This document discusses the PCMCIA cards currently used in ODOT surveying and how we should care for, maintain, and use them.

ODOT currently uses 3 types of PCMCIA Cards:

- SRAM PC-Cards (with replaceable battery) can be used in Leica TCA1800, Leica TCRA1101 and Leica GPS System 500.
- SRAM PC-Cards (with permanent battery) can be used in Leica TCA1800, Leica TCRA1101 and Leica GPS System 500.
- ATA-Flash Cards (Flash RAM Cards) used in Leica TCRA1101 and Leica GPS System 500.

PCMCIA Card Care

- Try to keep card in plastic card case when not in use, especially when carrying the card on your person (e.g. in your pockets).
- Avoid exposing the card to possible magnetic and electrical energy sources.
- Connection Pins – Keep pins clean and dry. Blow away any dirt lodged in the pins.
- Keep card dry.
- Operating temperature –20 ºC to +70 ºC.
- Do not bend.
- Do not drop.

PCMCIA Card Maintenance

- The card should be stopped, using the 'Safely Remove Hardware' function, before removing it to allow the system to properly process the removal to avoid losing data on the card.
- After inserting a PCMCIA card in the computer it may be necessary to View Refresh in Explorer before the card drive is recognized.
- Always back out to the Main Menu and switch off the instrument before removing the PCMCIA card.
- If, for any reason the card is bad, it could corrupt the instrument onboard programs e.g. if an attempt is made to format the bad card on the instrument instead of on the computer.
- Write protect lock OFF during normal use.
- Battery lock ON during normal use.

SRAM PCMCIA Cards (with replaceable battery)

- The instrument will indicate if your card battery is low.
- Replace battery at intervals of approximately 6 months. One idea is to record the replacement date electronically on the card.
- No battery - no memory!
- Avoid handling batteries with your fingers, as the oil from your fingers will shorten the battery life.
- Lithium battery **BR2325**
- Operating voltage = **~ 3 volts** (voltage can be tested with a battery tester)
- These batteries should be kept warm (but avoid excessive heat, and direct sunlight). Put cards in their plastic card case and in your coat or bring them inside when not using them. Cold weather will take ½ the battery life.
- If they are cold download them right away.
- Problems formatting the card? Reboot the computer and try formatting again or, if using an SRAM with a battery, try pulling the battery out and put it back in or just replace the battery to clear the card.

SRAM PCMCIA Cards (with permanent battery)

- In a controlled environment the life expectancy is stated as ' Unlimited life cycles '.
- In a surveying environment the life expectancy is approximately 10,000 insertions.
- No warning given when battery is low making daily (or even more frequent) data downloading or backup imperative.

PCMCIA Card Reformatting

! **Reformat** PCMCIA cards approximately **once a month**, or more frequently if necessary. This may eliminate future problems that may be caused by cards with possible corrupt data. A card with corrupt data and/or that may not have been reformatted for some time can affect the operational speed and performance of a survey instrument.

- **Backup before Reformatting!**
  In order to minimize possible data loss during reformatting, create a directory named “C:\usr\Preformat” and drag all files from the card to this directory before reformatting the card. This is only a suggested naming convention, but the path must be under the subdirectory “usr”. Files can then be dragged back onto the card, if desired, after formatting. Remember, the survey crew chief is ultimately responsible for the safeguarding of this survey data.
- Windows 95 – format card on instrument.
- Windows NT/XP – format card on computer.
- If the computer does not recognize the card, **reboot** the computer with the card inserted. This procedure may allow reformatting of the card.

Definitions, etc.

- PC-Card is a peripheral (secondary) device.
- PCMCIA Card = PC-Card
- PCMCIA = Personal Computer Memory Card International Association
- SRAM = Static Random-Access Memory
- ATA = Advanced Technology Attachment
- ATA-Flash Card = Flash RAM Card (without battery)
- Flash or solid-state data storage uses Flash semiconductor chip technology to store data much like a rotating disk drive uses a platter to store data. Flash is the lowest cost, non-volatile semiconductor read/write storage technology available today. The non-volatile feature means that data is retained indefinitely without any requirement for power, AC or battery, being supplied to the storage device.

Instrument Information

TCA1800 can recognize and use SRAM PCMCIA Cards with replaceable batteries and SRAM PCMCIA Cards with permanent batteries.

TCRA1101 can recognize and use SRAM PCMCIA Cards with replaceable batteries, SRAM PCMCIA Cards with permanent batteries, and ATA-Flash Cards (Flash RAM Cards) that do not have internal batteries.

Steps to have XP computers and survey instruments recognize PCMCIA (SRAM) cards

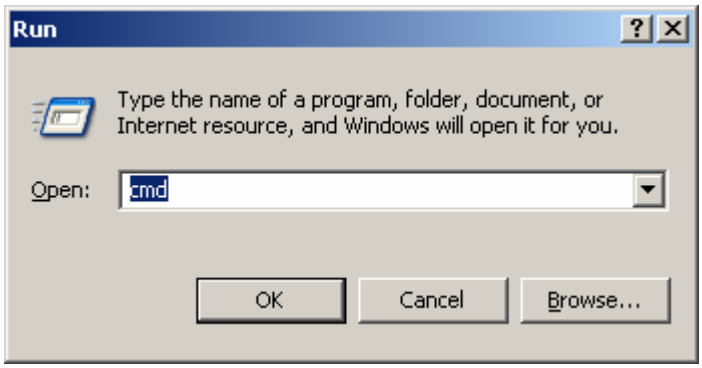
1. Format the PCMCIA card on the computer.

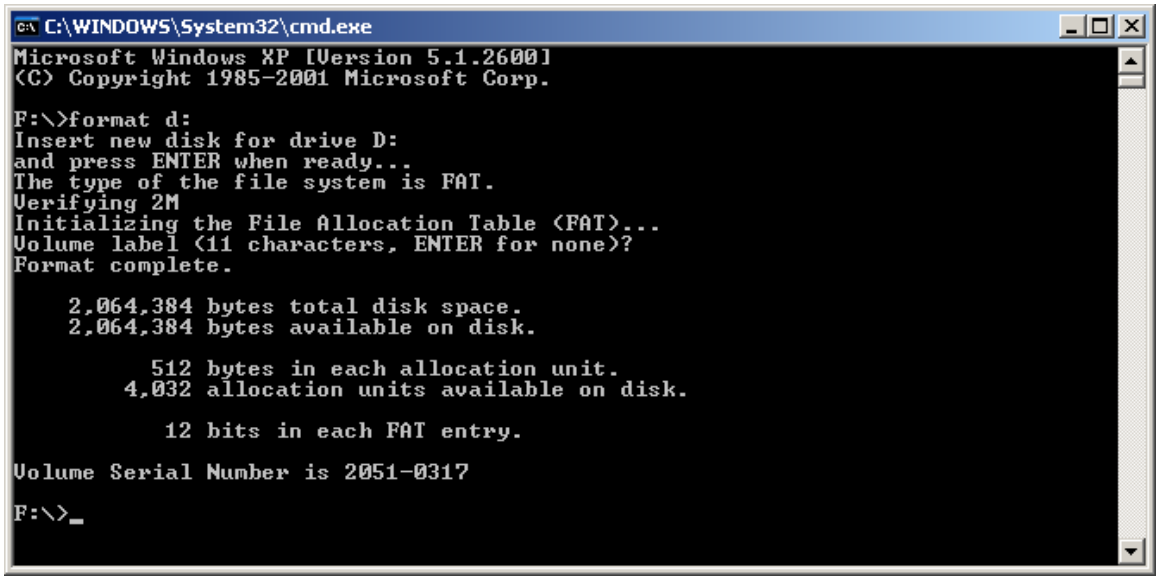
2. If Step #1. doesn't work – reboot the computer, with the PCMCIA card installed, to see if the computer will then recognize the PCMCIA card.

3. The problem may be that there is no drive available for the PCMCIA card on your computer. You can make a drive available by right clicking on your (F:) drive and selecting **Disconnect**. The computer may then recognize the card. When you want to restore your (F:) drive you will have to reboot the computer.

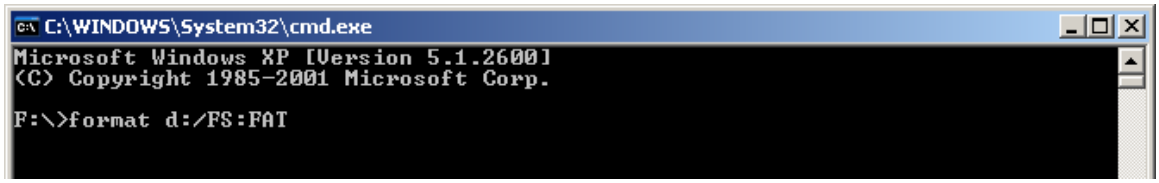
4. If the above steps don't work – attempt to format the PCMCIA card on the survey instrument, then see if the computer will recognize the card, and if it does, format the card on the computer.

5. If the above steps don't work – **Start > Run > OK**.





6. If a message comes up stating, “The type of file system is RAW.”, enter the following:



Example:

```
C:\WINDOWS\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hwye88t>format f:
Insert new disk for drive F:
and press ENTER when ready...
The type of the file system is RAW.
Please use the /FS switch to specify the file system
you wish to use on this volume.

C:\Documents and Settings\hwye88t>format f:/FS:FAT
Insert new disk for drive F:
and press ENTER when ready...
The type of the file system is RAW.
The new file system is FAT.
Verifying 2M
Initializing the File Allocation Table (FAT)...
Volume label (11 characters, ENTER for none)?
Format complete.

    2,064,384 bytes total disk space.
    2,064,384 bytes available on disk.

          512 bytes in each allocation unit.
        4,032 allocation units available on disk.

           12 bits in each FAT entry.

Volume Serial Number is 62D6-1FE1

C:\Documents and Settings\hwye88t>
```

7. If the above steps don't work – get an IS computer tech to attempt to assign a drive so the computer will recognize the PCMCIA card.