4.5 Device Driver Management

As you study this section, answer the following questions:

- What type of hardware devices use DMA channels to communicate directly with RAM?
- When is is necessary to manually configure a device?
- What system rights are required to install devices?
- What is the function of the driver?
- What is the importance of driver signing? What should you be aware of when using a driver that is not signed?
- How do you safely remove a hot swappable component?
- How do you verify that a device is compatible with the version of Windows you are running before you purchase it?
- Where are the best places to obtain the most up-to-date version of a driver for each of the following: a Windows system, a macOS system, and a Linux system?

In this section, you will learn to:

- Install devices using drivers included with Windows and drivers available on disc
- Use Device Manager to verify the proper installation of devices
- Safely remove hot swappable devices
- Configure Windows to search Windows Update for updated drivers
- Configure driver signing behavior in Windows
- Update device drivers
- Install and configure drivers on Linux and macOS systems

Key terms for this section include the following:

Term	Definition
Direct Memory Access (DMA)	Conduits used by high-speed devices to bypass the CPU and communicate directly with RAM.
Driver	A program that enables the operating system to interact with hardware devices.
Hot swappable device	A device that can be added and removed without shutting down the computer. For example, thumb drives are hot swappable.
Interrupt Request (IRQ)	A communication method that allows a device to to interrupt the CPU and request processing time.
Input/Output Address (I/O Address)	A data address that allows two devices in a computer to send information to each other.

This section helps you prepare for the following certification exam objectives:

Exam	Objective
TestOut PC Pro	2.1 Install, update, and configure an operating system

	2.1.4 Manage device drivers
CompTIA 220-1001	2.5 Summarize the properties and purposes of services provided by networked hosts. ▪ Legacy/embedded systems 3.4 Given a scenario, select, install and configure storage devices. ▪ Configurations ▪ Hot swappable

CompTIA 220-1002	1.5 Given a scenario, use Microsoft operating system features and tools.
	
	▪ Administrative
	  ▪ Computer Management
	  ▪ Device Manager
	  ▪ Local Users and Groups
	  ▪ Local Security Policy
	  ▪ Performance Monitor
	  ▪ Services
	  ▪ System Configuration
	  ▪ Task Scheduler
	  ▪ Component Services
	  ▪ Data Sources
	  ▪ Print Management
	  ▪ Windows Memory Diagnostics
	  ▪ Windows Firewall
	  ▪ Advanced Security
	
	1.6 Given a scenario, use Microsoft Windows Control Panel utilities.
	
	▪ Device Manager
	
	1.9 Given a scenario, use features and tools of the Mac OS and Linux client/desktop operating systems.
	
	▪ Best practices
	  ▪ Driver/firmware updates