

# Starting ADTPro

## Starting the Server

Start the ADTPro server from your host computer's command line or by clicking on the startup program for your host operating system:

**Linux, Solaris:**

`adtpro.sh` (You downloaded the .tar.gz package, didn't you?)

**OS/2:**

`adtpro.cmd`

**OSX:**

`ADTPro-1.1.3.app` (You downloaded the .dmg package, didn't you?)

**Windows:**

`adtpro.bat`

You can modify the startup program to suit your environment. Especially for the Unix variants - it may need a little tweaking to get the correct native serial library connected.

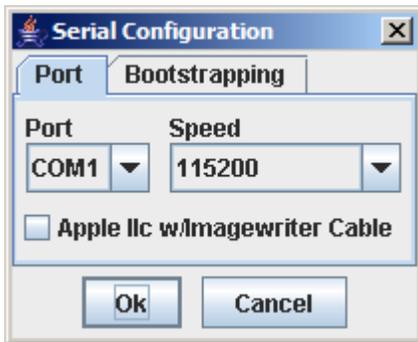
When starting, you will see the following information echoed back on your console as the GUI is coming up:

```
ADTPro Server version 1.1.3
```

Once started, the server program's GUI comes up:



From here, you can select the communications device you want to use at the host end by clicking one of the shiny buttons (besides Disconnect, of course). Note that serial communications has an additional set of configuration options, accessible from the `File->Serial Configuration` menu item. The first time you use serial communications, the Serial Configuration dialog box will come up automatically to allow you to pick a communications port and speed:



## Starting the Client - ProDOS

(If you don't have the ADTPro client software on your Apple II yet, take a look at the [serial](#) or [audio](#) bootstrapping section to get that started.)

When you boot your Apple II from the ADTPro disk, it will start a simple menu where you can pick which version of ADTPro you wish to start:

```
WELCOME TO THE ADTPRO DISTRIBUTION!  
PLEASE SELECT WHICH PROGRAM TO RUN.  
<S>ERIAL : SSC OR IIGS/IIC MODEM PORT  
<A>UDIO : CASSETTE/AUDIO PORTS  
<E>THERNET : A2RETROSYSTEMS UETHERNET  
<Q>UIT
```

You can navigate among the choices by pressing the first letter of the program, or by using arrow keys and hitting enter to select one.

Be sure to choose a client program at the Apple II end to match the communications device being used at the host end. You can choose which one will start by default by replacing the supplied `STARTUP` program on the disk. Your very simple autostart `STARTUP` program could look like this:

```
10 PRINT CHR$(4) "- ADTPRO"
```

Just change `ADTPRO` specified in line 10 to the program of your choice:

- `ADTPRO` - for serial cards, the IIGs modem port, or the IIC serial port
- `ADTPROAUD` - for Audio communications via sound card/cassette ports
- `ADTPROETH` - for the Ethernet communications via the Uthernet card

For example, to always run `ADTPROAUD`, the program should look like this:

```
10 PRINT CHR$(4) "- ADTPROAUD"
```

When you have the line looking like you want it (remember Applesoft commands `NEW` to start over, and `LIST` to see the program) save it back out to the disk: `SAVE STARTUP`. That program will be the one that starts automatically after booting from then on. If you make a mistake and the Apple complains, "PATH NOT FOUND" when you boot, check your `STARTUP` program by `LISTING` it and check the disk's contents with the `CAT` command.

However you start it, the main screen comes up:



The best way to test communications is to hit the "D" key from the client to ask for a directory listing at the host. If the client "hangs" waiting for a response from the host, or if garbled data comes back, it will be necessary to check the physical connections, port names and speeds on both host and client ends. The ethernet version of ADTPro (`ADTPROETH`) often needs a couple of directory queries to find the server after setting up its [configuration](#). If you're using the audio version of ADTPro (`ADTPROAUD`), ensure the volume setting for your sound card is set to halfway up the scale (i.e. much louder than you'd generally listen to computer speakers).

**IIGs Note:** users running GSOS are advised to hit the '8' key while booting. That has the effect of starting the IIGs in 8-bit ProDOS (BASIC) mode. The less contention for the serial hardware, the better.

## Starting the Client - SOS

Booting a diskette in an Apple /// computer will automatically run any program named `SOS.INTERP`. The ADTPro distribution diskette comes configured with the serial ADTPro client version named `SOS.INTERP`. The ethernet version is also on the diskette, but is named `SOS.INTERPETH`. In order to run the ethernet version, it will be necessary to rename `SOS.INTERPETH` to `SOS.INTERP` (also deleting or renaming the original `SOS.INTERP` program). Any Apple disk image manipulation utility program like [CiderPress](#) or [AppleCommander](#) can be used to do this.

# ADTPro Serial Configuration

The serial version of the ADTPro client program is named `ADTPRO` on the distribution diskette.

Hitting the "G" key from `ADTPRO`'s main menu brings up the ADTPro configuration screen:

```
CONFIGURE ADTPRO PARAMETERS

COMMS DEVICE  SSC_SLOT_2
BAUD RATE    115200
ENABLE SOUND  YES
SAVE CONFIG   NO

CHANGE PARAMETERS WITH ARROW KEYS
SELECT WITH RETURN; ESC CANCELS
```

You can scroll between the selections with the up and down arrow keys. If your Apple doesn't have up and down arrow keys, the space bar will cycle between the selections.

You can rotate through the options of a particular selection with the right and left arrow keys. Your Apple has right and left arrow keys; trust me.

**Note:** if you ever end up saving a configuration that is not compatible with the Apple you're trying to run ADTPro on (because you move your serial card to a different slot, for example) you may need to reset ADTPro to factory defaults. To do that, boot the Apple with ProDOS, and get to a BASIC prompt (perhaps using the ADTPro diskette itself). Delete the configuration file:

- `DELETE ADTPRO.CONF`

That will reset everything to defaults and you should be able to bring up the configuration screen, make corrections, then re-save it.

## Comms Device

### Super Serial Card/IIC Serial

Select the slot your communications card is in.

```
COMMS DEVICE  SSC_SLOT_2
BAUD RATE    115200
ENABLE SOUND  YES
SAVE CONFIG   NO
```

The Apple's slots will be scanned for a serial card or port automatically (until you explicitly [save a](#)

configuration). The lowest-numbered slot with a card will be selected by default. The IIC and IIC+ computers use the "SSC SLOT 2" setting for their modem ports.

If you have an IIgs and you want to use a Super Serial card in it, ensure you select "Your Card" in the IIgs' control panel for the slot your SSC card is in, and select that same slot number here.

If you have an Apple ///, the internal serial adapter will always be chosen by default. If you want to use a Super Serial card instead, you will need to select its slot here.

Various serial connection options are discussed in the [serial connections](#) section.

### IIgs Modem Port

If you want to use the IIgs' native serial modem port, rotate through the COMMS DEVICE selections until "IIGS MODEM" shows up:

```
COMMS DEVICE  IIGS MODEM
BAUD RATE    115200
ENABLE SOUND  YES
SAVE CONFIG   NO
```

ADTPro on an IIgs will require a "null modem" cable or adapter when connecting to the host computer. See the [IIgs modem port](#) connections section for details.

Note that it's not particularly reliable to start up with GSOS and then use ADTPro. It's best to start up under ProDOS - the distribution diskette is well suited to this. If you normally start with GSOS, you can hit the '8' key as the computer is displaying the initial "Apple IIgs" screen and it'll start 8-bit ProDOS and drop you into the BASIC interpreter, just like the old days.

### Laser 128 Modem Port

The Laser 128's modem port is not quite compatible with either the Super Serial card or the IIC. There is special support just for it:

```
COMMS DEVICE  LASER MODEM
BAUD RATE    19200
ENABLE SOUND  YES
SAVE CONFIG   NO
```

The "LASER MODEM" selection can actually be used for any serial device in slot 2 that conforms to the Pascal entry point API. All devices in this scheme are limited to 19,200 baud.

ADTPro on a Laser 128 will require a "null modem" cable or adapter when connecting to the host computer. See the [Laser 128 modem port](#) connections section for details.

### Apple /// Serial

An Apple /// machine can use the built-in serial port (marked "RS-232-C") on the back of the machine as well Super Serial cards in any of its four slots. The built-in serial will be selected by default.

```
COMMS DEVICE  /// SERIAL
BAUD RATE    115200
ENABLE SOUND  YES
SAVE CONFIG   NO
```

ADTPro on an Apple /// will require a "null modem" cable or adapter when connecting to the host computer. See the [Apple /// RS-232-C port cabling](#) connections section for details.

## Baud Rate

Select the highest baud rate that still works reliably.

```
COMMS DEVICE  SSC SLOT 2
BAUD RATE     115200
ENABLE SOUND   YES
SAVE CONFIG    NO
```

115200 is the absolute maximum that ADTPro supports. If you have a good serial cable, this speed will work reliably. 9600 will work as long as the two computers are less than a mile apart from one another. If you can't get 9600 to work reliably, something else is wrong.

## Enable Sound

The sound option is, of course, up to you.

```
COMMS DEVICE  SSC SLOT 2
BAUD RATE     115200
ENABLE SOUND   YES
SAVE CONFIG    NO
```

ADTPro makes bleating sounds when things finish or abort. I personally think computers should be seen and not heard, but not everyone feels that way. Express your own personal feelings here.

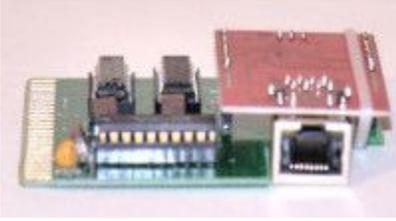
## Save Configuration

Hit the "Return" key to work with these parameters. Once you get a configuration that works for you, select "YES" for SAVE CONFIG and hit Return.

```
COMMS DEVICE   SSC  SLOT  2
BAUD RATE     115200
ENABLE SOUND   YES
SAVE CONFIG    YES
```

This will save `ADTPRO.CONF` to the same place where you started ADTPro from. When you start `ADTPRO` again, it will use the configuration parameters you saved last.

## ADTPro Ethernet Connections



Connecting your Apple to your home network is as easy as plugging the [Uthernet card](#) into the Apple, and then plugging a Cat-5 Ethernet cable from the card into your home router or switch. You just need to tell ADTPro which slot your Uthernet card is in, then set the IP parameters (details [below](#)).

If your home network has MAC address filtering, you may need to add a rule for your router to allow the Apple to join the network. The MAC address assigned to the Uthernet card by ADTPro is 00:80:10:6d:76:30.

## ADTPro Ethernet Client IP Configuration

The ProDOS ethernet version of the ADTPro client program is named `ADTPROETH` on the distribution diskette. Ways of making `ADTPROETH` start automatically are discussed [here](#).

The SOS ethernet version of the ADTPro client program is named `SOS.INTERPETH` on the distribution diskette. It will be necessary to rename `SOS.INTERPETH` to `SOS.INTERP` (also deleting or renaming the original `SOS.INTERP` program) in order to run it. Additional details are [here](#).

Hitting the "G" key from ADTPro's main menu brings up the ethernet configuration screen:

```
CONFIGURE ADTPRO PARAMETERS
UTHER SLOT          3
ENABLE SOUND       YES
SAVE CONFIG        NO
SERVER IP ADDR     192.168.0
LOCAL IP ADDR      10.0.0.12
MASK               255.255.0
GATEWAY ADDR       10.0.0.1
CHANGE PARAMETERS WITH ARROW KEYS
SELECT WITH RETURN, ESC CANCELS
```

You can scroll between the selections with the up and down arrow keys. If your Apple doesn't have up and down arrow keys, the space bar will cycle between the selections.

You can rotate through the options of a particular selection with the right and left arrow keys.

Your Apple has right and left arrow keys; trust me.

## Comms Device

Select the slot your Uthernet card is in.

```
UTHER SLOT      3
ENABLE SOUND    YES
SAVE CONFIG     NO
```

The most common slot is 3, but it could be any slot from 1 to 7 (1 to 4 in Apple /// computers). ADTPro will scan the slots to guess where it is for you. But if you have multiple Uthernet cards in your system, you will need to choose which one to talk to. Pull off your Apple's lid to check if you need to. If you have an IIGs, ensure you select "Your Card" in the IIGs' control panel for the slot your Uthernet card is in, and select that same slot number here.

## Enable Sound

The sound option is, of course, up to you.

```
UTHER SLOT      3
ENABLE SOUND    YES
SAVE CONFIG     NO
```

ADTPro makes bleating sounds when things finish or abort. I personally think computers should be seen and not heard, but not everyone feels that way. Express your own personal feelings here.

## Save Configuration

Hit the "Return" key to work with these parameters. Once you get a configuration that works for you, select "YES" for SAVE CONFIG and hit Return.

```
UTHER SLOT      3
ENABLE SOUND    YES
SAVE CONFIG     YES
```

This will save a configuration file, `ADTPROETH.CONF`, to the same place where you started ADTPro from. When you start ADTPro again, it will use the configuration parameters you saved last.

## IP Parameters

When editing the IP address numbers, you can't backspace - the left arrow moves you to the field to the left. So, if you make a mistake, just hit the left and right arrows so you can start over again with that number. Play with the screen for a minute and you'll get the hang of it.

```
SERVER IP ADDR 192.168.0.42
LOCAL IP ADDR 192.168.0.123
NETMASK        255.255.255.0
GATEWAY ADDR  192.168.0.1
```

For `SERVER IP ADDR`, enter the IP address of the machine running the ADTPro server software. When you have the server connect with Ethernet, it will say what IP address it is currently serving:



For `LOCAL IP ADDR`, enter any IP address on your subnet that isn't already taken. If your home network has IP addresses assigned by DHCP, this number might be tricky to come by. But the final suffix of `.123` is as likely a candidate as any.

For `NETMASK` and `GATEWAY ADDR`, these will be the same for the server computer as for your Apple, assuming you're on the same network. If the server is running Windows, you can find this information by issuing the command: `ipconfig /all` from the command line. If the server is running Linux or OSX, you can generally find it with the command: `ifconfig en0` or `ifconfig eth0` from a terminal window. The graphical network configuration program for your operating system will have all the details you need, but you may have to do some digging to get at them. Chances are, though, that if you bought an Uther card... you know these kinds of details. Feel free to [ask for help](#) if you need it.

Once you get your addresses set up, save your configuration and hit the "D" key from the main menu (and escape) to ask for a directory once or twice. It seems to take some networks a couple of tries to finally find the server.

**Note:** if you ever end up saving a configuration that is not compatible with the Apple you're trying to run ADTPro on (because you move your Uthernet card to a different slot, for example) you may need to reset ADTPro to factory defaults. To do that, boot the Apple with ProDOS, and get to a BASIC prompt (perhaps using the ADTPro diskette itself). Delete the configuration file:

- `DELETE ADTPROETH.CONF`

That will reset everything to defaults and you should be able to bring up the configuration screen, make corrections, then re-save it.

## Sending Disk Images

Hitting the "S" key from the main menu lets you enter the name of the disk image you want saved at the host:



By convention, there is a correlation between the filename suffix of a diskette image and the "order" in which the bits are stored; something that is really only of consequence to emulators. Points to remember:

- When saving disk images at the host, ADTPro will save any Disk ][, 140k, 5-1/4" disk image in "DOS order" no matter what it is named. To work correctly with emulators, these 140k disk images should be named with a ".disk" or ".do" suffix.
- ADTPro will save *any other* disk image (3-1/2" disk, hard drive, ram disk, etc.) in "ProDOS order," and so they should be named with a ".po" suffix. Note that the AppleWin emulator expects a ".hdv" instead of ".po" extension for any large disk image. The Sweet16 emulator will mount ".po" images as if they were 5.25" floppies and ".hdv" images as large disk drives.
- Keeping to these naming conventions will ensure your images will work with emulators that only distinguish between bit ordering formats by filename.

After hitting Return to specify the file name, ADTPro will present you with a screen to pick a "volume" (a slot/drive combination) to read. The slot and drive numbers are the first two columns; if the volume happens to be formatted with ProDOS, its name will appear in the Volume Name column. You can use the arrow keys or the space bar to pick the volume to be sent to the host:



The "Blocks" column is the count of ProDOS blocks present on the disk. Each block contains 512 bytes of data. Typical disk sizes are:

**Blocks Disk**

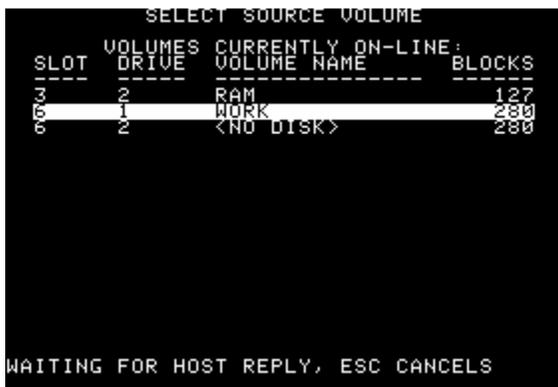
- 127 64k RAM disk (128k Apples)
- 280 5-1/4" Floppy disk (140k) (Note: these are saved in DOS order at the host)
- 1600 3-1/2" Floppy disk (800k)
- 65535 32MB Hard drive

Some messages may appear in the "Volume name" column to indicate various situations:

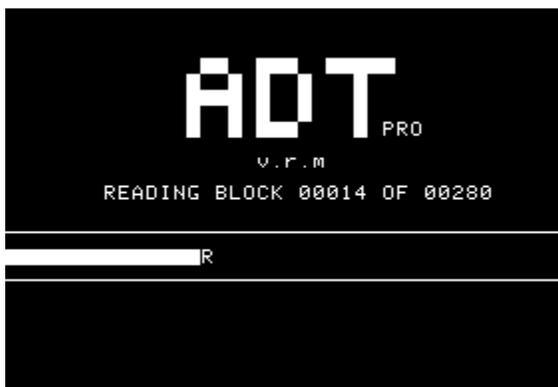
**Message Meaning**

- <NO NAME> A DOS 3.3 disk is in the drive (which is ok)
- <I/O ERROR> Can't read the disk in the drive
- <NO DISK> No disk is found in the drive

Once you pick the volume to send, an attempt is made to contact the host:



Once contact is made with the host, the disk information starts reading and sending. The line across the screen represents a 20k buffer that is alternately filled and sent to the host:



When the image has finished sending to the host, you will see a "Complete" message:



Pressing any key brings you back to the main ADTPro menu.

If errors are encountered with reading blocks, you will see X characters instead of solid blocks:



If an image contains at least one "bad" block, an error message will appear both at the Apple and at the host end.

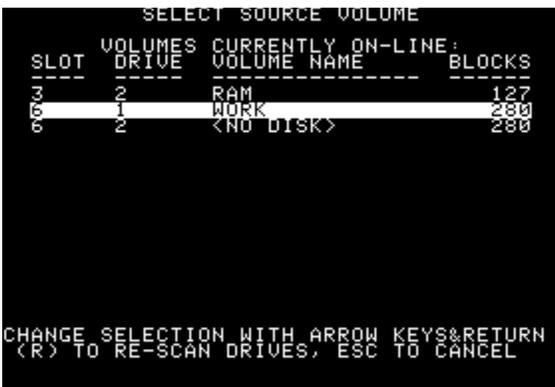
## Sending Disks in Batch

Hitting the "B" key from the main menu starts the Batch send process. You enter a filename prefix, pick the volume to (repeatedly) send, and the ADTPro server will append a unique number to filename for each image sent.



The prefix you enter will be appended to the current working directory of the ADTPro server, and a 4-digit serial number and the suffix ".PO" (".DSK" for Disk ][ images) will be appended to it. If the current working directory were `/apple/disks`, the first disk would be saved as `/apple/disks/BIGUPLOAD0000.PO`. The next disk would be saved as `/apple/disks/BIGUPLOAD0001.PO`, and so on. If you run out of space (i.e. you already have 9,999 batch images saved), the ADTPro server will increment the number without any zero padding.

After hitting Return to specify the filename prefix, ADTPro will present you with a screen to pick a "volume" (a slot/drive combination). The slot and drive numbers are the first two columns; if the volume happens to be formatted with ProDOS, its name will appear in the Volume Name column. You can use the arrow keys or the space bar to pick the volume to be sent to the host:



The "Blocks" column is the count of ProDOS blocks present on the disk. Each block contains 512 bytes of data. Typical disk sizes are:

### Blocks Disk

127 64k RAM disk (128k Apples)

280 5-1/4" Floppy disk (140k)  
1600 3-1/2" Floppy disk (800k)  
65535 32MB Hard drive

Some messages may appear in the "Volume name" column to indicate various situations:

**Message Meaning**

<NO NAME> A DOS 3.3 disk is in the drive (which is ok)  
<I/O ERROR> Can't read the disk in the drive  
<NO DISK> No disk is found in the drive

Once you pick the volume to repeatedly send, you are prompted to insert the next disk to send and hit a key. Once contact is made with the host, the disk information starts reading and sending as with normal [send](#) operations.

When the image has finished sending to the host, you will see a "Complete" message, which you must acknowledge by hitting a key. You are then prompted to insert the next disk to send and hit a key. When you do, the same volume will be read and sent to the ADTPro server (presumably, with a different diskette that you inserted). The numeric prefix will be incremented with each disk you send; the ADTPro server will show the current disk name on its window.

You can hit the Escape key at any time to stop the batch sending process and bring you back to the main ADTPro menu.

# Receiving Disk Images

Hitting the "R" key from the main menu lets you enter the name of the disk image you want to copy from the host to a disk on your Apple:



You can copy images in any of the following formats:

- .DSK (Often, but not always, DOS-order images)
- .DO (DOS order images)
- .PO (ProDOS order images)
- .NIB (Nybble-ized images - though ADTPro only writes normal in-track data)
- .2MG (2IMG images)

After hitting Return to specify the file name, ADTPro will present you with a screen to pick a "volume" (a slot/drive combination). The slot and drive numbers are the first two columns; if the volume happens to be formatted with ProDOS, its name will appear in the Volume Name column. You can use the arrow keys or the space bar to pick the volume to be sent to the host:



The "Blocks" column is the count of ProDOS blocks present on the disk. Each block contains 512 bytes of data. Typical disk sizes are:

## Blocks Disk

- 127 64k RAM disk (128k Apples)
- 280 5-1/4" Floppy disk (140k)

1600 3-1/2" Floppy disk (800k)  
65535 32MB Hard drive

Some messages may appear in the "Volume name" column to indicate various situations:

### Message Meaning

- <NO NAME> A DOS 3.3 disk is in the drive (which is ok)
- <I/O ERROR> Can't read the disk in the drive
- <NO DISK> No disk is found in the drive

Once you pick the volume to copy the image to by hitting Return, an attempt is made to contact the host:

```
SELECT DESTINATION VOLUME
VOLUMES CURRENTLY ON-LINE:
SLOT  DRIVE  VOLUME NAME  BLOCKS
---  -
3     2     RAM           127
6     1     WORK          280
6     2     <NO DISK>    280

WAITING FOR HOST REPLY, ESC CANCELS
```

If the image size from the host does not match the size of the destination volume, you will be alerted to that fact. You generally don't want to copy a differently sized image to a disk drive, but if it happens that you really do - you have the option to go ahead and do it anyway:

```
SELECT DESTINATION VOLUME
VOLUMES CURRENTLY ON-LINE:
SLOT  DRIVE  VOLUME NAME  BLOCKS
---  -
3     2     RAM           127
6     1     WORK          280
6     2     <NO DISK>    280

IMAGE/DRIVE SIZE MISMATCH!
COPY IMAGE DATA ANYWAY? (Y/N):
```

It will generally be successful as long as the destination has more capacity than the source (i.e. the host image is smaller than the destination disk at the Apple). Some space will be wasted, but it will be entirely usable.

Once contact is made with the host, the disk information starts receiving and writing. The line across the screen represents a 20k buffer that is alternately received from the host and written to the disk:



When the image has finished receiving from the host, you will see a "Complete" message:



Pressing any key brings you back to the main ADTPro menu.

If errors are encountered with receiving or writing blocks, you will see "X" characters instead of solid blocks:



If an image contains at least one "bad" block, an error message will appear both at the Apple and at the host end.

## Miscellaneous Functions

Where there is a difference between the ProDOS and SOS versions of the ADTPro client program, screen capture text will appear white-on-black for ProDOS, and green-on-black for SOS below.

### Nibble/Half Track Send

The nibble/half track send function is still experimental, and so far has only been incorporated into the included DOS ADT client. See the [ADT Compatibility page](#) for more information.

### Format Volumes (disks)

The ADTPro client has built-in disk formatting capabilities. ProDOS and SOS don't include an `INIT` or `FORMAT` command natively, so this is the place to get your media initially formatted. Note that formatting a disk does not make it *bootable*. Choosing `F` from the main menu brings up the volume selection screen:

```
CHOOSE VOLUME TO FORMAT
SLOT  VOLUMES  CURRENTLY ON-LINE:
-----  -----  -----
  1    2      RAM                127
  2    1      ADTPRO.U.R.M       280
  3    2      BLANK              280

CHANGE SELECTION WITH ARROW KEYS&RETURN
<R> TO RE-SCAN DRIVES, ESC TO CANCEL
```

```
CHOOSE VOLUME TO FORMAT
VOLUMES  CURRENTLY ON-LINE:
-----  -----
DEVICE NAME  VOLUME NAME  BLOCKS
-----  -----
.FMTD1      280
.FMTD2      280
.FMTD3      280
.FMTD4      280
.PROFILE    9728

CHANGE SELECTION WITH ARROW KEYS&RETURN
<R> TO RE-SCAN DRIVES, ESC TO CANCEL
```

From this screen, choose the volume (slot/drive) or device you want to format. When you make your choice, you will be asked for the new disk's name (ProDOS only), you will be asked for a confirmation, and once finished, will be given a chance to format another volume:

```
CHOOSE VOLUME TO FORMAT
SLOT  VOLUMES  CURRENTLY ON-LINE:
-----  -----  -----
  1    2      RAM                127
  2    1      ADTPRO.U.R.M       280
  3    2      BLANK              280

VOLUME NAME: /NEW.DISK
READY TO FORMAT? <Y/N>:
FORMAT ANOTHER? <Y/N>:*
```

```
CHOOSE VOLUME TO FORMAT
VOLUMES  CURRENTLY ON-LINE:
-----  -----
DEVICE NAME  VOLUME NAME  BLOCKS
-----  -----
.FMTD1      280
.FMTD2      280
.FMTD3      280
.FMTD4      280
.PROFILE    9728

CHANGE SELECTION WITH ARROW KEYS&RETURN
READY TO FORMAT? <Y/N>:
FORMAT ANOTHER? <Y/N>:
```

**Note:** The act of formatting a floppy or other drive does not make it *bootable*. When you get done formatting a disk, you might want to write an image to it that will ultimately make it bootable to ProDOS or SOS. This is different from the way DOS 3.3 and its variants worked, where the `INIT` command would make a disk bootable. In ProDOS and SOS, it's a whole different process.

**SOS Note:** If SOS feels a floppy disk drive is spinning too slowly or too quickly, it will fail to format the disk and will issue a message stating so. If the drive is found to be too slow, the message will read: "DRIVE TOO SLOW! ADJUST CLOCKWISE." If too fast, the message will read: "DRIVE TOO FAST! ADJUST ANTI-CLOCKWISE." This "adjustment" is referring to the small speed adjuster on the back-right side of the drive. It will take some disassembly of the Apple /// to get at that adjuster. Start by rotating it 1/8 turn in the suggested direction with a jeweler's screwdriver; then retry formatting.

**Note:** The formatter in ADTPro version 1.0.0 produced erroneous 3-1/2" (800k) disks when formatted for the very first time. They would incorrectly report they had a capacity of zero blocks. This has been corrected in subsequent releases, but version 1.0.0 can still overcome this problem by formatting these disks a second time. They will then correctly report their capacity of 1600 blocks.

## Change Working Directory

Whatever directory the host software starts in will be the "Current working directory" until changed to something else. Disk images will be read from and written to this directory. You can change the directory with the "C" key from the client:



You can enter any absolute or relative directory change from this screen. For example, changing to a full directory specification:



## Directory

Hitting the "D" key from the main menu will ask for a directory listing of the host's current working directory. If the contents don't fit on one Apple screen, you can hit a key to see the next screenful of information, until the last screenful is shown. Hitting a key at that point will return you to the main menu.

## Volume List

Hitting the "V" key from the main menu will bring up a list of all volumes that ProDOS or SOS can see:

VOLUMES CURRENTLY ON-LINE:			
SLOT	DRIVE	VOLUME NAME	BLOCKS
2		RAM	127
1		ADTPRO.V.R.M	280
2		PRODOS402	256
1		IIGS	65535
1		HYPERCARDIIGS	1600
2		STACKS1	1600

VOLUMES CURRENTLY ON-LINE:			
DEVICE NAME	VOLUME NAME		BLOCKS
.D1	ADTPRO.V.R.M		280
.D2	<NO DISK>		280
.RAM	<NO NAME>		256
.PROFILE	<NO DISK>		9728

The leftmost two columns will show you the slot and drive assignments of a particular volume. The Volume Name column will show you what ProDOS thinks it's called. It typically takes ProDOS a fair amount of time to scan for all volumes and names, so ADTPro caches this information. If you remove and insert different disks, or format disks, you may want to hit the 'R' key to re-scan for the latest names.

The "Blocks" column is the count of ProDOS blocks present on the disk. Each block contains 512 bytes of data. So, typical disk sizes are:

### Blocks Disk

127 64k RAM disk (128k Apples)

280 5-1/4" Floppy disk (140k)  
1600 3-1/2" Floppy disk (800k)  
65535 32MB Hard drive

Some messages may appear in the "Volume name" column to indicate various situations:

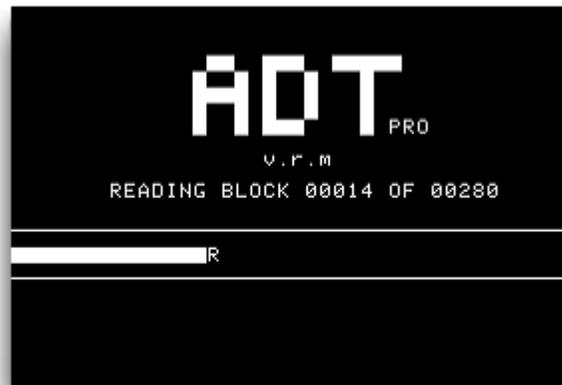
**Message Meaning**

<NO NAME> A DOS 3.3 disk is in the drive (which is ok)  
<I/O ERROR> Can't read the disk in the drive  
<NO DISK> No disk is found in the drive

# ADTPro

Apple Disk Transfer ProDOS (ADTPro) transfers diskettes and logical disk images between Apple II-era computers and the modern world. If you're familiar with the [original ADT](#), ADTPro extends ADT's reach by working with more logical disk formats, drive types, communications devices, and host operating systems.

There is a host (server) component that runs on modern computers with Java, and an Apple (client) component that runs on any Apple II or Apple /// compatible computer with at least 64k of memory:



ADTPro transfers disks using any of these communications devices:

- [Super Serial](#) card, [IIGs modem port](#), [IIC/Laser 128 serial port](#), or the [Apple /// serial port](#)
- [Uthernet](#) Ethernet card
- The Apple's [cassette ports](#)

ADTPro has these features:

- Transfers any storage device ProDOS or SOS can access
- Runs on any Apple II, Apple ///, or clone computer with 64k of memory
- Runs on Linux, Mac OSX, OS/2, Windows, and probably Solaris
- Understands many digital disk formats: .DSK, .PO, .NIB, 2IMG
- Serves the original [ADT client](#) as well as the updated ADTPro client
- [Bootstraps](#) Apple II and Apple /// computers from bare metal over [serial](#) or [cassette](#) ports
- Sends floppies in "batch" mode without having to name each one
- [Formats](#) media on the Apple II or Apple ///

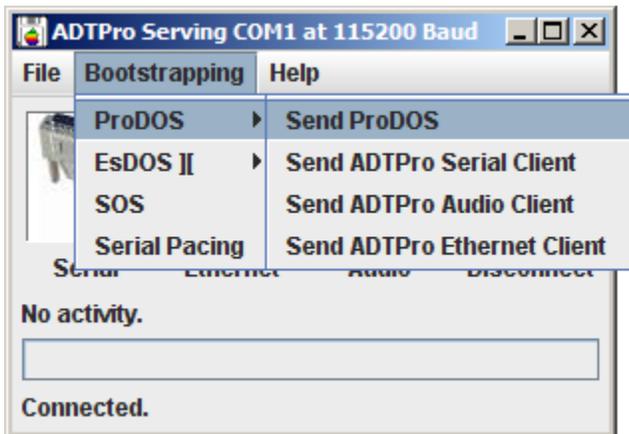
ADTPro may be used to transfer Apple diskette/disk images in DOS or ProDOS/SOS format. The Apple client side happens to run under ProDOS or SOS, but it is perfectly capable of reading or writing Apple DOS (or Pascal, or CP/M, or...) diskettes.

The latest ADTPro can always be [downloaded](#) from the SourceForge [project page](#).

## Server

The server program runs on a computer capable of running Java. Depending on how you want to connect to your Apple, you might also need a [serial port and cables](#), an [Uthernet card](#), or a couple of [audio patch cables](#).

The server's primary role is to send and receive disk images as requested from the [client](#). But if you have recently acquired an Apple II and a disk drive, and you have no software for it - you're in a bit of a tricky situation if you want to move software from the Internet all the way to your shiny new Apple. ADTPro's server can help get you get [bootstrapped](#) by sending operating software to an otherwise completely empty Apple.

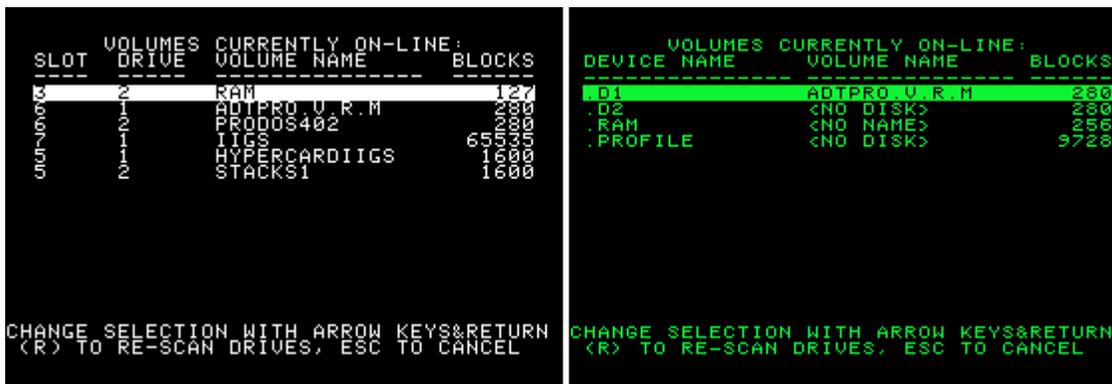


## Client

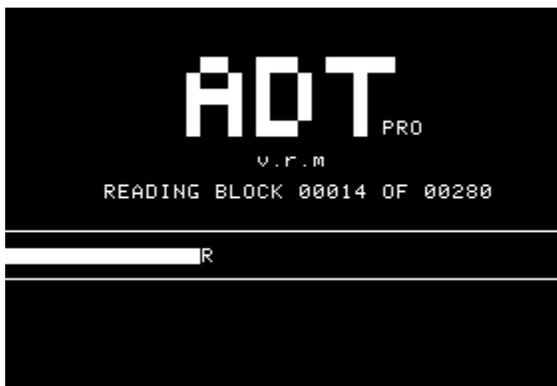
The client side runs on the Apple II or Apple ///. It handles most of the user interaction:



When choosing disks/volumes to transfer, anything that ProDOS or SOS can see is fair game:



Transferring data occurs with a 20k buffer on the Apple, so all transfers are broken up into 20k chunks. A progress indicator shows how far it is into the current chunk, as well as a running count of the total progress:



## Bootstrapping the Apple II or Apple ///

If you already use the DOS version of ADT, you can use it to transfer the virtual floppy containing ADTPro that comes with this project (ADTPRO-1.1.3.DSK) to your Apple. Reboot the Apple with the ADTPro floppy, and you're ready to go.

If you don't use DOS ADT now, don't have software for your Apple yet, or don't have a serial card, more bootstrapping scenarios and configurations are detailed below. Please note that you will need to use [serial](#) or [audio](#) communications (not ethernet) for this task.

- Click [II serial](#) or [II audio](#) to get started with an Apple II.
- Click [/// serial](#) to get started with an Apple ///.

If you still need to connect your host and Apple computers with physical cables, refer back to the "Configuration" section for your connection type:

- [Serial cabling connections](#)
- [Audio cabling connections](#)

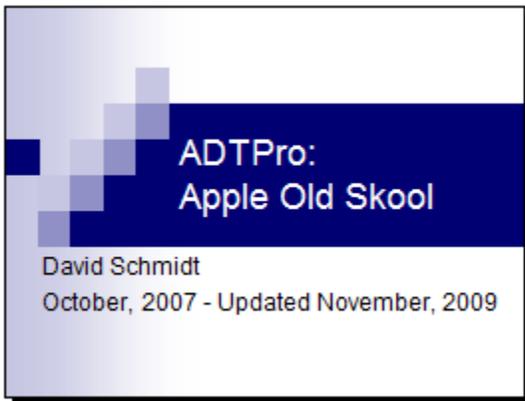
Here is a 5-minute overview video of the Apple II bootstrapping process, end-to-end:



## Brief Demo Presentation

Attached below are slides to a demonstration presentation I gave to a local Mac users group. It goes through the basic steps it takes to bootstrap the Apple II. There are speaker notes, and it contains a few resources and links.

- PowerPoint: [ADTProIntro.ppt](#)
- OpenDocument: [ADTProIntro.odp](#)



## ADTPro Serial Connections

Connecting an Apple and your host computer through serial ports can take several forms. This section details:

- Super Serial card
- IIGs and IIC+ modem ports
- IIC and Laser 128 modem ports
- Apple /// RS-232-C port
- USB adapters

Once you have your computers connected, you can move on to [bootstrapping](#).

### Super Serial cabling

If you need a Super Serial card, they can be purchased [here](#).

The serial cable can either be straight-through or of the null modem variety; there is a jumper block on the Super Serial card that will take care of signal switching for you if you have one or the other and need to switch.

If you have a straight-through cable, set the super serial card's block to point downwards toward the word "Terminal," as in this picture:



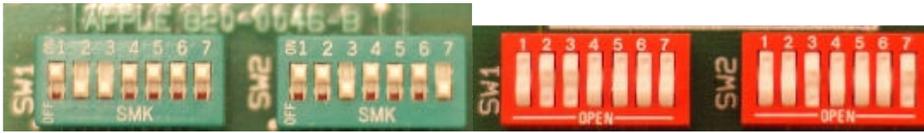
If you have a null-modem cable, set the super serial card's block to point upwards toward the word "Modem," as in this picture:



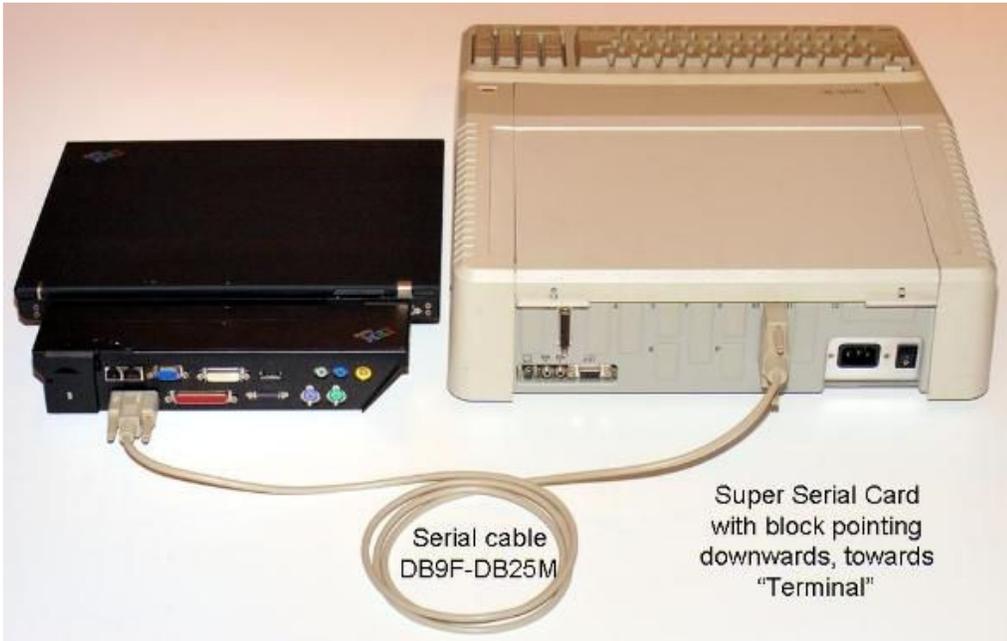
Once ADT and ADTPro are up and running, they set the card's configuration switches through software. But to ensure trouble-free operation in the initial bootstrap step, you can set the switches like so:

```
SW1: 1001111 SW2: 1101110
```

Where 0 means off, down, or open, and 1 means on, up, or closed. Super Serial cards came with (at least) two different kinds of jumper blocks. One had little rocker switches, and the other had little sliders. Here are two examples with switches in the correct position for 300 baud operation:



Strapped as a terminal (arrow on the jumper block pointing downwards on the SSC card), you can connect computers with a straight-through serial cable like this:

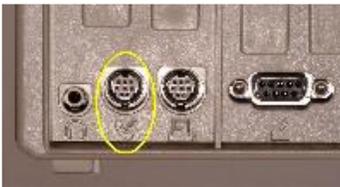


Once you have your computers connected, you can move on to [bootstrapping](#).

### IIGs and IIC+ modem port (MiniDIN8) cabling

You will need a serial cable setup that ultimately connects the round, 8-pin mini-DIN modem connector of your IIGs or IIC+ to the serial port of your host computer - and also performs a null-modem function in between. If you would like to purchase a null modem cable that is ready to use, click [here](#).

There are two 8-pin mini-DIN connectors on the backs of IIGs and IIC+ computers. One has the icon of a telephone, the other has an icon of a printer. Be sure you are plugging into the telephone (modem) one, on the far left as you look at the back of the computer. The IIGs looks like this:



And the IIC+ looks like this:

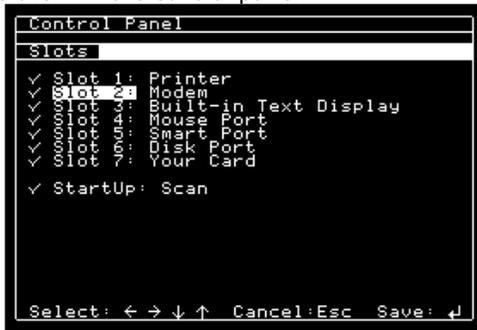


If you are wiring a null modem yourself, the pinout to use is below. The parts you need can be found at swap meets, Jameco, Mouser, Radio Shack, etc. If you would rather purchase one that is ready to use, click [here](#). They look like this:



For the IIgs, you will first need to verify a couple of things in the control panel. You bring up the IIgs control panel with the key sequence `Control-OpenApple-Escape`.

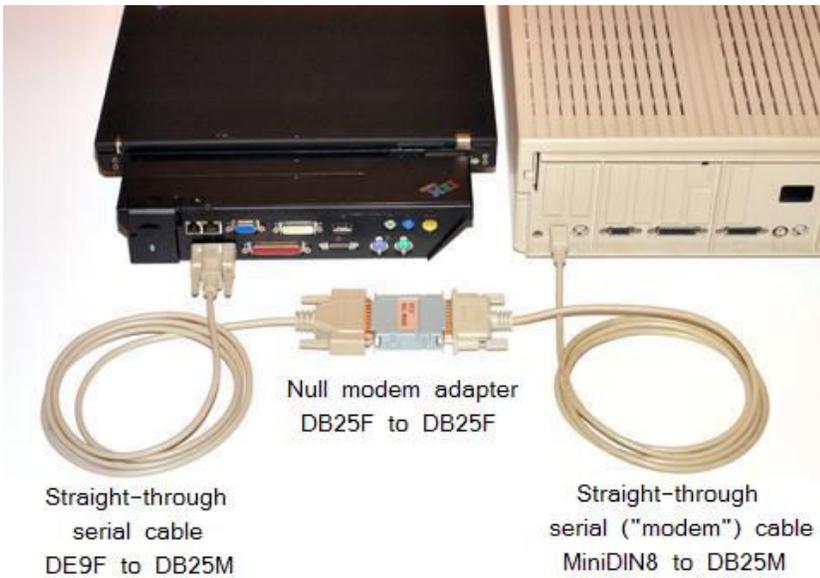
1. Use the IIgs control panel to set slot 2 to Modem, which is the default. Default values have a little checkmark beside them in the control panel:



2. Use the IIgs control panel to set the Modem Port to all defaults. Remember, default values will have a little checkmark beside them in the control panel:



One possible "frankencable" setup that connects a male DE9 serial port to the IIgs' 8-pin mini-DIN connector with a null modem in between looks like this:



These pinouts describe the round "MiniDIN8" male connector looking into the cable at the pins:



A single-cable null-modem is wired like this (Apple would call this a "Printer" cable):

Apple MiniDIN8 Pin#	DE-9 Pin#	DB-25 Pin#	RS-232 Name
5	----- 3	2	TxD
3	----- 2	3	RxD
4	---,-- 5	7	GND
8	---'		
1	----- 8	5	CTS
2	---+--- 7	4	RTS
	'-- 4	20	DTR
7	----- 1	8	DCD

A straight-through cable, used if you connect through a separate null modem as pictured above, is wired like this (Apple would call this a "Modem" cable):

Apple MiniDIN8 Pin#	DE-9 Pin#	DB-25 Pin#	RS-232 Name
3	----- 3	2	TxD
5	----- 2	3	RxD
4	---,-- 5	7	GND
8	---'		
2	----- 8	5	CTS
1	---+--- 7	4	RTS
	'-- 4	20	DTR
7	----- 1	8	DCD

Once you have your computers connected, you can move on to [bootstrapping](#).

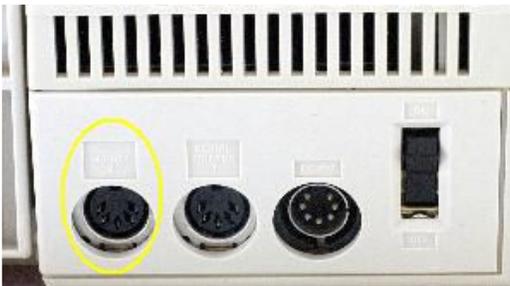
## Iic and Laser 128 modem port (DIN5) cabling

You will need a serial cable setup that ultimately connects the round, 5-pin DIN modem connector of your Iic or Laser 128 to the serial port of your host computer - and also performs a null-modem function in between. If you would like to purchase a null modem that is ready to use, click [here](#).

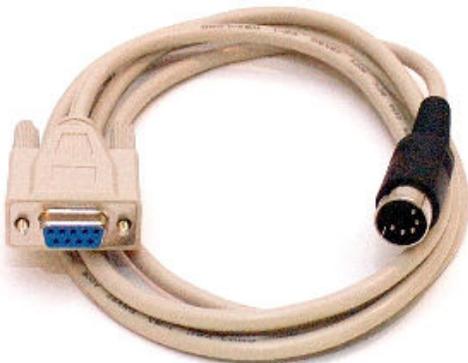
There are two 5-pin DIN connectors on the backs of Iic and Laser 128 computers. One has the icon of a telephone, the other has an icon of a printer. Be sure you are plugging into the telephone (modem) one, on the far left as you look at the back of the Iic:



And on the Laser 128, it's on the right side of the case, but just to the left of the printer port:



If you are wiring a null-modem yourself, the following is the pinout to use. The parts you need can be found at swap meets, Jameco, Mouser, Radio Shack, etc. If you would rather purchase one that is ready to use, click [here](#). They look like this:



This pinout describes the round male connector looking into the cable at the pins. Note that this is numbered using Apple's (not DIN's!) standard:



A single-cable null-modem is wired like this (Apple would call this a "Printer" cable):

```
Laser/  
Apple  
DIN-5      DE-9   DB-25   RS-232  
Pin#       Pin#    Pin#    Name  
-----  
  4 ----- 3      2      TxD  
  2 ----- 2      3      RxD  
  3 ----- 5      7      GND  
1&5      (nc)   (nc)   (disables  
(nc)     7&8   4&5   hardware  
(nc)     1&4&6 6&8&20 handshaking)
```

Within the DIN-5 shell, tie together pins:  
1&5

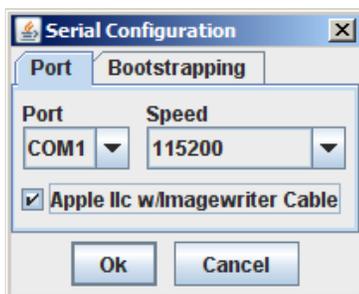
If using DE-9: Within the DE-9 shell, tie together pins:  
1&4&6 and 7&8

Or, if using DB-25: Within the DB-25 shell, tie together pins:  
6&8&20 and 4&5

This null modem cable ties all the handshaking lines together at the host end and at the IIC/Laser end. This effectively disables hardware handshaking.

One thing to note with Laser 128 machines: you will need to keep your hands off the keyboard while transfers are taking place. It turns out that keypresses are injected directly into the serial stream, corrupting image transfers.

There are two pinouts for a single-cable null-modem that will work with ADTPro: an "Imagewriter I" cable (one that does some amount of "hardware handshaking") and one without. The Apple IIC's hardware handshaking tends to be problematic and non-standard, so we're only discussing the non-hardware handshaking cable here. If you happen to have an Imagewriter I cable, you will need to tick the "Apple IIC w/Imagewriter Cable" checkbox in the serial config dialog box, brought up from the `File->Serial Configuration` menu item:



The Laser 128 will not work with the Imagewriter I cable.

Note that the original IIC motherboard is not able to operate the serial port accurately at speeds higher than 300 baud, so you may have to go really slowly if you have one of those. I have used my ROM revision '255' machine flawlessly at 115kbps, but your mileage may vary. You can check the revision of your IIC by checking memory location 64447:

- if `PRINT PEEK(64447)` returns 255, you have an original IIC (ROM revision '255').

- if `PRINT PEEK(64447)` returns 0, you have an Apple IIc with UniDisk 3.5 inch drive support (ROM revision '0').
- if `PRINT PEEK(64447)` returns 3, you have an Apple IIc with memory expansion support (ROM revision '3').
- if `PRINT PEEK(64447)` returns 4, you have an Apple IIc with a modified/fixed version of memory expansion support (ROM revision '4').
- if `PRINT PEEK(64447)` returns 5, you have an Apple IIc **Plus** (ROM revision '5').

Once you have your computers connected, you can move on to [bootstrapping](#).

## Apple3 /// RS-232-C port cabling

The RS-232-C port on the back of the Apple /// has the same physical connector as the Super Serial card: a female DB-25. But unlike the SSC, it can't be configured to use a null modem or not: it is hardwired to require one. At the back of the Apple ///, connect your null modem to the RS-232-C connector (also labeled "PORT C"), which looks like this:



If you are wiring a null modem yourself, the pinout to use is below. The parts you need can be found at swap meets, Jameco, Mouser, Radio Shack, etc. If you would rather purchase one that is ready to use, click [here](#). They look like this:



A single-cable null-modem is wired like this:

DE-9 Pin#	DB-25 Pin#	RS-232 Name
2	2	TxD
3	3	RxD
5	7	GND
7&8	4&20	(disables
1&4&6		hardware handshaking)

Within the DE-9 shell, tie together pins:  
1&4&6 and 7&8

Within the DB-25 shell, tie together pins:  
4&20

Once you have your computers connected, you can move on to [bootstrapping](#).

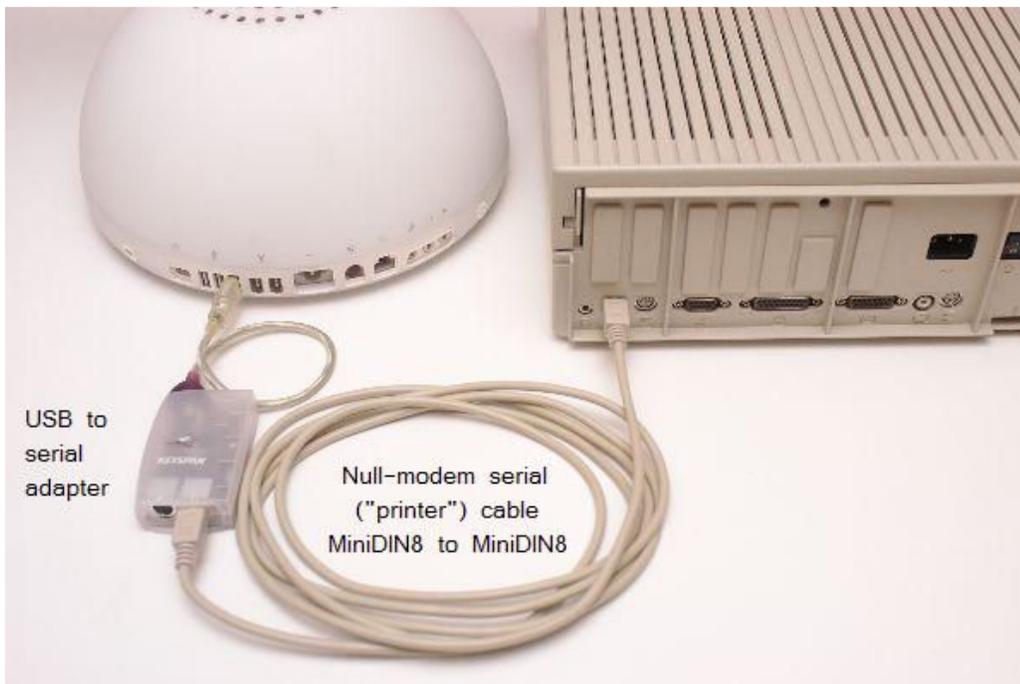
## USB cabling

Several manufacturers make different types of USB to serial adapters. These types of devices will work fine with ADTPro. When you use one, you will also need to install the appropriate device driver that connects your host operating system to the USB adapter.

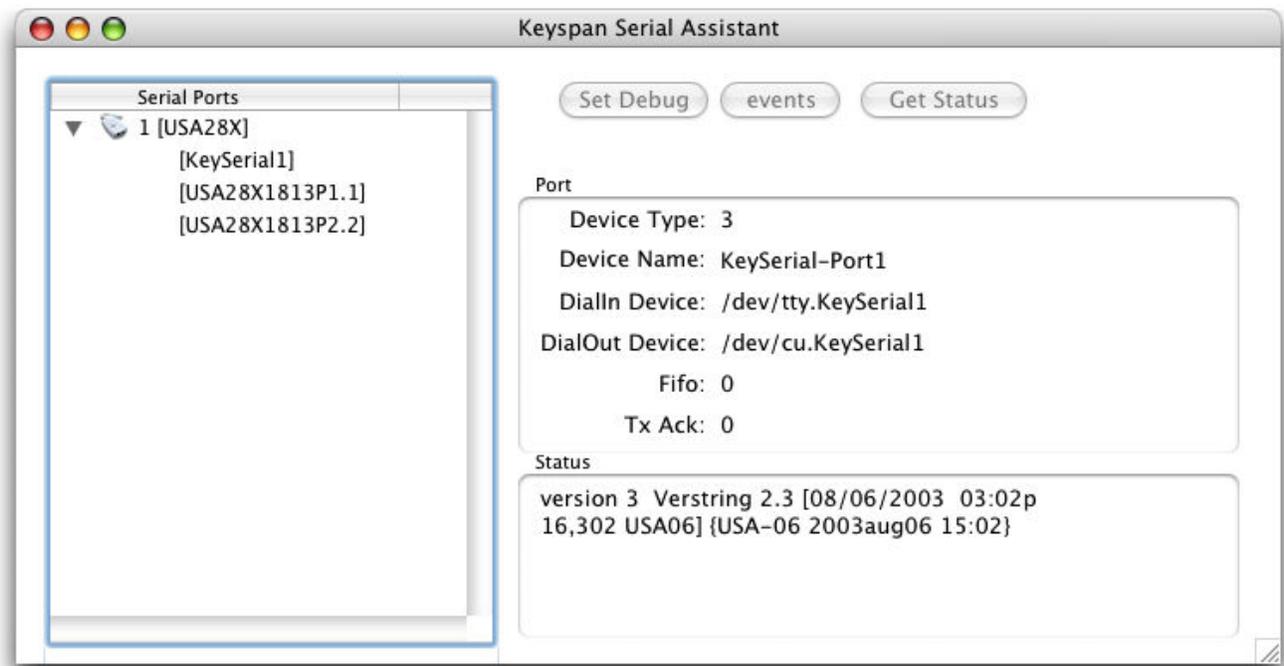
If you would like to purchase one that is compatible with both Windows and OSX operating systems, I offer one for sale [here](#). They look like this:



You will need to connect everything up with the right combination of cables, of course. Here is an example of a Keyspan USB-to-8-pin mini-DIN adapter connected to an IIgs:

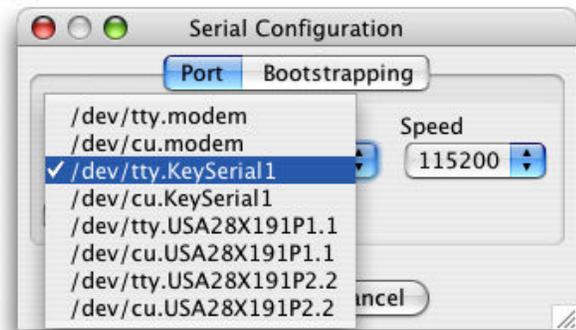


Each manufacturer will include a software driver that will provide the "glue" between the computer and the adapter. For example, the Keyspan adapters come with a piece of software they call "Keyspan Serial Assistant:"

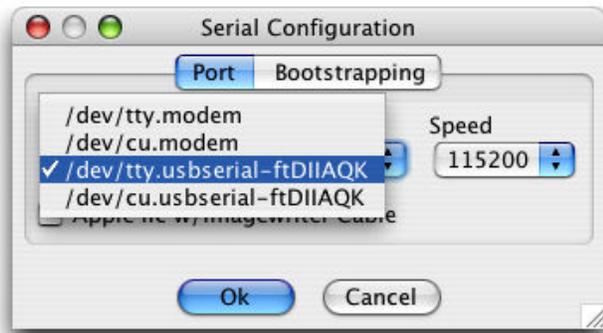


This software will tell you some details about the serial adapter, the name it chooses to call itself, and so on. In our case, we can see that the adapter has chosen port names like "KeySerial1," "USA28X1813P1.1," and "USA28X1813P2.2". Since this adapter happens to have two ports on it, you see suffixes of ".1" and ".2." They will correspond to whichever port (on the adapter itself) you are plugging your serial cable into.

At the ADTPro server software end, should see those names repeated in the serial configuration dialog box (which comes up with the `File->Serial Configuration` menu item). In Keyspan's case, you will see a prefix of "tty" and "cu" added to each port name. ADTPro seems to be able to function normally using either flavor.



An adapter with a Prolific or FTDI chipset, for example, would populate the dialog box items like "usbserial":



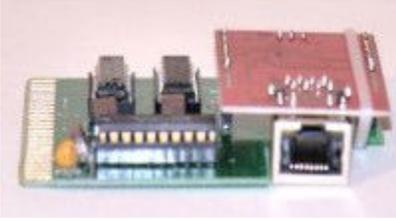
Once connected, ADTPro will be able to operate normally over the USB connection, including [bare metal](#) bootstrapping operations.

## Other Serial Pinout References

Be careful - these sometimes disagree with one another:

- <http://www.netbsd.org/docs/Hardware/Misc/serial.html>
- <http://home.swbell.net/rubywand/Csa2T1TCOM.html#006>

## ADTPro Ethernet Connections



Connecting your Apple to your home network is as easy as plugging the [Uthernet card](#) into the Apple, and then plugging a Cat-5 Ethernet cable from the card into your home router or switch. You just need to tell ADTPro which slot your Uthernet card is in, then set the IP parameters (details [below](#)).

If your home network has MAC address filtering, you may need to add a rule for your router to allow the Apple to join the network. The MAC address assigned to the Uthernet card by ADTPro is 00:80:10:6d:76:30.

## ADTPro Ethernet Client IP Configuration

The ProDOS ethernet version of the ADTPro client program is named `ADTPROETH` on the distribution diskette. Ways of making `ADTPROETH` start automatically are discussed [here](#).

The SOS ethernet version of the ADTPro client program is named `SOS.INTERPETH` on the distribution diskette. It will be necessary to rename `SOS.INTERPETH` to `SOS.INTERP` (also deleting or renaming the original `SOS.INTERP` program) in order to run it. Additional details are [here](#).

Hitting the "G" key from ADTPro's main menu brings up the ethernet configuration screen:

```
CONFIGURE ADTPRO PARAMETERS
UTHER SLOT          3
ENABLE SOUND       YES
SAVE CONFIG        NO
SERVER IP ADDR     192.168.0
LOCAL IP ADDR      10.0.0.12
MASK               255.255.0
GATEWAY ADDR       10.0.0.1
CHANGE PARAMETERS WITH ARROW KEYS
SELECT WITH RETURN, ESC CANCELS
```

You can scroll between the selections with the up and down arrow keys. If your Apple doesn't have up and down arrow keys, the space bar will cycle between the selections.

You can rotate through the options of a particular selection with the right and left arrow keys.

Your Apple has right and left arrow keys; trust me.

## Comms Device

Select the slot your Uthernet card is in.

```
UTHER SLOT      3
ENABLE SOUND    YES
SAVE CONFIG     NO
```

The most common slot is 3, but it could be any slot from 1 to 7 (1 to 4 in Apple /// computers). ADTPro will scan the slots to guess where it is for you. But if you have multiple Uthernet cards in your system, you will need to choose which one to talk to. Pull off your Apple's lid to check if you need to. If you have an IIGs, ensure you select "Your Card" in the IIGs' control panel for the slot your Uthernet card is in, and select that same slot number here.

## Enable Sound

The sound option is, of course, up to you.

```
UTHER SLOT      3
ENABLE SOUND    YES
SAVE CONFIG     NO
```

ADTPro makes bleating sounds when things finish or abort. I personally think computers should be seen and not heard, but not everyone feels that way. Express your own personal feelings here.

## Save Configuration

Hit the "Return" key to work with these parameters. Once you get a configuration that works for you, select "YES" for SAVE CONFIG and hit Return.

```
UTHER SLOT      3
ENABLE SOUND    YES
SAVE CONFIG     YES
```

This will save a configuration file, `ADTPROETH.CONF`, to the same place where you started ADTPro from. When you start ADTPro again, it will use the configuration parameters you saved last.

## IP Parameters

When editing the IP address numbers, you can't backspace - the left arrow moves you to the field to the left. So, if you make a mistake, just hit the left and right arrows so you can start over again with that number. Play with the screen for a minute and you'll get the hang of it.

```
SERVER IP ADDR 192.168.0.42
LOCAL IP ADDR 192.168.0.123
NETMASK 255.255.240.0
GATEWAY ADDR 192.168.0.1
```

For `SERVER IP ADDR`, enter the IP address of the machine running the ADTPro server software. When you have the server connect with Ethernet, it will say what IP address it is currently serving:



For `LOCAL IP ADDR`, enter any IP address on your subnet that isn't already taken. If your home network has IP addresses assigned by DHCP, this number might be tricky to come by. But the final suffix of `.123` is as likely a candidate as any.

For `NETMASK` and `GATEWAY ADDR`, these will be the same for the server computer as for your Apple, assuming you're on the same network. If the server is running Windows, you can find this information by issuing the command: `ipconfig /all` from the command line. If the server is running Linux or OSX, you can generally find it with the command: `ifconfig en0` or `ifconfig eth0` from a terminal window. The graphical network configuration program for your operating system will have all the details you need, but you may have to do some digging to get at them. Chances are, though, that if you bought an Uther card... you know these kinds of details. Feel free to [ask for help](#) if you need it.

Once you get your addresses set up, save your configuration and hit the "D" key from the main menu (and escape) to ask for a directory once or twice. It seems to take some networks a couple of tries to finally find the server.

**Note:** if you ever end up saving a configuration that is not compatible with the Apple you're trying to run ADTPro on (because you move your Uthernet card to a different slot, for example) you may need to reset ADTPro to factory defaults. To do that, boot the Apple with ProDOS, and get to a BASIC prompt (perhaps using the ADTPro diskette itself). Delete the configuration file:

- `DELETE ADTPROETH.CONF`

That will reset everything to defaults and you should be able to bring up the configuration screen, make corrections, then re-save it.

## Apple II Serial Bootstrapping

If you already use the DOS version of ADT, you can use it to transfer the virtual floppy containing ADTPro that comes with this project (ADTPRO-1.1.3.DSK) to your Apple. Reboot the Apple with the ADTPro floppy, and you're ready to go.

If you don't use DOS ADT now, or don't have software for your Apple yet, more bootstrapping scenarios and configurations are detailed below.

- [If you have no Apple software at all - starting ADTPro from bare metal](#)
- [If you already have ProDOS](#)
- [If you have no software now and only want to run DOS 3.3, not ADTPro](#)

If you still need to connect your host and Apple II computers through their serial ports, refer back to the "Connections" section:

- [Super Serial card](#)
- [IIGs and IIC+ modem ports](#)
- [IIC and Laser 128 modem ports](#)
- [USB adapters](#)

If you'd rather have a pre-built disk arrive at your door than build one yourself, [click here](#).

## Bootstrapping Demonstration Video

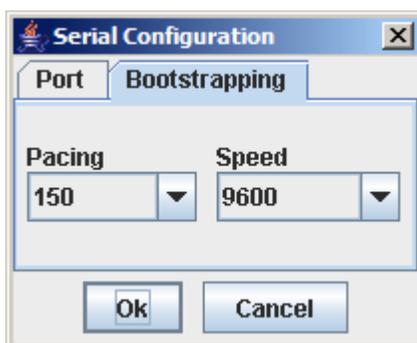
Here is a 5-minute overview video of the bootstrapping process. It shows the bare-metal bootstrapping scenario of an Apple IIe with a Super Serial card, all the way to making a bootable ADTPro floppy:



## A Note About Speed

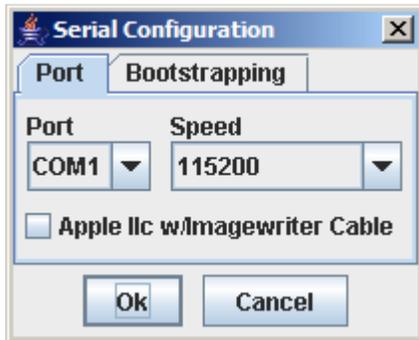
ADTPro lets you control how fast bootstrapping data gets sent to the Apple, as well as how long to pause after finishing sending a line of text. Historically, this entire operation has happened at 300 baud because that's the fastest the Apple could handle without some measure of line pacing or flow control. Having DOS 3.3 booted substantially slows down the pace at which the Apple can respond to data, so it's important to leave the Apple unbooted (i.e. hit reset before any DOS loads when turning the machine on).

The defaults now are to send bootstrapping data at 9600 baud, with a 150 millisecond delay after each line. The first few (and the last few) lines slow down much more than that because they rely on the BASIC interpreter, which takes extra time to process. The defaults should work for all Apples; those containing accelerators will be able to go even faster. But the net result is substantially faster bootstrapping than before. Using the serial configuration dialog box, bootstrapping tab (Bootstrapping->Serial Pacing) lets you control pacing and speed specifically for the bootstrapping operations:



The defaults for pacing and speed should work fine for communications to any Apple. If you have trouble with these bootstrapping operations, you may find it necessary to slow down the baud rate, increase the pacing interval, or both. Again, the important thing is to not have DOS 3.3 loaded when going through bootstrapping operations.

Once you've gotten everything transferred and are using the ADTPro client program down on the Apple, the speed set on the port tab of the serial configuration dialog box takes over:



And if you are using an Imagewriter I cable with an Apple IIc, don't forget to check the "Apple IIc Serial" box on the Port tab.

## If you already have ProDOS

1. **Connect** the two computers through their serial ports.
2. Start your Apple with ProDOS booted from floppy (or any bootable partition).
3. On the ADTPro server, push the "Serial" button. If this is the first time you've connected via the serial port, you will be presented with the serial configuration dialog box, where you'll need to establish the port and speed for the serial connection. The defaults for speeds should be fine, but you will need to choose the appropriate port that will serve as the connection to the Apple.
4. Decide which version of the client you wish to send, and click that menu option. You can send the audio version ("Bootstrapping->ProDOS->Send ADTPro Audio Client"), the serial version ("Bootstrapping->ProDOS->Send ADTPro Serial Client"), or the ethernet version ("Bootstrapping->ProDOS->Send ADTPro Ethernet Client"). You don't have to stick to the same method of communicating with your Apple once you've finished with the initial bootstrapping, but you certainly can if you want to.
5. A dialog box will come up instructing you to type a set of commands on the Apple. They will be similar to the following:
  - o IN#2 (The number will depend on which slot you have your Super Serial Card plugged into. An IIGs' modem port is always in "virtual" slot #2, and an IIC's serial port is always "virtual" slot #2 as well.)
  - o <ctrl-A>14B (The number will depend on the speed you have chosen from the bootstrapping tab on the serial configuration dialog box. When you hit <ctrl-A>, the Apple Super Serial card will respond with "APPLE SSC:" and the IIGs and IIC will respond with a blinking "?". At that prompt, enter the number in your dialog box and the B key with no spaces. The Super Serial card will require you to hit the Return key, but the IIGs and IIC will not.)
  - o Note: with some configurations, you will need to hit <ctrl-I> instead of <ctrl-A>. (Where I is the capital letter I.) If you hit <ctrl-A> and nothing happens, just hit the Return key and try <ctrl-I> instead. The one that greets you with the "APPLE SSC:"

or "?" is the one that you want.

If you get any syntax errors or anything, hit Return a bunch of times and start this step over again.

6. Dismiss the ADTPro server dialog by clicking on the `Ok` button. You should start to see text flowing across the Apple screen now. After a few minutes, it will finish and automatically start the ADTPro client program.
7. Now that the client is running, you can use it to [transfer](#) more disks (like the bootable ADTPro distribution diskette - 5.25" or 3.5" versions are included), or [format](#) new diskettes.
8. Start transferring 5.25", 3.5", RAM drive, or hard drive images to your heart's content!

## Starting from bare metal

1. [Connect](#) the two computers through their serial ports.
2. Boot your Apple; hit Ctrl-Reset before it reads anything from the disk drive. It's important that it not load any OS, even DOS 3.3. Put a double sided, double density diskette in the drive and close the door. It doesn't matter if it's formatted or not.
3. On the ADTPro server, push the "Serial" button. if this is the first time you've connected via the serial port, you will be presented with the serial configuration dialog box, where you'll need to set up the serial connection.
4. Click on the "Bootstrapping->ProDOS->Send ProDOS" menu item.
5. A dialog box will come up instructing you to type a set of commands on the Apple. They will be similar to the following:
  - o `IN#2` (The number will depend on which slot you have your Super Serial Card plugged into. An IIGs' modem port is always in "virtual" slot #2, and an IIC's serial port is always "virtual" slot #2 as well.)
  - o `<ctrl-A>14B` (The number will depend on the speed you have chosen from the bootstrapping tab on the serial configuration dialog box. When you hit `<ctrl-A>`, the Apple Super Serial card will respond with "APPLE SSC:" and the IIGs and IIC will respond with a blinking "?". At that prompt, enter the number in your dialog box and the `B` key with no spaces. The Super Serial card will require you to hit the `Return` key, but the IIGs and IIC will not.)
  - o Note: with some configurations, you will need to hit `<ctrl-I>` instead of `<ctrl-A>`. (Where `I` is the capital letter `I`.) If you hit `<ctrl-A>` and nothing happens, just hit the `Return` key and try `<ctrl-I>` instead. The one that greets you with the "APPLE SSC:" or "?" is the one that you want.

If you get any syntax errors or anything, hit Return a bunch of times and start this step over again.

6. Dismiss the ADTPro server dialog by clicking on the `Ok` button. You should start to see text flowing across the Apple screen now. The progress bar on the ADTPro server will show how far along the transfer is.
7. Once the transfer completes successfully, the kernel of ProDOS will start. This first boot stage should leave your screen looking something like this:



8. Now send a copy of the ADTPro client program to the Apple. You'll use it soon to format floppies and to receive the full, bootable ADTPro distribution diskette at the Apple. On the ADTPro server, click on "Bootstrapping->ProDOS->Send ADTPro Serial Client".
9. A dialog box will come up instructing you to type a set of commands on the Apple. They will be similar to the following:
  - o IN#2 (The number will depend on which slot you have your Super Serial Card plugged into. An IIGs' modem port is always in "virtual" slot #2, and an IIC's serial port is always "virtual" slot #2 as well.)
  - o <ctrl-A>14B (The number will depend on the speed you have chosen from the bootstrapping tab on the serial configuration dialog box. When you hit <ctrl-A>, the Apple Super Serial card will respond with "APPLE SSC:" and the IIGs and IIC will respond with a blinking "?". At that prompt, enter the number in your dialog box and the B key with no spaces. The Super Serial card will require you to hit the Return key, but the IIGs and IIC will not.)
10. Follow the instructions in the dialog box as usual. Once the transfer is complete, it will automatically start the ADTPro client program. Once the ADTPro client program is running, take a look at the [configuration](#) screen and make sure it has picked the correct serial device for you.
11. Use the ADTPro client's [format](#) function to format a diskette or two. Note that in the ProDOS world, formatting a diskette doesn't make it bootable - it just prepares the filesystem for writing. The next step of sending the ADTPro distribution diskette will create bootable diskette for you.
12. You are now ready to [receive](#) the ADTPro-1.1.3.DSK (5.25" version) or ADTPro-1.1.3.PO (3.5" version) disk image from the host. Once you've done that, you've got a bootable ProDOS diskette that contains all the ADTPro client programs.

## Bootstrapping DOS

If you don't need or want the extra features the ADTPro client provides beyond the DOS ADT client, you may only want to get started with the DOS ADT program. The ADTPro server is compatible with both the DOS ADT and ADTPro clients.

1. [Connect](#) the two computers through their serial ports.
2. Boot your Apple; hit Ctrl-Reset before it reads anything from the disk drive. It's important that it not load any OS, even DOS 3.3. Put a double sided, double density diskette in the drive and close the door. It doesn't matter if it's formatted or not.
3. On the ADTPro server, push the "Serial" button. If this is the first time you've connected via the serial port, you will be presented with the serial configuration dialog box, where you'll need to set up the serial connection.
4. If the dialog box doesn't come up on its own, click on Bootstrapping->Serial Pacing. You

should be able to run with 150ms pacing and 9600 baud on an unaccelerated Apple:



Click on Ok with these values.

5. Click on the "Bootstrapping->EsDOS ][->Send EsDOS ][ Part 1" menu item. (Serial bootstrapping doesn't require EsDOS ][ Part 2.)
6. A dialog box will come up instructing you to type a set of commands on the Apple. They will be similar to the following:
  - o IN#2 (The number will depend on which slot you have your Super Serial Card plugged into. An IIGs' modem port is always in "virtual" slot #2, and an IIC's serial port is always "virtual" slot #2 as well.)
  - o <ctrl-A>14B (The number will depend on the speed you have chosen from the bootstrapping tab on the serial configuration dialog box. When you hit <ctrl-A>, the Apple Super Serial card will respond with "APPLE SSC:" and the IIGs and IIC will respond with a blinking "?". At that prompt, enter the number in your dialog box and the B key with no spaces. The Super Serial card will require you to hit the Return key, but the IIGs and IIC will not.)
  - o Note: with some configurations, you will need to hit <ctrl-I> instead of <ctrl-A>. (Where I is the capital letter I.) If you hit <ctrl-A> and nothing happens, just hit the Return key and try <ctrl-I> instead. The one that greets you with the "APPLE SSC:" or "?" is the one that you want.

If you get any syntax errors or anything, hit Return a bunch of times and start this step over again.

7. Dismiss the ADTPro server dialog by clicking on the Ok button. You should start to see text flowing across the Apple screen now. The progress bar on the ADTPro server will show how far along the transfer is.
8. Once the transfer completes successfully, EsDOS ][ will be running on your Apple in memory only. Instructions will be left on the Apple screen for initializing the floppy disk in your drive. You may wish to format (INIT) one or more now.
9. **Reboot** your newly formatted floppy with the PR#6 command (where 6 is the slot number of the slot your Disk ][ card is in).
10. Now that DOS is running, it will be necessary to slow down the transfer speed for the next step. Click on the ADTPro menu item Bootstrapping->Serial Pacing and set the speed down to 2400 to be safe:



Click on Ok with these values.

11. Put a freshly formatted disk in the Apple drive and close the drive door.
12. Click on the "Bootstrapping->EsDOS ][->Send DOS ADT Client" menu item.
13. A dialog box will come up instructing you to type a set of commands on the Apple. They will be similar to the following:
  - o IN#2 (The number will depend on which slot you have your Super Serial Card plugged into. An IIGs' modem port is always in "virtual" slot #2, and an IIC's serial port is always "virtual" slot #2 as well.)
  - o <ctrl-A>10B (The number will depend on the speed you have chosen from the bootstrapping tab on the serial configuration dialog box. If it still says 14B, you haven't re-set the transfer speed to slow down yet. Go back and do that first. When you hit <ctrl-A>, the Apple Super Serial card will respond with "APPLE SSC:" and the IIGs will respond with "?". At that prompt, enter the number in your dialog box and the B key with no spaces. The Super Serial card will require you to hit the Return key, but the IIGs and IIC will not.)
  - o Note: with some configurations, you will need to hit <ctrl-I> instead of <ctrl-A>. (Where I is the capital letter I.) If you hit <ctrl-A> and nothing happens, just hit the Return key and try <ctrl-I> instead. The one that greets you with the "APPLE SSC:" or "?" is the one that you want.

If you get any syntax errors or anything, hit Return a bunch of times and start this step over again.

14. Dismiss the ADTPro server dialog by clicking on the Ok button. You should start to see text flowing across the Apple screen now. The progress bar on the ADTPro server will show how far along the transfer is.
15. Once the DOS ADT client transfer is done, it will automatically start the DOS ADT client program. The first thing you should do is go to the Configuration menu by pressing the C key, press the spacebar enough times to move the cursor down to the SAVE CONFIG menu item, and press the right-arrow key. That should change the value from NO to YES. When you press the Enter key, it will save the ADT program on your floppy disk:

```
ADT CONFIGURATION
DISK SLOT          6
DISK DRIVE        1
COMMS DEVICE      SSC SLOT 2
COMMS SPEED       115K
READ RETRIES      1
WRITE RETRIES     0
USE CHECKSUMS     YES
ENABLE SOUND      YES
SAVE CONFIG       YES

HIT ANY KEY TO CONTINUE...*
```

16. Now boot your DOS ADT floppy. The Apple command `BRUN ADT` will start the DOS ADT client up once the disk is done booting. You may want to go one extra step and use ADT now to transfer the full DOS ADT .dsk image that comes as part of the ADTPro distribution to a new floppy, as it has a `HELLO` program already set up to autostart ADT upon booting.

## ADTPro Installation

Welcome to ADTPro!

To get started, you will need a Java installation you can call from the command line. This means that if you type the command "java -version" from a terminal window it ought to produce output other than complaints. One place to get a downloadable Java distribution is from Sun Microsystems: [Sun JRE download](#). When you get there, look for a "Java Runtime Environment (JRE)" download for your platform and install it.

The ADTPro distribution comes as a single file named something similar to `ADTPro-1.1.3` with an extension particular to the target platform:

- `ADTPro-1.1.3.tar.gz` - Linux or Solaris
- `ADTPro-1.1.3.dmg` - Mac OSX
- `ADTPro-1.1.3.zip` - Windows or OS/2

(The "1.1.3" part signifies the Version, Release, and Modification numbers of the particular distribution you're looking at.)

Installation steps:

1. Unpack the ADTPro distribution file using your operating system's native facilities.
2. [Start the ADTPro server](#) from your host computer's command line or by clicking on the startup program for your host operating system.
3. Bootstrap the client software on your Apple II via [serial](#) or [cassette](#) ports.

Please report troubles, bugs, requests for help, etc. on the Help forum for ADTPro at SourceForge:

<http://adtpro.sourceforge.net/forum.html>

Good luck - and have fun!

## Unix RXTX Considerations

For Unix variants other than Mac OSX, make sure the user that will be running ADTPro is in the group `lock` or `uucp` so that lockfiles can work.

The `adtpro.sh` and `adtpro.command` files can be customized to suit your environment. The main thing to do is to choose your platform for RXTX support. You may need to tweak the check for what your operating system returns from the `uname` command, and connect that to the appropriate RXTX library directory.

If you don't specify the right one, or if your platform is unsupported by RXTX, you will get an error similar to the one below on startup:

```
java.lang.UnsatisfiedLinkError: Can't find library rxtxSerial (librxtxSerial.so)
  in sun.boot.library.path or java.library.path
sun.boot.library.path=/opt/IBMJava2-142/jre/bin
java.library.path=/opt/IBMJava2-142/jre/bin:
/opt/IBMJava2-142/jre/bin/classic:/opt/IBMJava2-142/jre/bin:/usr/lib
thrown while loading gnu.io.RXTXCommDriver
```

Keep working at your startup script or [ask for help](#).

## OS/2 RXTX Considerations

OS/2 doesn't have a native RXTX library. It would be a relatively easy thing to snap in the original Sun/IBM serial library, but just hasn't been done yet. Holler if you want it. Otherwise, the audio and UDP/Ethernet versions work fine in OS/2.

## Distribution contents

The distribution should contain most of these files, depending on platform:

```
adtpro.bat
  A Windows server startup batch file
adtpro.cmd
  An OS/2 server startup command file
ADTPro-1.1.3.app
  An OSX server application for OSX 10.3 and above
adtpro.command
  An OSX server startup command file for OSX 10.2 and below
adtpro.sh
  A Linux/Solaris server startup shell script
LICENSE
  The GNU Public License file
README
  The info you're looking at now, mostly
disks/ADTPRO-1.1.3.DSK
  ADTPro client-side software (an Apple 140K disk image)
disks/ADTPRO-1.1.3.PO
  ADTPro client-side software (an Apple 800K disk image)
disks/ADTvrn.DSK
  An enhanced legacy Apple DOS ADT client, capable of running with Super Serial hardware,
  the IIGs modem port, a Laser 128, and the Apple /// (an Apple 140K disk image)
lib/ADTPro-1.1.3.jar
  ADTPro server-side software (a Java .jar file)
lib/rxtx/...
  Java serial library files
```