A Complete Guide to Using ADT for Apple ←→ PC file Transfers

Over the last several months, I have entertained several requests for information about Apple to PC transfers and vice-versa. Though several packages are available to perform this task, there is only one that we think is as seamless as it gets.

Apple Disk Transfer (ADT) by Paul Guertin is one of the simplest packages to use. Although many Apple II web sites still have software in Shrinkit (.SHK) format, the .DSK format is catching on.

There are currently 3 packages that are within the ADT line. There is ADT 1.22, which is a DOS based version of the program. ADTw 1.22 is the 32-bit version of the ADT program. This program by Sean Gugler is not only easier to use but uses the same Apple II side software as the DOS version.

For the Apple IIgs, there is ADTgs v.91. This version of the software allows for transfer of 160k floppies using the IIgs's built in serial port. For the Apple II+ and IIe160k floppies, the ADT 1.22 and ADTw 1.22 both work just fine with the Apple IIgs.

Although ADT was developed in 1995, it took a long time to really catch on as most of the emulators were on the Macintosh. But as the PC based emulators gained in popularity, the .DSK format also become more prevalent. Asimov, (ftp.apple.asimov.net) one of the largest repositories for Apple II software on the internet uses this format almost exclusively.

One of the nicest items about the ADT programs is that they are all freeware.

Getting Started

One of the first things you will need to do is to set up your Apple II for the transfer. You will need to make sure that your machine first has an Apple Super Serial Card. Many Apple IIe's these days are sold without the Super Serial Card

but you can usually pick up one for 5-10$ through online auction sites such as Ebay.

Once you have the card, you will need to set the jumper switches on the card to the following settings:

Switch 1		
Switch Position		Meaning
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1-1	Off	Sw1-1 through 1-4 in Off Position
1-2	Off	is 19200 baud (15B)
1-3	Off	*
1-4	Off	*
1-5	On	Switch 1-5, 1-6 in on position is
1-6	On	Communications Mode
1-7	On	RS-232-C Signals

Switch 2		
Switch	Position	Meaning
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2-1	On	Sw 2-1, 2-2 in on position
2-2	On	is for 8 Bits, 1 Stop Bit
2-3	Off	Sw 2-3 off, 2-4 on is
2-4	On	No Parity
2-5	Off	Generate Linefeed After
		Carriage Return Off
2-6	Off	Interrupts Off
2-7	Off	RS-232-C-Signals

Jumper Switch	
Switch Setting:	Modem

Once you have set all of the settings on the card, re-install it into the computer. You will now need a DB-9 to DB-25 null-modem cable. This is shown in the following table:

PC (DB 9 pin) ←→ Apple II (DB 25 pin)	
Pin	Pin
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2	2
3	3
4	8
5	7
6	20
7	5
8	4

This cable should have a Female DB-9 and a Male DB-25. One you have this cable, connect the cable to the Apple and the PC. Make a note of the PC Serial port number that you connect the cable to. You will need this for later specification within the ADT program.

Floppy Disk Setup

Before you can actually transfer the ADT software to your Apple II, you will need to initialize a blank floppy disk

1) Boot the DOS 3.3 System Master
2) Remove the System Master from Drive 1
3) Insert a blank disk into Drive 1
4) Type **NEW** and press <Enter>
5) Type **INIT HELLO** and press <Enter>

Once the formatting has been completed, your floppy will be bootable and ready for the transfer. You can re-boot your Apple II with the floppy in Drive 1 to check the disk.

Setting Up The Transfer

Once you have rebooted your Apple II computer, you will need to set the Super Serial Card to the appropriate speed and settings for the transfer from the PC. To do this, type IN#2 to initialize the card. (This is assuming that you have installed the Super Serial Card into slot 2 of your Apple II+ or IIe. Next you will need to press <CTRL> <A>. The Apple II will then display the following prompt:

SSC:

At this point, type 15B and press <ENTER>. This will set your Apple for 19200 baud with 8 bits, no parity, and 1 stop bit which is the factory default.

PC Side Setup

The next thing to do is to complete the PC setup. Unzip the ADT 1.22 software to a new directory on your hard drive. The ADT.zip file is a Winzip archive. This software can be obtained from www.winzip.com if you do not have it already.

Upon extracting the archived files, you can start Hyper Terminal. You will use this program to transfer the initial programs for the ADT software to the floppy disk which you created.

Upon starting Hyper Terminal, you will be presented with a window to enter the name of the service. We recommend naming it Apple so that it is clear as to the purpose once you have saved your settings. Type in the name of the service and click the OK button.

You will then be presented with the COM port selection window. Set the COM port to the same COM port that you plugged the null modem cable into on the back of the PC. Once you have selected the appropriate COM port, click the OK button.

The next window you will see will be the data control window. This included the speed and the error correction. Set the parameters to the following information:

Bits / Sec.:   19200
Data Bit: 8
Parity: None
Stop Bit: 1
Flow Control: Xon/Xoff

After setting the parameters, click the OK button. The window will now switch to the connected mode. At this point, you will need to prepare for the data send.

ADT Program Transfer

The first task you will need to complete in this step is the setting of the data control. First, open the PROPERTIES window under the FILE menu. Be sure that the COM port that the program is using is the same as the port that you plugged the cable into.

Once you have the properties window open, click on SETTINGS. The following Settings work for most transfers:

- Function Keys: Terminal
- Back Space: CTRL-H
- Emulation: Automatic

Under the ASCII SETTINGS, set the following parameters:

- Line Delay :   50ms
- Char.Delay: 40ms

Once you have these settings done, you are ready to begin transfers.

On the Apple II, type PR#2. This will set the card to the mode for displaying the information on the PC Hyper Terminal Window and allowing the PC to control the Apple II.

To test it, type CATALOG and press enter. If the Apple II beeps and gives you an error, make sure that your Caps Lock is on and try again.

Once you have tested the control, and you are sure it is working, you can begin to transfer the ADT programs.

There are two files that we will need to transfer in order use the program.

ADTCFG.BAS
ADT.DMP

The first file is the configuration program that you will use to configure ADT on the Apple II. The second program is the binary ADT program. Both of these programs will automatically save themselves to the floppy.

To begin the transfer of the files, select TRANSFER and then TEXT FILE TRANSFER on the Hyper Terminal Menu.

The screen for the file selection will appear. Select one of the two files and press enter. The file will begin to scroll down the window and at the same time appear on the Apple II window. Upon completion of the first file, repeat the process for the second file.

Once both files have been transferred, perform another Catalog on the Apple II. You should see 3 programs on the disk. At this point, you are ready to configure ADT on the Apple II. The Hyper Terminal window may now be closed, as it will not be needed any more. Be sure to save your settings as previously specified.

The Apple II ADT Configuration

To configure the ADT program for use, you need to run ADT CONFIGURATION on the Apple II. You will then be presented with the following screen:

You will need to set the parameters shown in the following table:

ADT Control Parameters

Disk Slot
Disk Drive
SSC Slot
SSC Speed
Read Retries
Write Retries
Use Checksum
Enable Sound

These parameters will control where the Apple will write and read to and from, the Super Serial Card, Error Correction and whether the computer will beep when a floppy has been completed.

You can use the arrow keys to change the settings, the space bar to move to the next parameter, and the Return key to accept the current settings and save them. If you should make a mistake, <CTRL><Q> will set the settings to the default.

At this point, ADT can be started. You will need to also start the ADT program on the PC side. You will need to make sure that the ADT.EXE file is in the directory that you intend to write and read to.

Start ADT.EXE. For the DOS version, you will see a window that looks something like this:

The 32-bit version will look like this:
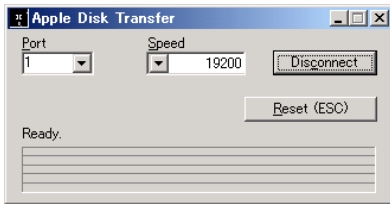
Although both of these programs perform exactly the same, we recommend that you use the 32-bit version for ease of use.

Notes About The Apple IIgs

If you intend to transfer programs using ADT 1.22 or ADTw 1.22, you will need to turn off the internal serial port in the Apple IIgs prior to inserting the Super Serial Card into the machine.

All of the settings will work exactly the same on the II+, IIe, and the IIgs. The only item that you must make sure of is that you boot from the 5.25 inch floppy drive.

If you wish to use the internal serial port on the Apple IIgs, you will need to use the ADTgs v.91 program. It also only transfers 5.25 inch floppy disks.

Copyrights, Copy Protections

You will find once in a while that a disk cannot be imaged no matter what you do. One such disk would be the Flight Simulator 2 floppy from Sub Logic. This program is very well protected and will not copy even disk to disk.

Although many of these programs have become freeware through the efforts of several people in the Apple community, there are many programs that are still copyrighted

by their owners. A.P.P.L.E. neither supports nor condones the copying or distribution of any such program.

The ADT programs are freeware and may be distributed as specified under the GNU license. All source code for these programs is also included with the zipped disks.

You can download the zipped files from the A.P.P.L.E. members software library.

Final Comments

A couple of things to note; There is a file in the extracted files called ADT.DSK. This is the disk image of the ADT disk by Paul Guertin. It is not necessary to use this image as you have created through the steps in this article, basically what is on the disk.

However, do no delete the ADT.DSK image as you may need it for backup purposes. (In fact, we highly recommend that you do make a backup!)

We have used this program to create our entire online library in .DSK format. Why would we do this you might ask? First off, the format allows us to use the images on either platform and it also can be run in any location as long as you have the proper emulator installed.

The disk images you produce using these programs are complete images and any image you have will allow you to re-constitute any floppy from the image library. This is particularly handy due to the fact that much of the floppy media from the 1970's and 1980's is beginning to deteriorate.

You can always download the zipped files of the ADT programs from the A.P.P.L.E. members library. We provide these only as is and make no guarantees as to their usability nor applicability to your situation.

If you have any freeware which you wish to have added to the A.P.P.L.E. library, please feel free to email the disk image, the documentation if any in PDF 600 dpi format to library@callapple.org. Please also provide the basic information about the program, such as when it was written and by whom.

ADT History
From ADTw 1.22 Readme.txt

Rich Williamson (glitch@eskimo.com) released SENDDISK on April 9, 1993. His Apple-side program read an entire disk with DOS' RWTS (Read Write Track Sector) routine, and transmitted the data through an Apple Super Serial Card in slot 1. His PC-side program listened to COM1 for such a data stream, and stored it in a .DSK file, in the format expected by the Apple II emulator "apl2em".

Paul Guertin (pg@sff.net) released Apple Disk Transfer (ADT) on December 4th, 1995, and updated it July 14, 1999. Starting with SENDDISK, Paul added a nice screen layout, configuration menus, error recovery, data stream compression, and the capability to receive .DSK images from the PC and write them back to an Apple II floppy disk.

Paul Schlyter (pausch@saaf.se) released ADTcc on June 13, 2000. He modified ADT's Apple-side program to work with the older Apple Communications Card and compatibles.

Sean Gugler (gugler-sean@cs.yale.edu) released ADT Win32 Edition on December 1, 2000. He replaced the older PC-side DOS program with a Windows 32-bit API program of otherwise identical functionality.

This brings ADT into the world of background multi-tasking, long file names, and support for Windows NT and its progeny.

Items Needed

Apple II+ , IIe, or IIgs computer
5.25 Inch Floppy Drive
Apple Super Serial Card
Female DB9-Male DB25 Null Modem Cable
1 Blank Floppy Disk
1 DOS 3.3 System master

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