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## Multimedia Copy Instructions

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2008 June 16

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### 1. Introduction

After the first time, copying the Peck multimedia to your SD card will be as simple as using the Microsoft Windows Exploring (file manager) application to drag and drop your downloaded /Eduneer directory onto your card writer (e.g., Removable Disk H:). However, the first time can take some planning.

This document is intended to help with that planning.

## 2. Which Memory Card?

### 2.1 Card Capacity

Table 2-1-1 shows the memory required by the Peck multimedia. Adding about 50% for short-term growth, Table 2-1-2 shows the minimum recommended card capacity.<sup>1</sup> Table 2-1-3 shows the maximum card capacity allowed by certain Palm OS devices.<sup>2</sup> If your Palm OS device is not listed in Table 2-1-3, you should do some research about the card capacity limits imposed by your Palm OS device before you buy an SD card.

	Peck Multimedia Sample	Peck Multimedia
160x160 pixel images	47 Mbyte	458 Mbyte
240x240 pixel images	57 Mbyte	601 Mbyte
320x320 pixel images	70 Mbyte	671 Mbyte
480x480 pixel images	70 Mbyte	855 Mbyte

**Table 2-1-1. Size of Peck Multimedia**<sup>3</sup>

	Peck Multimedia Sample	Peck Multimedia
160x160 pixel images	128 Mbyte	1 Gbyte
240x240 pixel images	128 Mbyte	1 Gbyte
320x320 pixel images	128 Mbyte	1 Gbyte
480x480 pixel images	128 Mbyte	1 Gbyte

**Table 2-1-2. Minimum Recommended Card Capacity**

Palm OS Device	Maximum Card Capacity
Tungsten E2, T, T2, T3, Zire 31, 71	1 Gbyte
LifeDrive, Treo 600, 650, 680, 700p, Tungsten T5, Zire 72	2 Gbyte

**Table 2-1-3. Maximum Card Capacity of Some Palm OS Devices**

### 2.2 Card Speed

The Peck and SI applications have no need for high speed when writing to flash memory,<sup>4</sup> a capability that can be very useful for serious photographers.

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<sup>1</sup> Flash memory capacity seems to be like closet space in that if you have it, it will eventually get filled with something.

<sup>2</sup> These maximum card capacities were determined by tests performed by Palm Inc and documented at [http://www.palm.com/cgi-bin/cso\\_kbURL.cgi?ID=34080](http://www.palm.com/cgi-bin/cso_kbURL.cgi?ID=34080)

<sup>3</sup> There is an option of getting the Peck multimedia localized to a particular state/province. The size of that localized Peck multimedia will of course depend upon the state/province. However, a general rule is that the localized Peck multimedia requires about 40% less storage capacity.

<sup>4</sup> In 2005 I recommended buying flash memory with a write speed of at least 9 Mbit/s. However now that SI has improved buffering, there is even less need for write speed. And the 'standard' devices from most flash memory manufacturers have evolved to have write speeds greater than what I was recommending.

## 2.3 Card Type

Secure Digital (SD) card – Most Peck application users store the Peck multimedia on an SD card. Since I have not read or received any disparaging reports about a certain brand of SD card not working, all SD card brands are equally recommended.

Secure Digital High Capacity (SDHC) card – SDHC cards are designed for capacities from 4 Gbyte to 32 Gbyte. Although Palm does not yet officially support the use of SDHC cards, there have been reports<sup>5</sup> of partial success in using a Transcend 8 Gbyte SDHC card with the Treo 680.

Secure Digital plus Universal Serial Bus (SD/USB) – This is a nifty gadget, but it costs more than the combined cost of an SD card and an SD card writer/reader. And it probably is less mechanically reliable: the act of snapping one open is filled with anticipation, like pulling on a wishbone. Not recommended.

Shoot & Store Secure Digital – Cheaper, but it is a write-once memory. Not recommended for use with the Peck or SI applications.

MultiMediaCard (MMC) – Because they do not have a unique ID to allow card specific encryption, MMCs cannot be used with Peck multimedia but they can be used with the Peck multimedia sample.

Memory Stick (MS) – Typically limited to use with Sony devices. Memory Sticks do not have unique IDs to allow card specific encryption. Therefore, like MMCs, they do not work with the Peck multimedia but they do work with the Peck multimedia sample.

MagicGate Memory Stick – Same form as Memory Stick and same limitation to Sony devices, but they have a unique ID. Unfortunately it appears that no Sony device has the drivers to report the unique ID to the Palm OS. Therefore, like MMCs, they do not work with the Peck multimedia but they do work with the Peck multimedia sample.

## 2.4 Card Size

SD cards come in full size (about the size of a postage stamp), mini size (about half the size of a postage stamp), and micro (about one quarter the size of a postage stamp). Early in 2007, SanDisk started selling microSD Mobile Memory Kits: a microSD card along with mini and full size adapters. Although memory kits cost a dollar or two more, having the adapters will save you money if you ever switch to a device that requires a different card size.

## 3. Where to Buy an SD Card?

SD card prices continue to drop quickly. Online stores (e.g., Amazon.com) seem to be able to follow the dropping price faster than brick-and-mortar stores (e.g., Walmart). Also when you buy from an online store, you may be given the option of getting a ‘bulk’ version of the SD card as opposed to a ‘retail’ version. Both the ‘bulk’ and ‘retail’ versions are new, but with the bulk version you avoid paying for the retail version’s PVC blister pack that is made extra large to discourage shoplifting. Therefore choosing the bulk version reduces packaging waste, and also saves you money.

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<sup>5</sup> An article about using SDHC cards with the Treo 680 is at <http://www.brighthand.com/default.asp?newsID=12952>

## 4. Which Copy Method?

You'll need some method to copy files to your SD card. There are several options:

- If available, use the SD card writer/reader built-in to your PC. For example, some Dell laptops have a built-in SD card writer/reader slot located near the USB ports.
- If available, use DriveMode capabilities that are inherent to some recent Palm devices.
- Buy an SD card writer/reader (Walmart sells them for about \$15... make sure the device can write to your SD card in addition to reading from it).
- Buy an SD card with built-in USB capabilities (e.g., the SanDisk SD plus USB: part # SDSDPH-512-901).
- Buy USB drive software (e.g., Softick Card Export II for Palm OS).

Note that Palm's Quick Install application is not a recommended method for copying the /Eduneer directory to your SD card because it alters the /Eduneer directory structure, moving .wav audio files to the /AUDIO directory and moving .prc image files to the /PALM/Launcher directory. It is possible to use a free file manager application such as FileZ<sup>6</sup> to restore the /Eduneer directory structure on your SD card. However moving all the .wav and .prc files with FileZ is a slow process.

## 5. Overwrite or Not?

Although there is no limit to the number of times your SD card can be read, the memory at a particular address in your SD card can fail due to excessive writes to it.<sup>7</sup> Therefore it is good to be prudent with your writes to your SD card. If you are upgrading from the Peck multimedia sample to the Peck multimedia, you should first delete all the Peck multimedia sample on your SD card because some of the multimedia and multimedia sample files have the same names but are encrypted differently. When/if you update your Peck multimedia, there is typically no need to delete or overwrite files.<sup>8</sup>

## 6. Switching SD Cards

The Peck multimedia is encrypted according to your SD card's ID. Although you can copy the multimedia to a different SD card, the Peck application will not properly play/display the multimedia unless it is stored on the SD card for which it was encrypted.

With the advances by the memory technology industry that keep improving capacity and price, a time may come when you want to use the Peck multimedia on a new SD card (e.g., a higher capacity card for swap-free use with multiple applications). To get the Peck multimedia re-encrypted for a new SD card

- (optionally) wait for the next update of the Peck multimedia (typically, multimedia updates occur once or twice per year),
- buy an update to the multimedia and specify your new SD card ID in the order completion form,
- delete your previous copy of the multimedia (at Eduneer LLC, the record of your old SD card ID will be disabled so it cannot be updated).

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<sup>6</sup> FileZ (not related to FileZilla) is freeware available at <http://www.palmgear.com/software/showsoftware.cfm?prodid=9992>

<sup>7</sup> Typically, 100,000 to 1,000,000 writes to the same address are enough for flash memory to fail.

<sup>8</sup> New multimedia files are given different filenames. Therefore if a file in a multimedia update has the same name as a file already on your SD card, there is no need to overwrite your existing file because it is the same as the file in the update.

## 7. Copying “The Works”

The Peck application is flexible in linking to the multimedia you copy to your SD card. However, if you want your SD card to contain everything that is on the SD cards that Eduneer distributes, copy the following:

- copy the Peck multimedia (or Peck multimedia sample) in its /Eduneer directory to your SD card
- copy the Wikipedia article text to your SD card's /Eduneer/Wikipedia directory
- copy the documentation .PDFs to your SD card's /Eduneer/documentation directory (after you create the /Eduneer/documentation directory)
- copy the start.prc application to your SD card's /PALM directory
- copy the peck-Installer.prc application to your SD card's /PALM/Launcher directory
- copy the si-Installer.prc application to your SD card's /PALM/Launcher directory

## Appendix. Change Log

2008 June 16:

- added section ‘7. Copying “The Works”’
- updated tables in section ‘2.1 Card Capacity’ to include information about 480x480 pixel images
- added eduneer logo and table of contents to first page