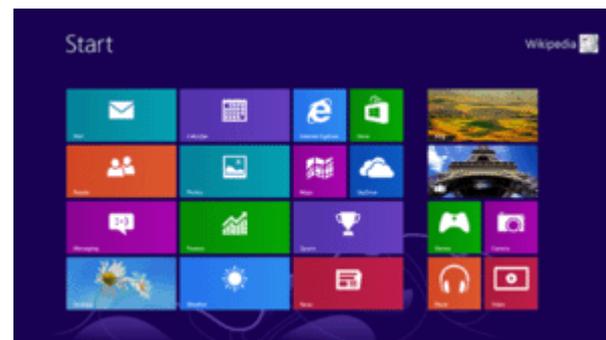
Release Dates: 2012 (Windows 8 and Server 2012) and 2013 (Windows 8.1)

Major Features

- Focus on providing an OS for tablets, including touchscreen and gesture capabilities, a tiled Start screen, Windows Store, and “hot corners”
- Windows 8.1 returned the Start button that was missing in Windows 8
- Windows Defender now includes Microsoft Security Essentials, which provides antivirus support
- Cloud Storage and Sync – users can now sync their settings and backup their data to the cloud

Notable Security Concerns

- Some applications were rewritten to maintain compatibility with the new GUI, which could lead to new security flaws.
- “Picture passwords” can be more easily cracked than traditional passwords.





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SECTION TWO

Windows Basics

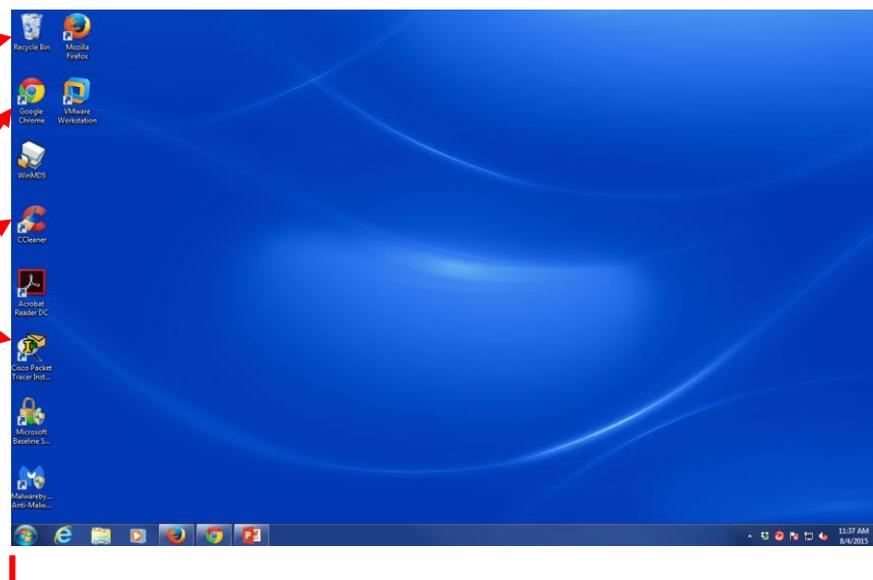


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Microsoft Windows: Desktop

- This is the main screen area a user sees after logging in on most Windows operating systems.
- **Recycle Bin:** deleted files are sent here before being completely deleted from a computer
- **Icons/Shortcuts:** thumbnail pictures that represent folders, files, and programs on the OS
- **Start Button**
- **Task Bar:** shows which files and programs are open and includes a notification area for information about computer settings

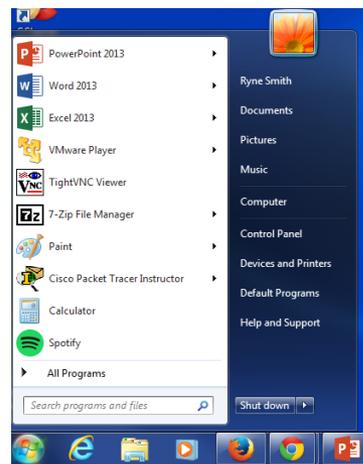


Source: <http://windows.microsoft.com/en-us/windows/desktop-overview#1TC=windows-7>



Microsoft Windows: Start Menu and Start Screen

- All Windows OSes until Windows 8 included a Start button in the task bar
- Clicking the Start button brings up the **Start Menu**
- From the **Start Menu**, users can search their system, open files and programs, and access system tools
- Windows 8 did not have a Start button and replaced the **Start Menu** with the **Start Screen**
- Windows 8.1 brought the Start button back to take users to the **Start Screen**

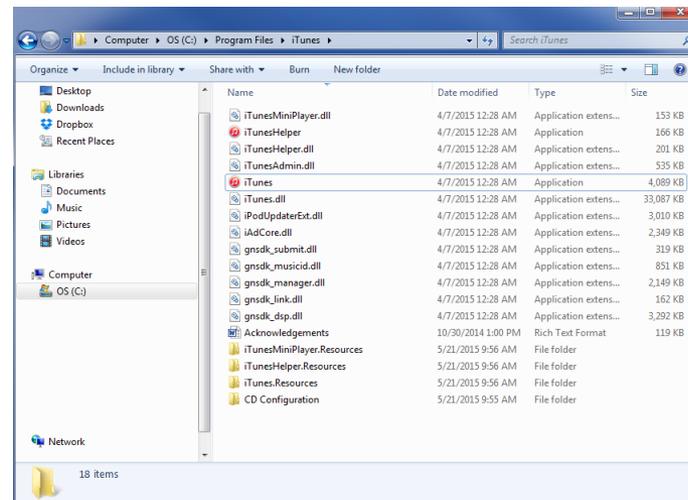


Source: <http://windows.microsoft.com/en-us/windows/using-menus-buttons-bars-boxes#1TC=windows-7>



Microsoft Windows: Directory

- Files and folders can be accessed through **Windows Explorer**
- A **file path** is where a file is located on a system
- Example file **path**:
 - C:\Program Files\iTunes\iTunes.exe
 - C: - **Drive**
 - \Program Files – **Folder**
 - \iTunes - **Folder**
 - \iTunes.exe - **File**



Source: <http://windows.microsoft.com/en-us/windows/working-with-windows#1TC=windows-7>



Microsoft Windows: File Extensions

- A group of letters occurring after a period in a file name, indicating the format of the file
- Common file extensions in Windows:
 - **.bat** – executable batch files
 - **.bmp** – Bitmap graphics files
 - **.doc** – Word documents (pre-Office 2007)
 - **.docx** – Word documents (Office 2007 and later)
 - **.exe** – executable files/programs
 - **.ppt** – PowerPoint files (pre-Office 2007)
 - **.pptx** – PowerPoint files (Office 2007 and later)
 - **.wav** – Microsoft audio file
 - **.wmv** – Windows Media Video
 - **.xls** – Excel spreadsheet (pre-Office 2007)
 - **.xlsx** – Excel spreadsheet (Office 2007 and later)



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SECTION THREE

What is MSDN?



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Microsoft Educational “Storefront”

- Microsoft is a Cyber Diamond sponsor of CyberPatriot
- Under its sponsorship, Microsoft allows fully registered CyberPatriot participants to access and use MSDN (Microsoft Developer’s Network), also known as DreamSpark
- MSDN is an educational “storefront” through which users can “shop” for and download free Microsoft products
- Most products come with two-year license keys
- MSDN is an extremely generous program and a very useful tool for teams that want to create their own practice images and access other Microsoft software



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SECTION FOUR

Account Creation and Activation



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MSDN Eligibility

- MSDN access is only granted to (or renewed for) Coaches, Mentors, Team Assistants, and Competitors fully registered for the current season of CyberPatriot
- You can check your registration status by logging into www.uscyberpatriot.org and viewing your Dashboard.* Coaches can also check the registration status of their competitors from their Dashboard (see respective screenshots below)

*You should also receive automated emails notifying you when your status has been updated. If you have not been receiving these emails, check your spam and add info@uscyberpatriot.org to your approved senders list.

(Coach's Dashboard)

07-0160 : CP Test Team 6

Team Status: Approved
Verifier Info: Rachel Zimmerman cpoc@uscyberpatriot.org
Payment Status: Awaiting Payment
Team ID (Hash):

Role	Name	Email Address	Status
Coach	Cyber Patriot	info@uscyberpatriot.org	
Competitor	CyberPatriot Competitor1	info@uscyberpatriot.org	Registered

Options ▾

A fully registered Coach will have an "Approved" status

A fully registered Competitor will have a "Registered" status

(Mentor/Team Assistant's Dashboard)

Welcome Cyber Patriot

Mentor Status: Approved

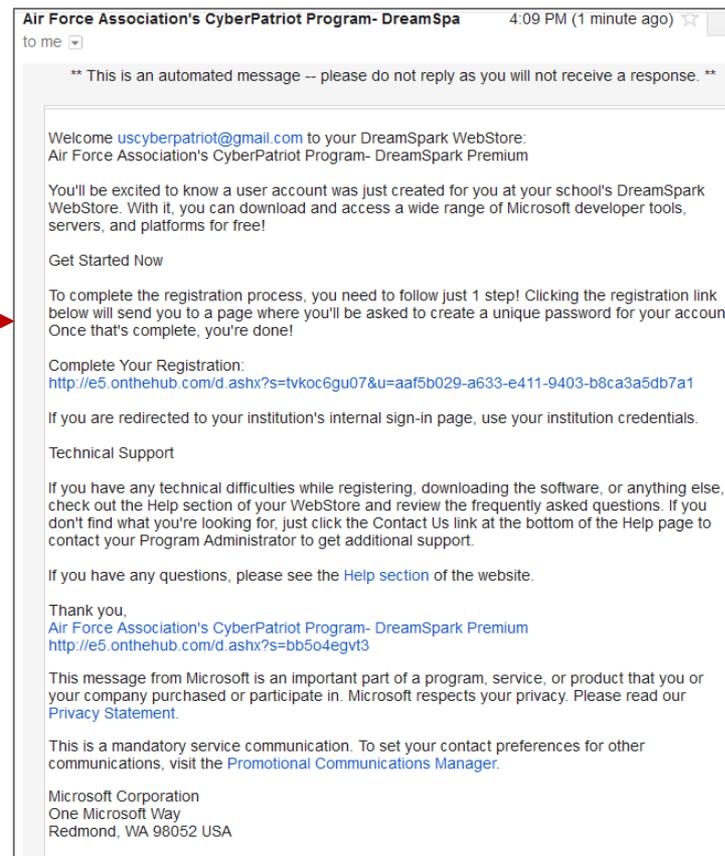
Edit Profile Create Team Find Team Change Password

A fully registered Mentor/Team Assistant will have an "Approved" status



Activating Your Account

- MSDN accounts are issued/renewed in batches twice a week for newly approved Coaches, Mentors, and Competitors
 - You should expect up to a 3-business-day lag between when your CyberPatriot registration is approved to when your MSDN account is issued
- New CyberPatriot participants will receive an email from an @kivuto.com address with instructions for activating their accounts
 - Check your spam folder if you are fully registered and have not received the email
- Returning participants will not receive an email notifying them their account has been renewed.
 - You should be able to log into your old account 2-3 business days after your registration status for the current season has been marked “Approved”
- After registering, you will be logged into the MSDN site. Bookmark this site for easy access





Navigating MSDN

DreamSpark: Microsoft software for learning, teaching and research

Air Force Association's CyberPatriot Program- DreamSpark Premium

Product Search

DreamSpark Premium

Thank you for registering.

Welcome to your Academic Software Center!

Software licensed under the DreamSpark Program is available here for students, faculty and staff. Please note that this WebStore is made available exclusively through an agreement between your academic institution and Microsoft.

If you encounter any difficulties, please view the **Help** section above for answers to your questions and for information on how to contact the DreamSpark Program Administrator (PA) on your campus.



Start Shopping

After logging in to the site, click the “Start Shopping” link to browse available software titles or search for specific programs using the search bar



“Purchasing” Software

DreamSpark: Microsoft software for learning, teaching and research

Air Force Association's CyberPatriot Program- DreamSpark Premium

Product Search

Categories

- New (1)
- Popular (17)
- Operating Systems (20)**
- Developer Tools (59)
- Servers (66)
- Applications (68)
- Other (1)
- All (197)

Microsoft Corporation

Microsoft Windows 8.1 Microsoft Windows 8 **Microsoft Windows 7**

Windows Windows7 Windows Embedded8

1. Click on a program to view details

Microsoft Windows 7 Professional

 Simplify everyday tasks: find something instantly, compare documents side-by-side, or easily back-up your complete system over a network. Enjoy a PC that works the way you want it to; supports 64-bit technologies and offers XP Mode for your business productivity applications. Make new things possible: watch Internet TV, pause, rewind, and record TV or use Touch to interact with your PC in new ways.

Download

Microsoft Windows 7 Professional with Service Pack 1 32/64-bit (English) - DreamSpark

Available to: Students/Faculty/Staff
Backup media: Available in most countries

Free

Add To Cart

2. On the next screen, click “Add to Cart”



“Purchasing” Software (cont.)

Your Cart

	Microsoft Windows 7 Professional with Service Pack 1 32/64-bit (English) - DreamSpark - Download Date Added: 2014-09-03 5:14 PM	Price Free <input type="button" value="Remove"/>
---	--	--

Subtotal: \$0.00

Recommended For You

	Backup disc - Microsoft Windows 7 Professional Show Details	English <input type="button" value="Add"/> \$13.95
---	--	--

3. From your shopping cart, click the “Check Out” button

4. Read and accept the terms of service and other messages on the on the next few pages

Items All prices are in US Dollars

	Microsoft Windows 7 Professional with Service Pack 1 32/64-bit (English) - DreamSpark - Download	Amount \$0.00
---	--	-------------------------

Subtotal: \$0.00
Taxes: \$0.00
Total: \$0.00

Contact Information Fields marked with an asterisk (*) are required

First Name* Last Name*

Email*

Yes, I'd like to receive email newsletters and student or educator promotional offers about development tools and technologies from Microsoft.

5. Review your order and click “Proceed With Order”



Downloading and Activating Software

Order Summary

Order Date: 2014-09-03 5:22 PM
Eastern Daylight Time
Order Number: 100316942383
 Email order receipt

Order Information

Name: CyberPatriot Program Office
Email: uscyberpatriot@gmail.com

Items

All prices are in US Dollars

	Amount
Microsoft Windows 7 Professional with Service Pack 1 32/64-bit (English) - DreamSpark - Download	\$0.00

Product Key: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

Instructions:
Burning the .ISO/.IMG file onto a disc

Messages:

- DreamSpark EULA
- Windows 7 Upgrade Considerations

Agreement Number: 1203619030

Subtotal: \$0.00
Taxes: \$0.00
Total: \$0.00

Start Download

Immediately download the product from the confirmation page or download it later from the link in the confirmation email you receive after you purchase the product*

*Note: You may be prompted to install MSDN's Secure Download Manager (an .msi file and an .sdx file). Allow both of these files to run

Make sure to keep a record of your Product Key, so you can activate the program after installing it



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SECTION FOUR

How to use MSDN Programs for Training

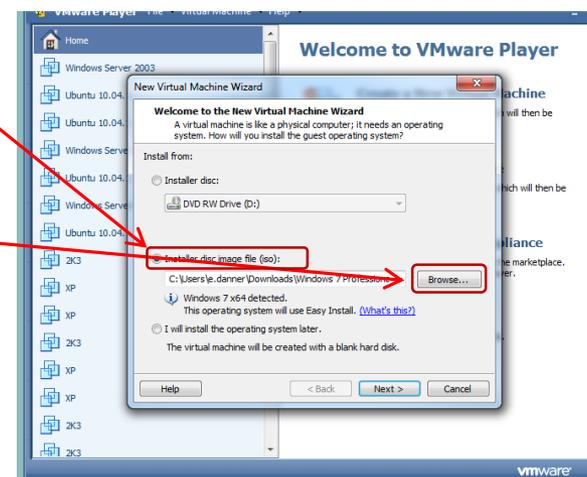


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Creating an Image from MSDN

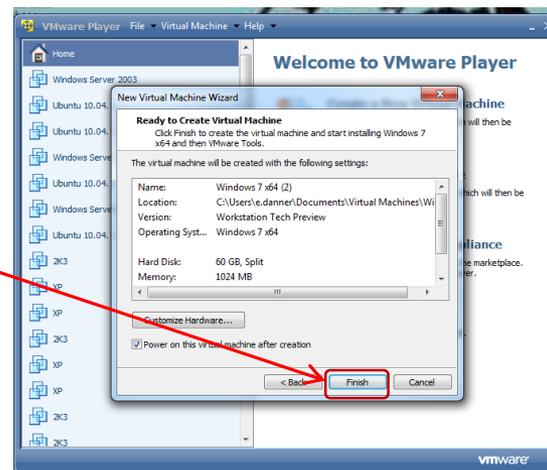
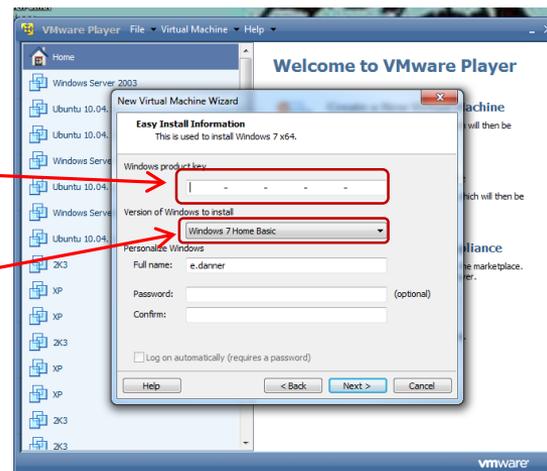
- Download an operating system file from MSDN. It will be a .iso file.
- Open VMWare Player and click “Create a New Virtual Machine.”
- Choose to install from “Installer disc image file (.iso) from the window that pops up
- Click browse and navigate to where you download the image on your machine
- Click “Next”





Creating an Image from MSDN (cont.)

- Enter the product key you obtained when you downloaded the file to activate the operating system.
- Select the version of the operating system you want to install. (Note: Professional versions and higher are more often used in CyberPatriot)
- The next few windows specify system resources for the image. The default settings will work well, but can be changed.
- Once resources have been specified, click Finish on the last window.
- In the VMware library, you can now highlight your new image and select Play Virtual Machine





Creating Your Own Unscored Practice Images

- Using a Windows image you downloaded from MSDN or using an Ubuntu image (freely available at www.Ubuntu.com, create your own practice image by following these steps:
 1. Open the image in VMWare Player as outlined on slides 24 and 25
 2. Go through the system and replace the default settings with weaker ones (e.g. turn off the firewall, add several non-password protected accounts)
 3. Keep a list of the changes you make as you go
 4. When you have added all of the vulnerabilities you want to use to test individuals using the image, shut down the image
 5. Have the individuals using the image restart the image you just created and find and fix the vulnerabilities you planted
 6. Evaluate their performance using the list of changes you kept while creating the image*

*This is the simplest, quickest way to create an unscored practice image. Texas A&M Corpus Christi has created a Windows 7 scoring client to help CyberPatriot teams automatically score their own images. If you want to automatically score a Windows 7 image you have created using that scoring client, follow the instructions here: <http://www.uscyberpatriot.org/competition/training-materials/practice-images>