

CompTIA IT Fundamentals+ Study Guide (Exam FC0-U61)

Module 1 / Unit 3 / Using an OS

Objectives

- Distinguish between different types of operating systems designed for workstations, servers, mobiles, embedded systems, and virtualization
- Identify commonly used commercial and open source operating systems, such as Windows, macOS, iOS, Linux, Chrome, and Android
- Use a browser to view websites



Functions of an Operating System

- Interface between user and computer
 - Shell
 - Graphical User Interface (GUI)
 - Command line
- Interface between applications and hardware
 - Kernel and devices drivers
 - Utilities
 - 32-bit versus 64-bit
 - Application compatibility
- System health and functionality
- Data management

Workstation, Server, and Mobile Device OS

- Workstation OS
 - Microsoft Windows, Apple OS X/macOS, Linux, and Chrome OS
 - Enterprise client
 - Network OS (NOS)
 - Home client
- Mobile device OS
 - Apple iOS and Android
 - Tied to hardware
- Server OS
 - Windows Server, Linux, or UNIX
 - Same code base as workstation equivalent
 - Network server applications and client licensing
 - Command line operation

Open Source versus Commercial

- Commercial OS

- User must purchase license
- Proprietary code kept secret by vendor
- Microsoft Windows, Apple macOS, Apple iOS

- Open source OS

- Programming code freely published and can be reused (with some conditions)
- Might still be used as the basis of commercial products
- UNIX, Linux, Android

Embedded OS

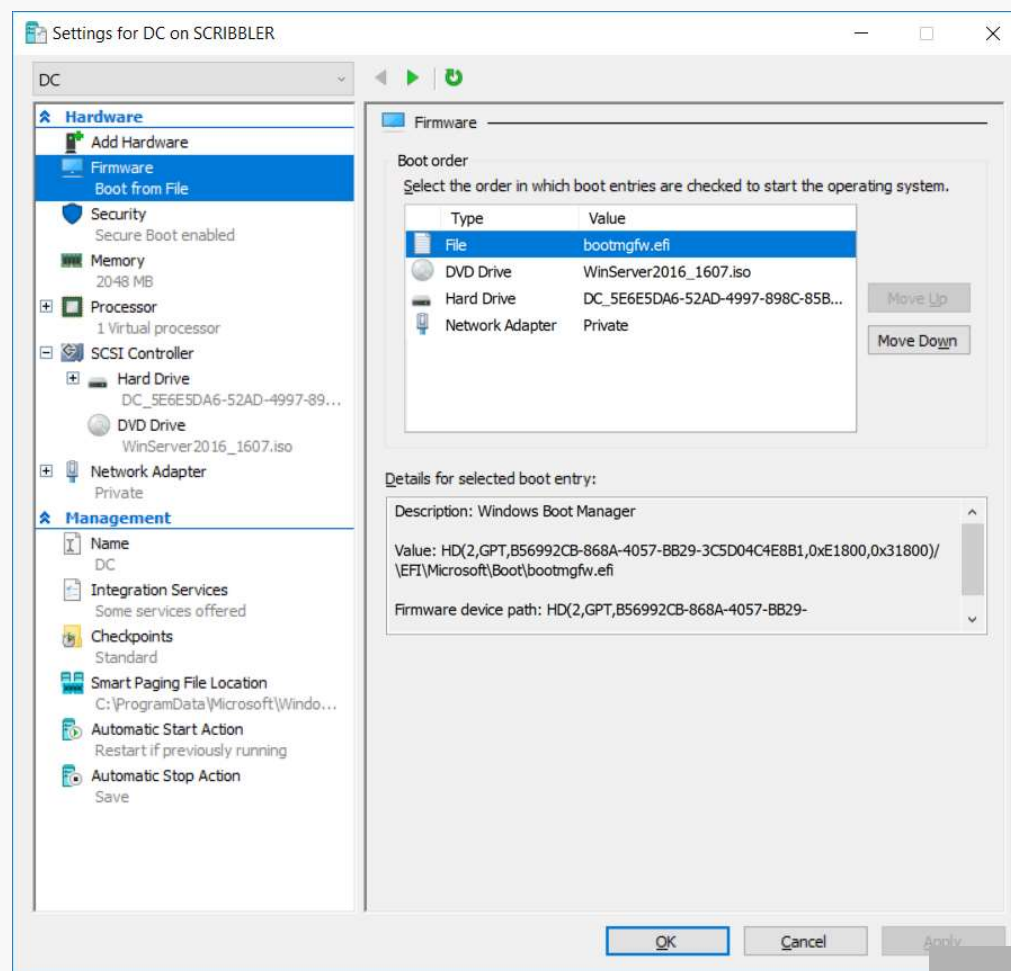
- Embedded systems perform quite specific tasks (compared to general purpose PC/laptop/smartphones)
- Static environment
- Time-sensitive operation
- Very high reliability requirement
- Real Time Operating Systems (RTOS)

Firmware

- Type of software that is very closely tied to the function of hardware
- Not designed to be changed often
- PC/laptop firmware
 - Basic Input/Output System (BIOS)
 - Unified Extensible Firmware Interface (UEFI)
- Many other components have embedded firmware
 - Graphics adapters, disk drives, network adapters, printers,...

Virtualization

- Running multiple OS on a single computer
- Host computer
- Hypervisor
 - Type I/“bare metal”
 - Type II
- Guest OS/Virtual Machines (VM)

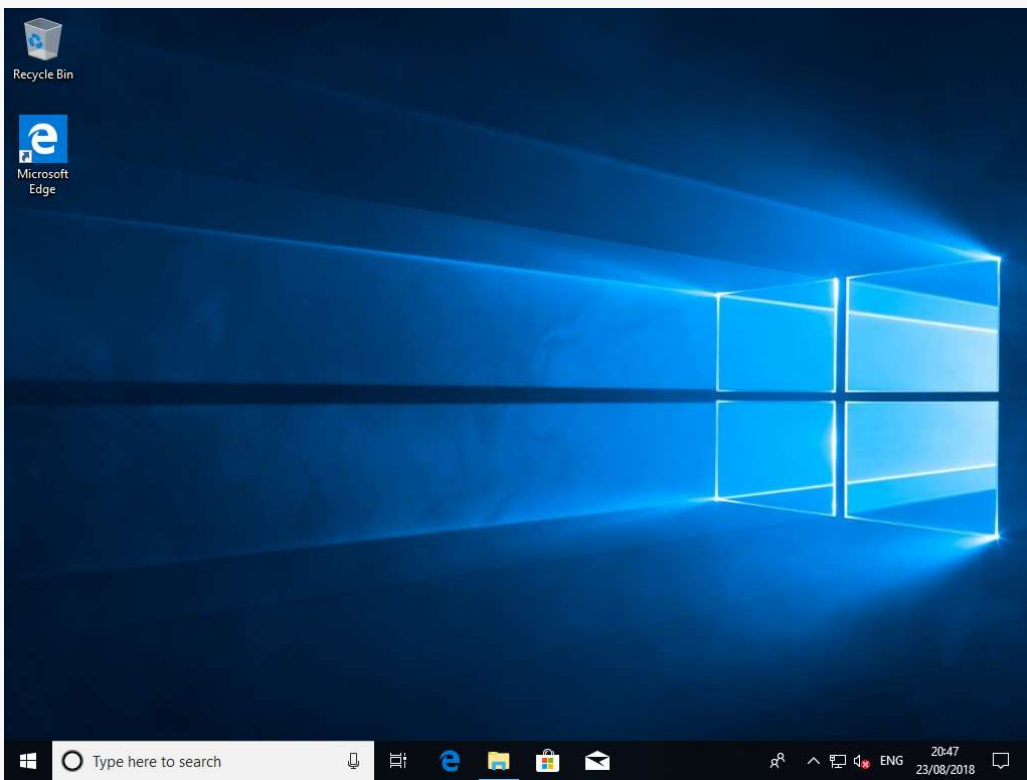


Microsoft Windows

- Estimated to run on 90% of desktops and laptops
- Client and server editions
- Released in many different versions over the years

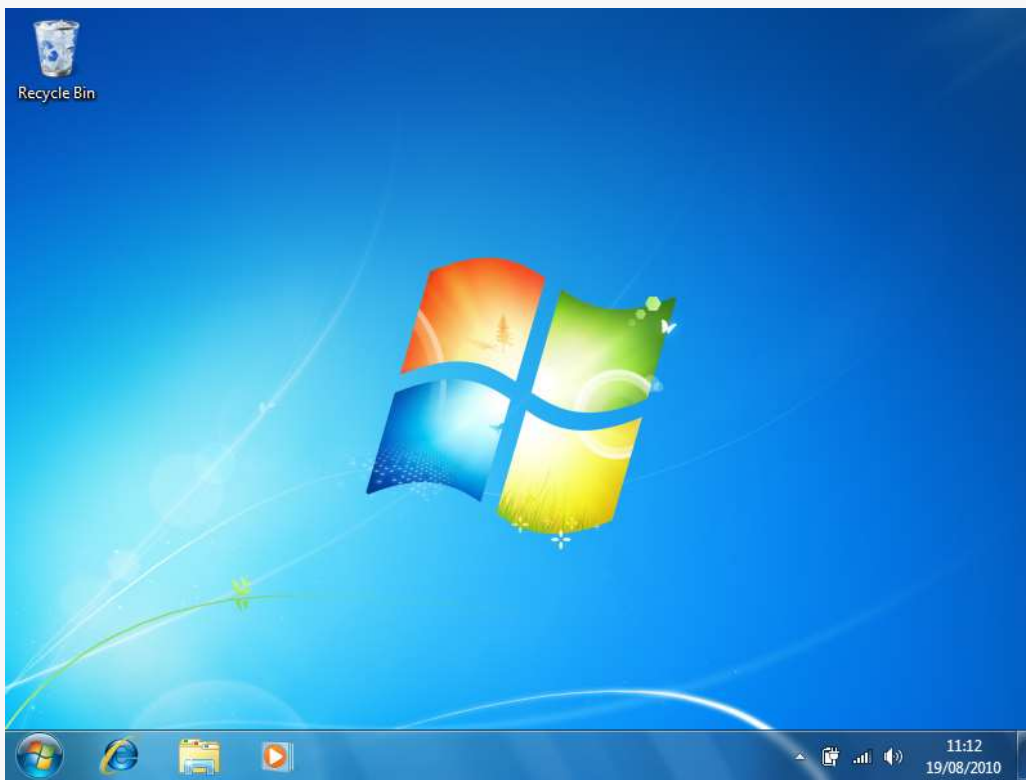
Windows 10

- First released in 2015
 - Windows 10 Anniversary Update (1607)
 - Fall Creators Update (1709)
 - Spring Creators Update (1803)
- Designed to run on both PC/laptops and smartphone/tablet/hybrids
- Estimated market share of about 33% in 2017/2018



Older Windows Versions

- Windows 8 (2012)
 - First version with Start Screen/touch-enabled interface
 - Windows 8.0 (no Start button!)
 - Windows 8.1 (Start button back)
 - Not widely adopted (about 7% market share)
- Windows 7 (2009)
 - Last version with the Start Menu interface
 - Still very widely used (43% market share)
- Windows Vista (2007)
 - Preceded Windows 7 but never widely adopted
- Windows XP (2001)
 - Once very widely adopted but security problems have seen it drop to 5%



Windows Editions

- Each Windows version made available in different editions
 - Windows 10 Home—consumer and Small Office Home Office (SOHO) business use
 - Windows 10 Pro—small and medium-sized businesses
 - Windows 10 Enterprise/Windows 10 Enterprise (Long Term Servicing Channel)—similar to the Pro edition but designed for licensing by medium and large enterprises
 - Windows 10 Education/Pro Education—variants of the Enterprise and Pro editions designed for licensing by schools and colleges
- 32-bit versus 64-bit
- Windows 10 Mobile

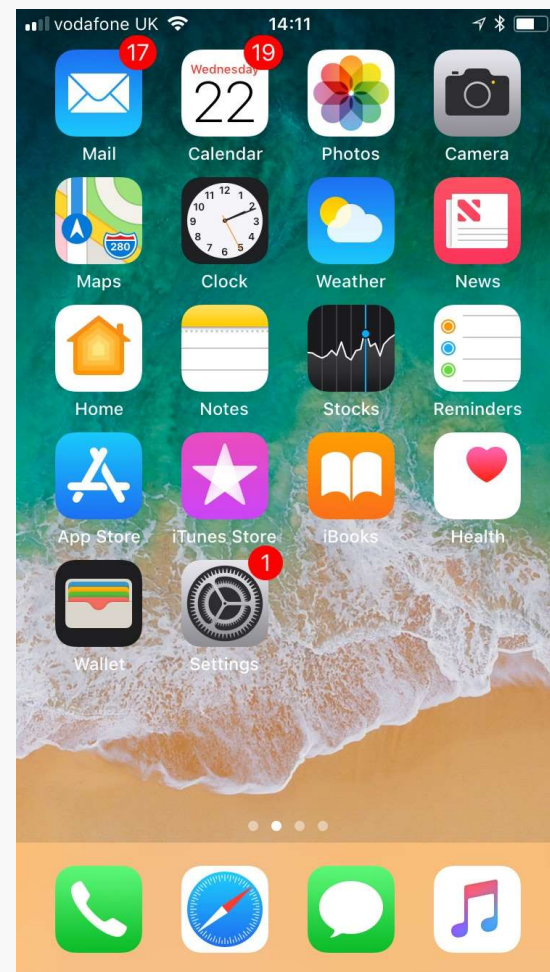
Apple macOS

- Apple Macintosh computer hardware
- Mac OS – can only be installed on Apple Mac hardware
- Versions
 - OS X
 - macOS
 - “dot” updates



Apple iOS

- Runs on iPhone and iPad hardware only
- Currently version 11/12
- Version updates can drop support for older hardware models



UNIX, Linux, and Chrome OS

- UNIX

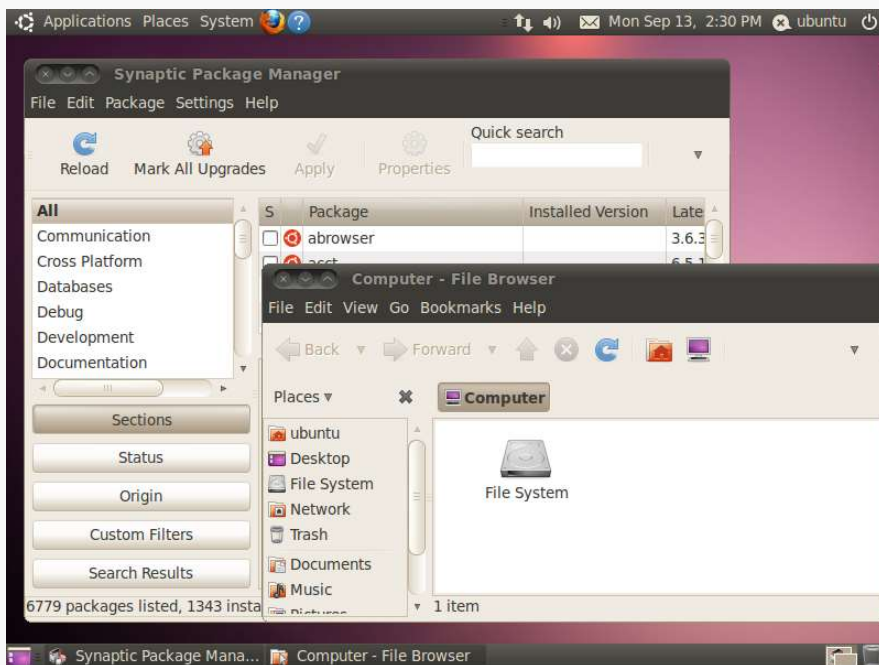
- Developed in parallel by various institutions
- Contains proprietary/copyright/patented code

- Linux

- Derived from UNIX but fully open source
- Multiple distributions (distros)
 - SUSE, Red Hat, Fedora, Debian, Ubuntu, Mint
- More widely deployed as a server than desktop OS (about 2% market share)

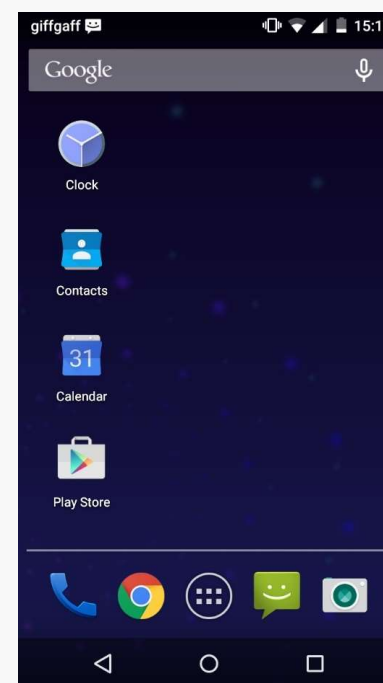
- Chrome OS

- Derived from Linux to run Chromebook and Chromebox hardware
- Designed to work with web applications rather than locally-installed software



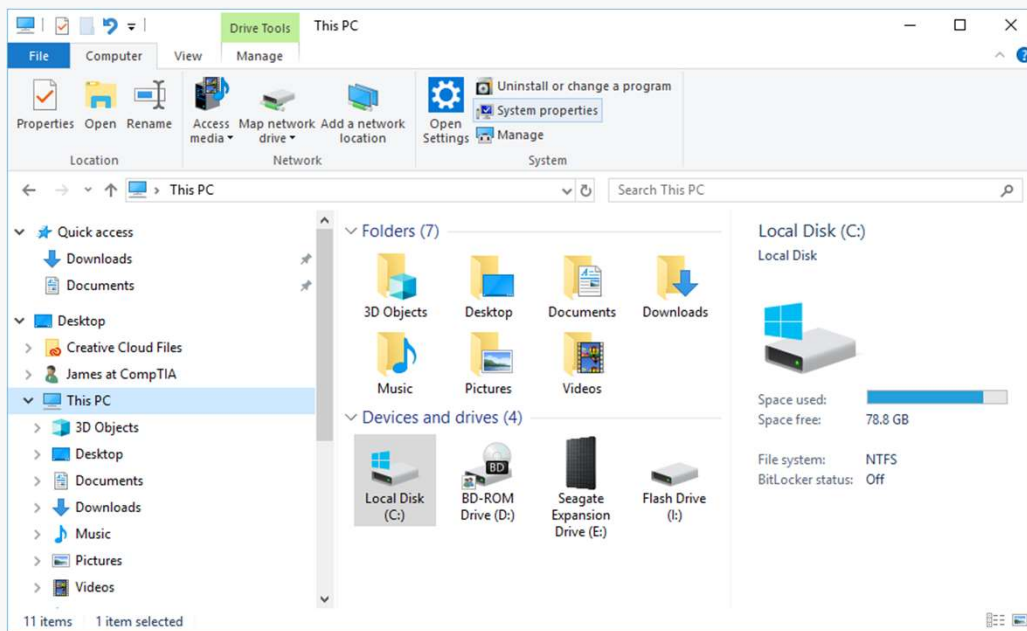
Android

- Smartphone/tablet OS derived from Linux
- Often customized by vendors
 - Acer, Asus, HTC, Huawei, LG, Motorola, OnePlus, Oppo, Samsung, Sony, Xiamoi
- Major and minor version updates

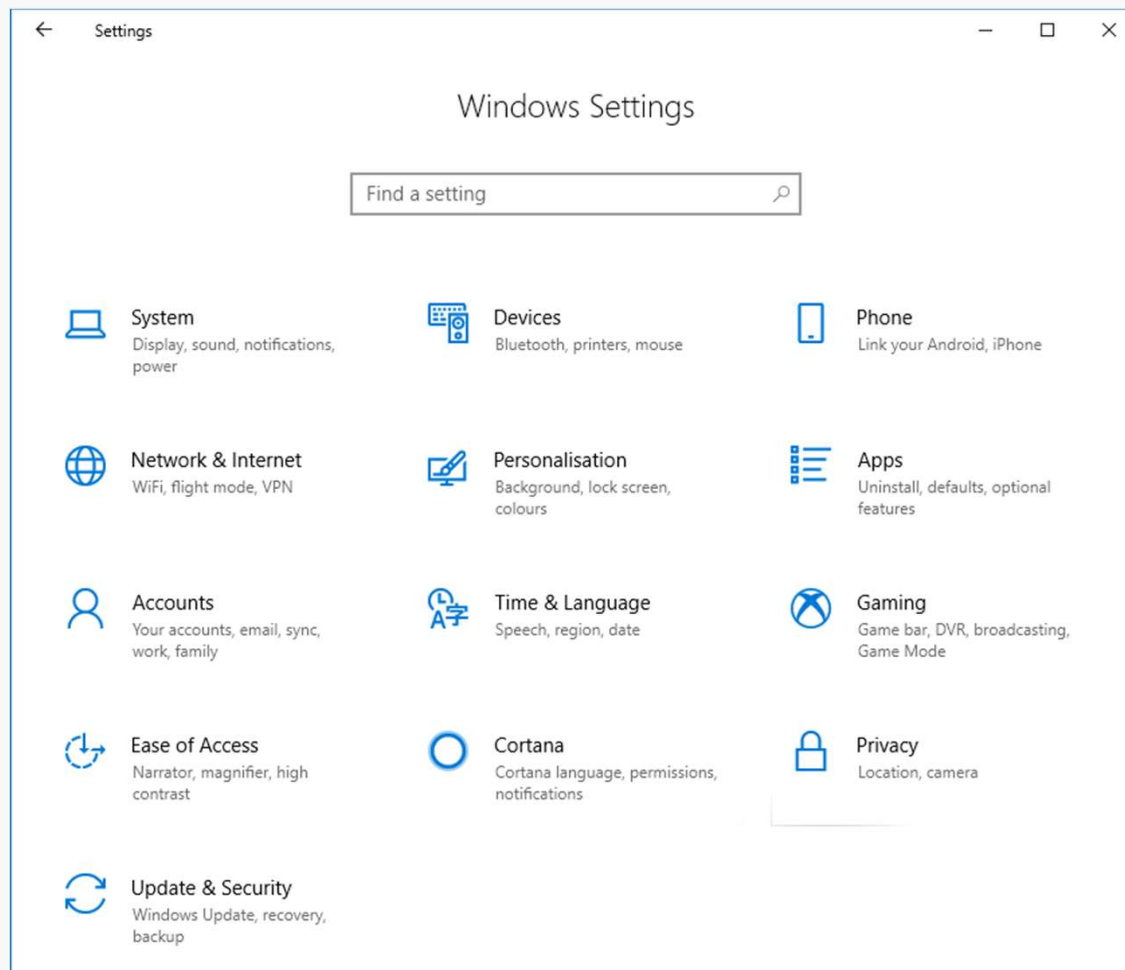


File Explorer/Windows Explorer

- File management interface
- This PC / Computer
- Network

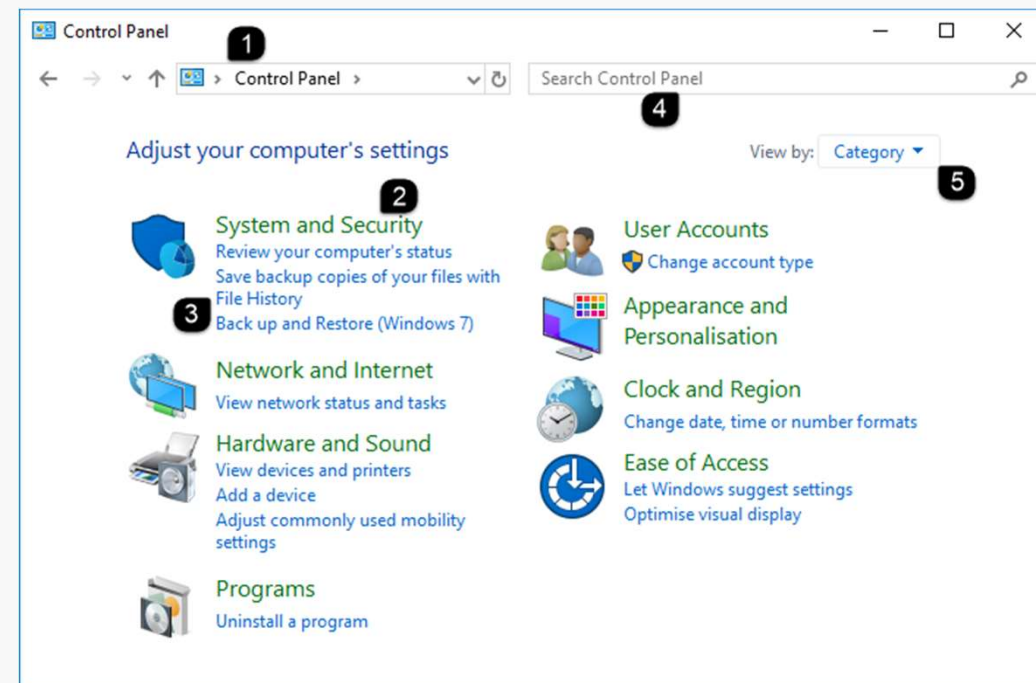


Windows Settings

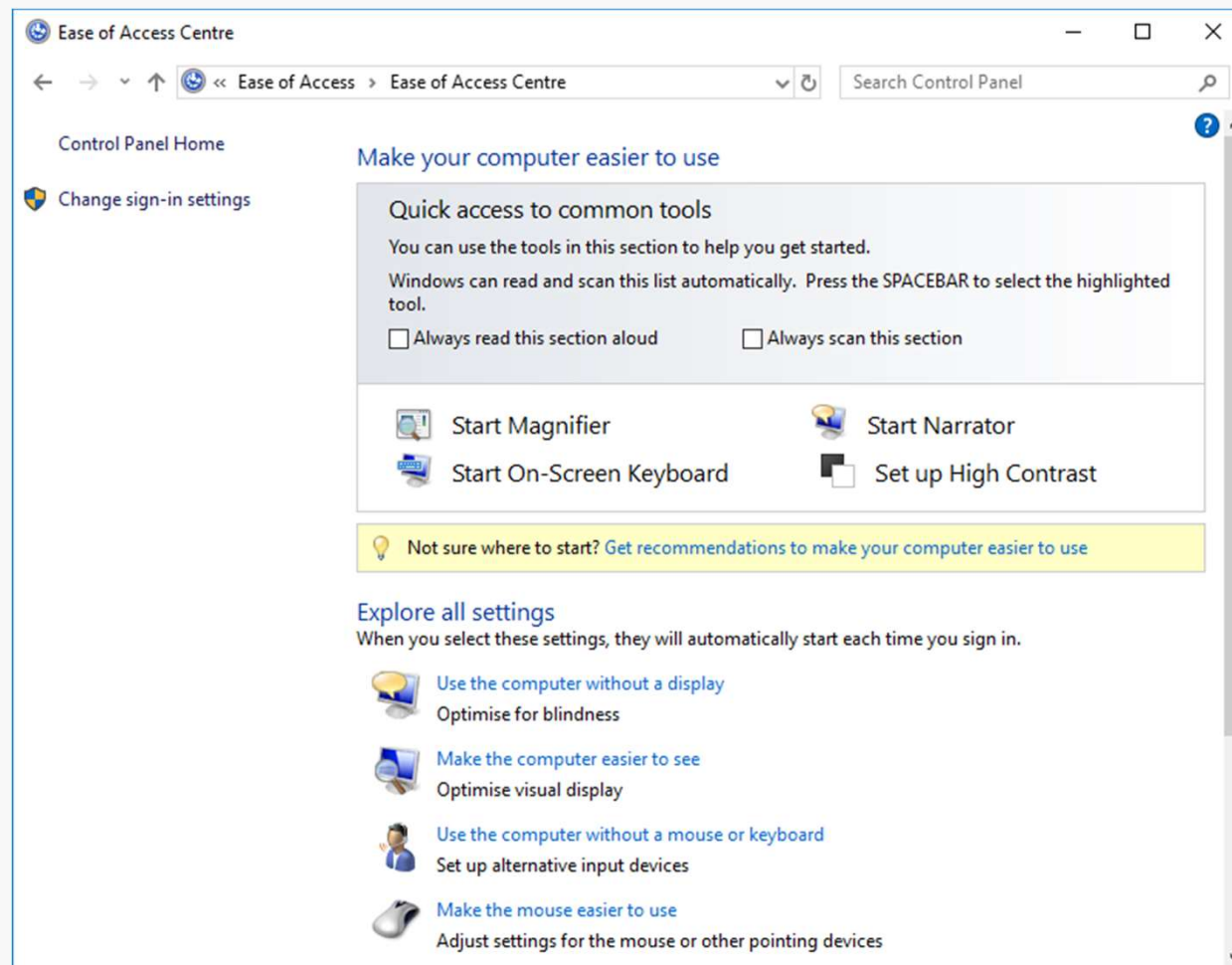


Control Panel

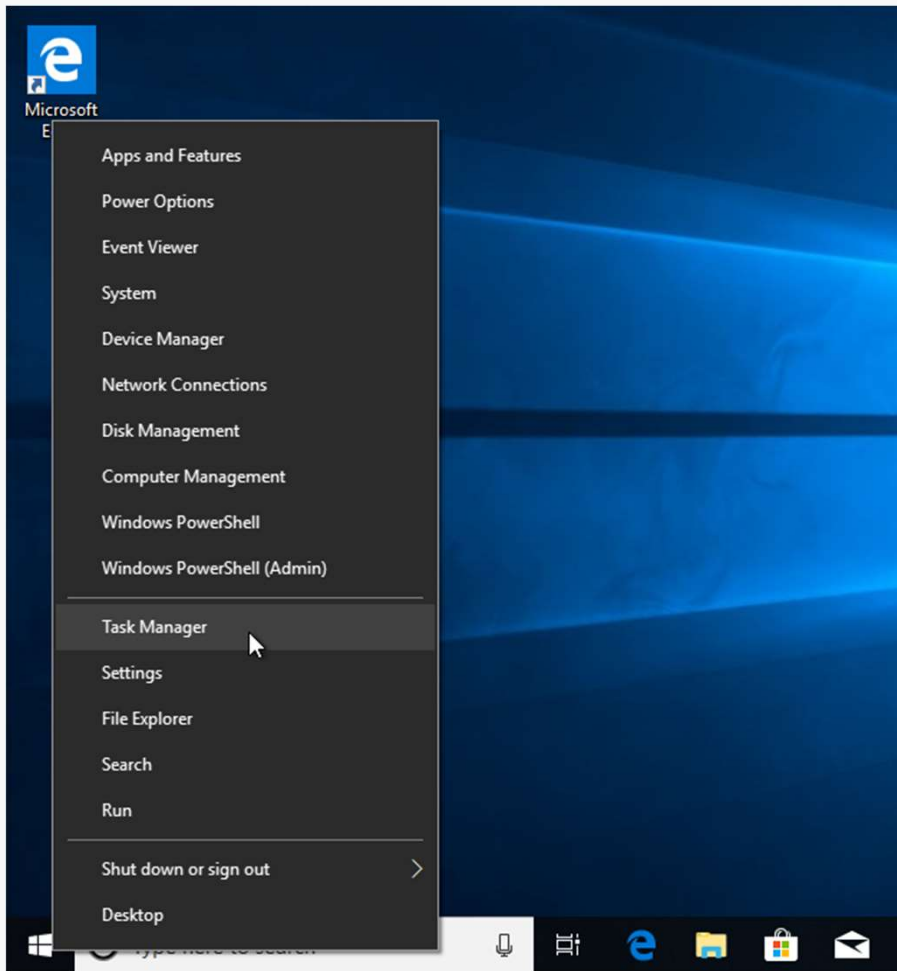
- Configuration options (applets) for earlier Windows versions (and some aspects of Windows 10 and Windows 8)
- Category and list views



Ease of Access Options



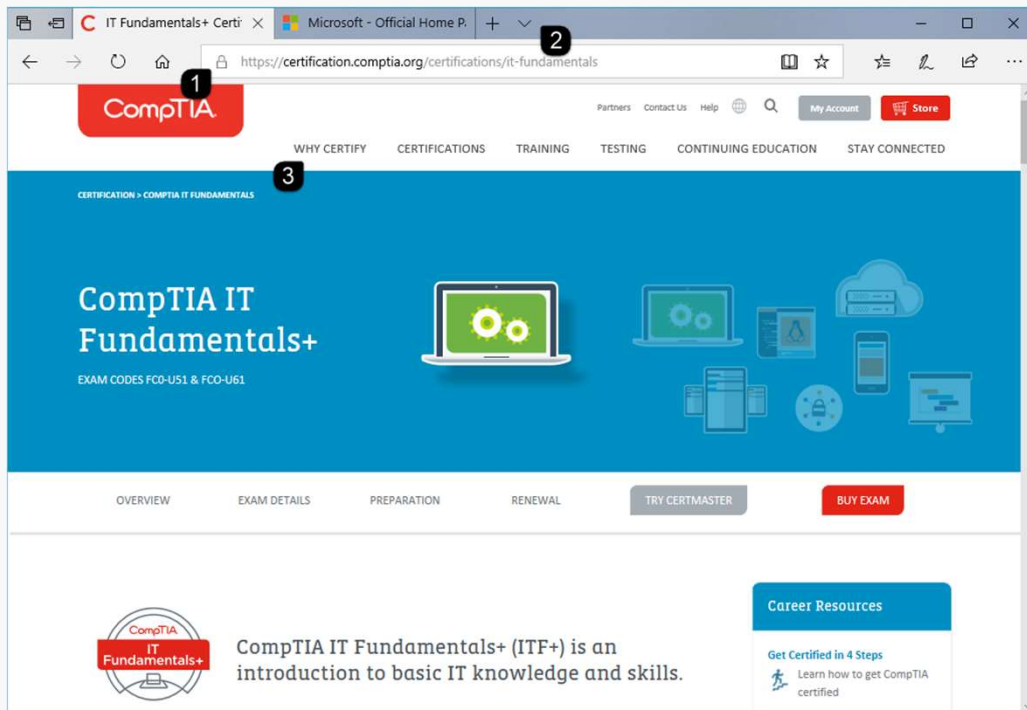
Advanced Management Utilities



- “Power” menu
 - START+X
 - Right-click Start button
- Consoles and tools for more advanced configuration

Using a Web Browser

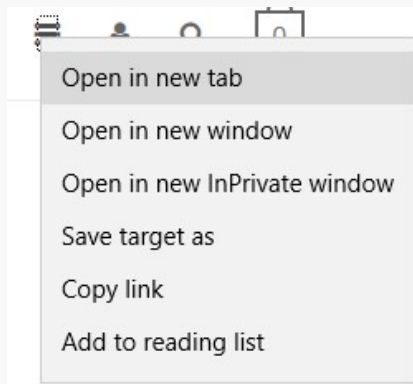
- Choosing a browser
 - Edge/Internet Explorer (IE)
 - Mozilla Firefox
 - Google Chrome
 - Apple Safari
- Web browser features
 - Address bar
 - Tabbed browsing



URLs, Websites, and Hyperlinks

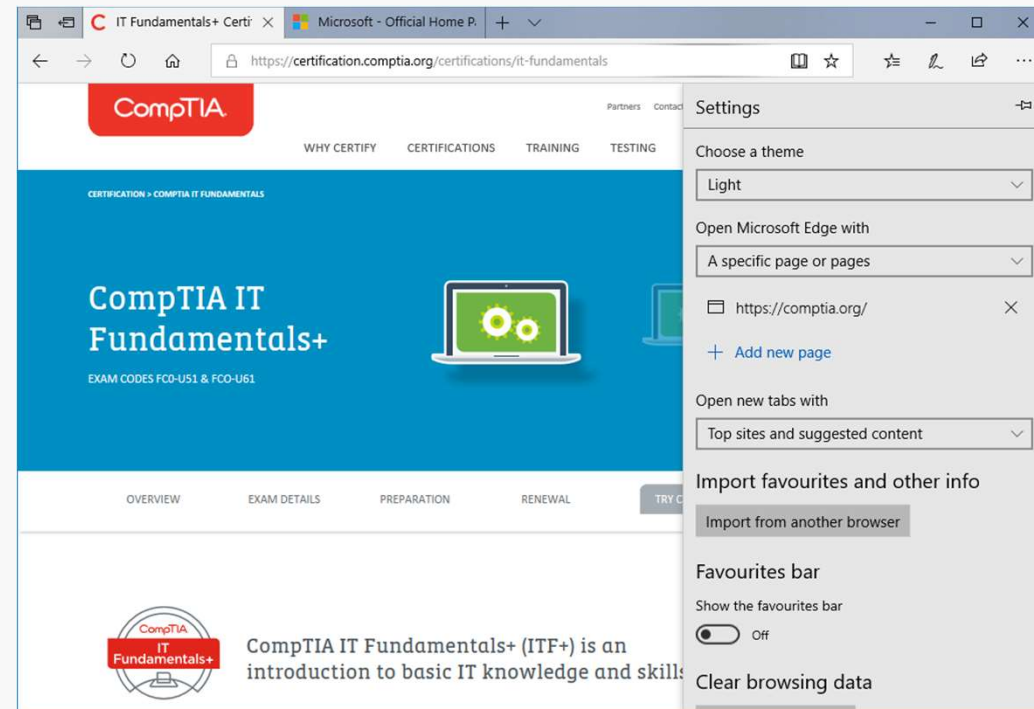
- Uniform Resource Locator (URL)
 - Web address
 - Tells browser how to locate a page or resource
- Websites and web pages
- Site navigation and hyperlinks

1 2 3
<http://store.comptia.org/itf/index.htm>



Using Browser Controls

- Back
- Forward
- Stop
- Refresh
- Address bar
- Setting the home page



Review



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