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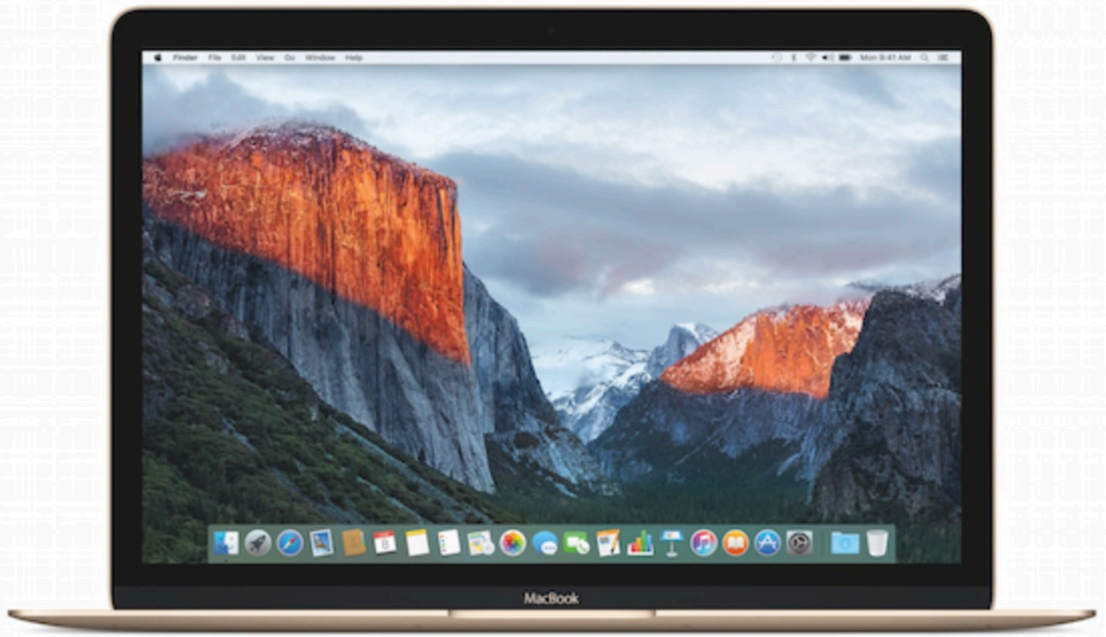
OS X El Capitan: Power Management

OS X El Capitan: Power Management

Introduction



Course Description

The OS X El Capitan: Power Management course will explore the different power states of a Mac and how to identify those states. Additionally, it will cover best practices for battery life and proper adapter use for Mac portables.

This course is part of the ACMT 2016 curriculum and is used to prepare for the Mac Service Certification Exam (MAC-16A).

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Overview

Lesson Objectives

After completing this course, you should be able to:

- Identify the power states of a Mac running OS X.
- Describe the behavior of the Sleep Indicator light.
- Identify the Mac models that have a sleep indicator light.
- Describe how Mac models without a sleep indicator light show the sleep status of that Mac.
- Describe what the SMC controls on a Mac.
- Identify the symptoms that are a result of an SMC that is not functioning correctly.
- Given a Mac model, reset the SMC on that model.
- Identify the correct AC power adapter for a specified Apple product.
- Describe the results of using power adapters of different wattage on Mac portables.
- Clearly explain how to maximize the battery life of an Apple product so a customer can understand.

Audience	Prerequisites	Time Required	You will need...
Service Technicians	Successful completion of the Apple Service Fundamentals exam	1 hour	No additional materials or equipment are required

This course is designed for technicians who do not have immediate access to a Mac running OS X El Capitan. If you do have access to a Mac running OS X El Capitan, it is recommended that you use it while reviewing the course.

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Power States

Wake

Wake is the state a Mac occupies when it is on and in use.

Read Apple Support article, HT202824: OS X: Saving energy with Sleep, as you learn about the various Mac power states.

You will be asked questions based on this content in the Quiz chapter or on the exam.

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- Sleep Indicator Lights
- SMC
- AC Power Adapters
- Optimizing Battery Life
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Power States

Sleep

When you are not using a Mac, you can save energy by putting it to sleep. When a Mac is in sleep, it is on but consumes less power. It takes a Mac less time to wake from sleep than it does to start up after being turned off.

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Power States

Power Nap

Power Nap is a special sleep mode that allows a Mac to automatically wake to perform certain tasks, then go back to sleep again when it is finished.

Read Apple Support article, HT204032: How Power Nap works on your Mac, for more information on Power Nap, including supported Mac models.

You will be asked questions based on this content in the Quiz chapter or on the exam.

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Standby

Standby is a deep sleep mode for Macs started from a solid-state drive. Mac computers manufactured in 2013 or later enter standby mode after one to three hours of regular sleep.

Read Apple Support article, HT202124: About standby on your Mac.

You will be asked questions based on this content in the Quiz chapter or on the exam.

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Safe Sleep

Safe Sleep is a deep-sleep mode for Macs that are started from a mechanical hard drive.

Read Apple Support article, HT201635: Mac computers: Progress bar appears after waking from sleep.

You will be asked questions based on this content in the Quiz chapter or on the exam.

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Power States

Additional Resources

Read the following Apple Support articles:

- PH21694: OS X El Capitan: Put your Mac to sleep
- PH21696: OS X El Capitan: Schedule a time for your Mac to turn on or off or go to sleep
- HT201714: About Energy Saver sleep and idle modes in Mac OS X

You will be asked questions based on this content in the Quiz chapter or on the exam.

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Sleep Indicator Lights

Some Mac computers have a Sleep Indicator Light (SIL) that can aid in determining what power state a Mac is in.

Review the following Apple Support articles:

- HT203576: Mac computers: Sleep Indicator Light behavior.
- HT201981: Mac mini power LED indicates the computer's status
- PH21716: OS X El Capitan: If the sleep indicator light flashes

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Sleep Indicator Lights

When there is no sleep indicator light.

Some computer models do not have a sleep LED. To troubleshoot without one:

- Connect a USB device that has a power-on or activity LED. As power is restored to the USB and the system wakes from sleep, the LED lights up.
- Press Caps Lock key multiple times to wake the computer from sleep.
- Open display and press an alphanumeric key to wake the computer from sleep.
- A computer that has been asleep for an extended period can consume the remaining charge of the battery. Restore power to the computer with known-good power adapter, and check that the MagSafe indicator light shows an in-progress battery charge. The computer will boot from a hibernation file and start up from where it left off.

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SMC

The SMC, or System Management Controller, is responsible for many of the low-level functions on a Mac.

Read the following Apple Support articles:

- HT201295: Reset the System Management Controller (SMC) on your Mac
- HT202040: About the SMC Firmware Updates

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SMC

Resetting SMC instantly shuts down the computer, with some side effects:

- If the computer is in sleep mode, it will reboot from a hibernation file.
- If the computer is booted to OS X during the SMC reset, data from open applications can be lost.
- If the computer is already shut down, there will be no side effects.

Look for the MagSafe indicator light to momentarily switch from off to green as SMC is reset and re-establishes communication with power adapter, then change from green to orange if the battery needs a charge.

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AC Power Adapters

Portable Mac computers are charged using AC power adapters. You should use the appropriate wattage power adapter for your Apple notebook. You can use a compatible higher wattage adapter without issue, but it will not make your computer charge faster or operate differently. Lower wattage adapters will not provide enough power.

Read the following Apple Support articles:

- HT201700: Find the right power adapter and cord for your Mac notebook
- HT203207: Apple Portables: Troubleshooting MagSafe adapters

You will be asked questions based on this content in the Quiz chapter or on the exam.

On the next page, match the Mac portable to its proper adapter.

The column on the left lists Mac portable models. The column on the right are the appropriate power adapters for those Macs.

Using the information you have learned about power adapters, re-order the adapters in the right-hand column so that they match the appropriate Mac on the left.

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Optimizing Battery Life

Review the following and then complete the activity below.

- http://www.apple.com/batteries
- HT204054: About Mac notebook batteries

You will be asked questions based on this content in the Quiz chapter or on the exam.

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Summary

Having completed this course, you should be able to:

- Identify the power states of a Mac running OS X.
- Describe the behavior of the Sleep Indicator light.
- Identfy the Mac models that have a sleep indicator light.
- Describe how Mac models without a sleep indicator light show the sleep status of that Mac.
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- Identify the symptoms that are a result of an SMC that is not functioning correctly.
- Given a Mac model, reset the SMC on that model.
- Identify the correct AC power adapter for a specified Apple product.
- Describe the results of using a power adapter of different wattages on Mac portables.
- Clearly explain how to maximize the battery life of an Apple product so a customer can understand.

This concludes the OS X El Capitan: Security course. For other courses in the ACMT 2016 curriculum, see Apple Support article, HT205332: AppleCare Service Certifications, or search for ACMT 2016 in ATLAS.