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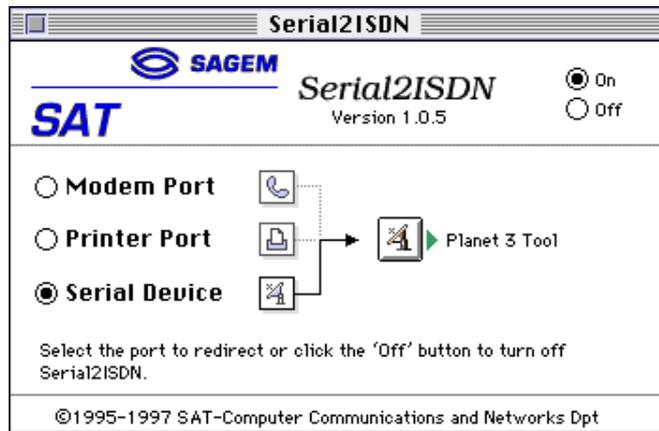
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Serial2ISDN User's Guide



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Chapter 1 - Introduction to Serial2ISDN

Important note

This software **ONLY** runs on hardware designed by SAT. Don't try to use it on other peripherals.

This manual must be read in sequence, apart from the appendices (chapters 1 to 6).

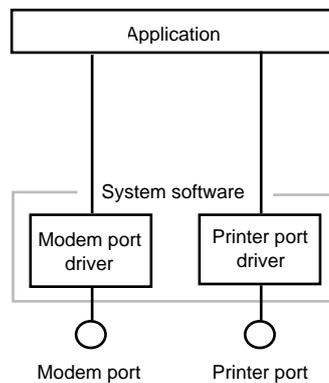
The appendices at the end of the manual deal with special situations (errors, specific configurations, etc.). You may need to read parts of them, depending on your requirements.

Serial2ISDN is a software tool that enables applications capable of using a modem (AppleTalk Remote Access, Timbuktu Remote...) **to use the SAT Communications Toolbox hardware, such as SAT-ISDN cards (Planet-ISDN, Meet-Me, GeoPort adapter) , or SAT-TheWave software connection tool.**

For example, when a software package such as AppleTalk Remote Access that is limited on the serial port to 57,6 Kbits/s is used with the Planet-ISDN card, its communication capacities are increased to 64 Kbits/s or 128 Kbits/s.

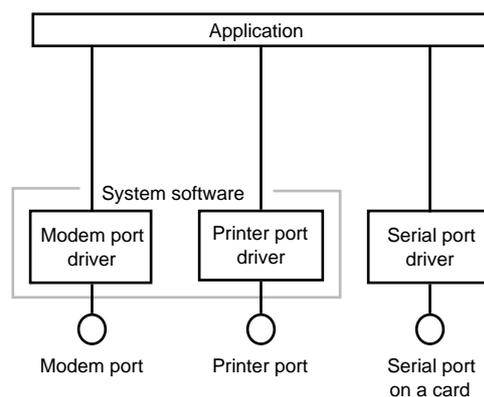
General principles

Standard Macintoshes have 2 serial ports: the Modem Port and the Printer Port. Each port is managed by part of the system software called the Driver. Applications use these 2 ports by means of their respective Drivers.



Using standard serial ports

Some software, such as AppleTalk Remote Access, are able to use additional serial ports by means of their drivers (serial port card).



Using extended serial ports

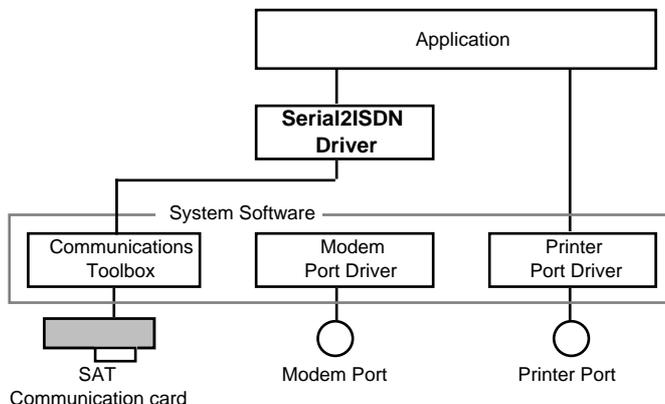
In 1990, Apple Computer introduced a new way of communicating using the Communications Toolbox. The Communications Toolbox extends the "Port Driver/Serial Port" concept to all types of communications. The communication peripherals (cards, input/output, networks) are managed by their respective connection tools.

Unfortunately, many software packages did not adapt to this communication mode, and remain fixed on the serial ports. For example, this is the case for AppleTalk Remote Access.

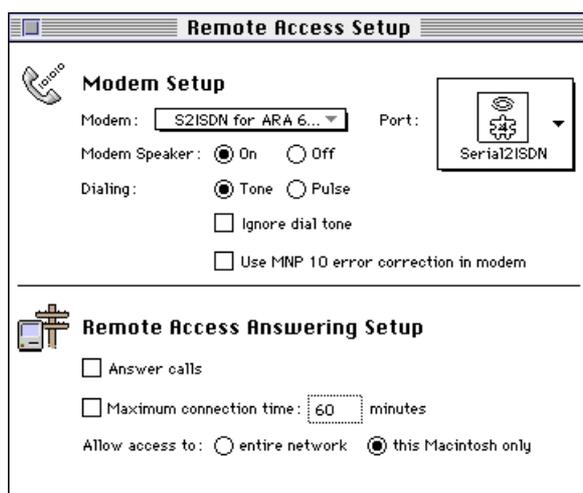
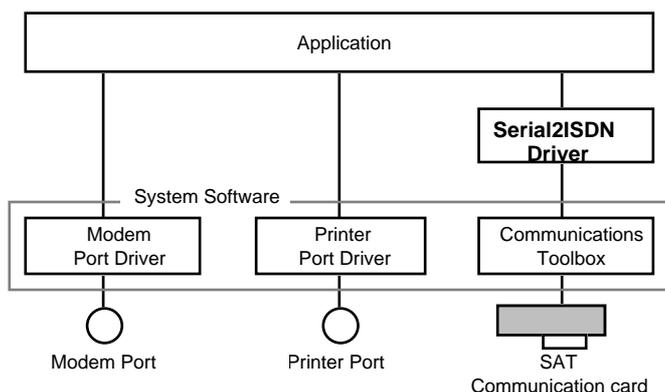
The purpose of Serial2ISDN is to enable these software products to overcome the limitations of the serial ports, and to run all SAT hardware through the Communication Toolbox.

Serial2ISDN can work in two different ways:

1) it can replace the Modem or Printer Port Driver



2) it can install a new Driver for a new virtual serial port



New Driver seen by AppleTalk Remote Access

In addition, Serial2ISDN simulates the characteristics of a Hayes modem controlled by AT commands. Serial2ISDN will then translate AT commands into calls to the Communications Toolbox.

Hardware required

To use Serial2ISDN you need:

- A Macintosh micro-computer.
- The operating system (version 7.0.x or greater) installed on your hard disk.
- A SAT communication peripheral managed by the Communications Toolbox, such as an Planet-ISDN card, Meet-Me ISDN Card, Planet-ISDN GeoPort Adapter, etc.
- The Communications Toolbox.
It is included in the 7.0.x operating system.
- A communication software package (AppleTalk Remote Access, Timbuktu, MacPPP, etc.) that is only capable of using serial ports.

Note: when the Macintosh starts, the Serial2ISDN Driver is loaded into the system's memory zone, where it takes up about 70 K.

Chapter 2 - Installing Serial2ISDN

Installing the software

- Copy the Serial2ISDN file onto the System Folder of your start-up disk.
The Finder will automatically place the file in the Control Panels folder.
- Restart your Macintosh

Removing the software

To remove the Serial2ISDN software once it has been installed, simply take it out of the Control Panel Folder of the System Folder on your start-up disk.

The removal operation is effective when you reboot your machine.

Chapter 3 - The Serial2ISDN Control Panel

Function of the Serial2ISDN Control Panel

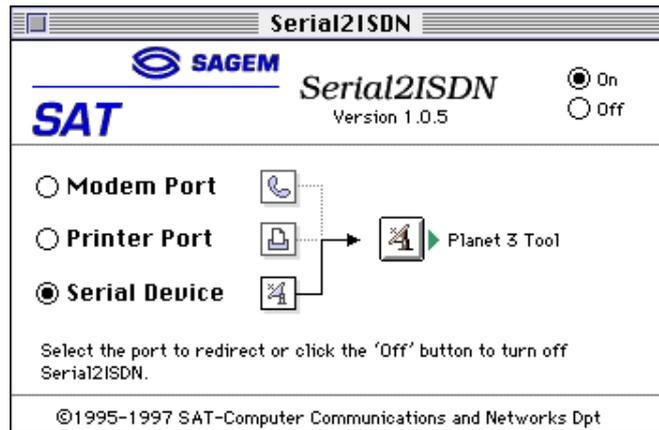
The Serial2ISDN Control Panel is used to define which serial port is redirected or created, and to set up the connection tool managed by Serial2ISDN, depending on the SAGEM communication hardware used.

Accessing the Serial2ISDN Control Panel

The Control Panel is accessed via the "Control Panels" folder in the "System" folder by double-clicking on the "Serial2ISDN" icon.

Using the Serial2ISDN Control Panel

The main Serial2ISDN window is then displayed:



Serial2ISDN Control Panel

The on/off radio button activate /deactivate Serial2ISDN on the fly, you don't need to restart your Macintosh. If Serial2ISDN is active at startup it will either replace one of the serial port drivers on the Macintosh or create a new port.

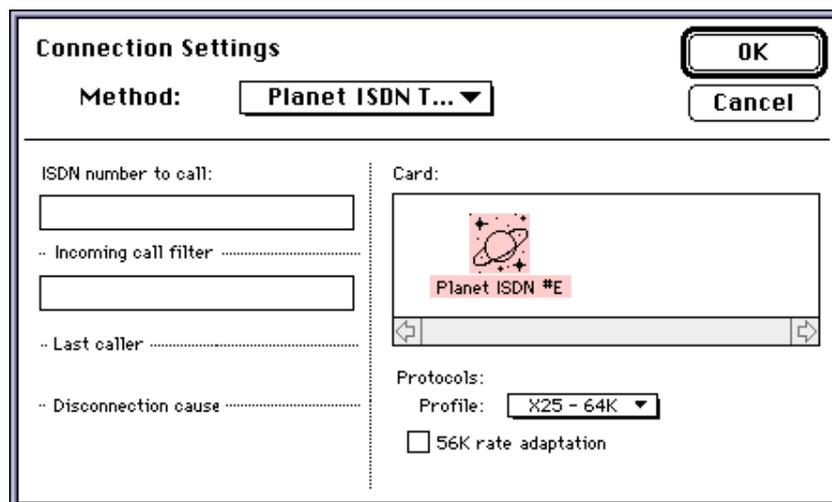


These radio buttons are used to determine whether Serial2ISDN must redirect one of the Macintosh serial ports, or create a new one (see Chapter 1 - General Principles).

Setting up a SAT connection tool

By clicking on the "Satellite" button, you can configure the Communications Toolbox peripheral that will be used. When you click on this button, the standard dialog for choosing a Communications Toolbox connection tool is displayed. You can then define the configuration settings specific to your SAT peripheral.

Warning! You must select a connection tool developed by SAT.



Planet-ISDN Tool

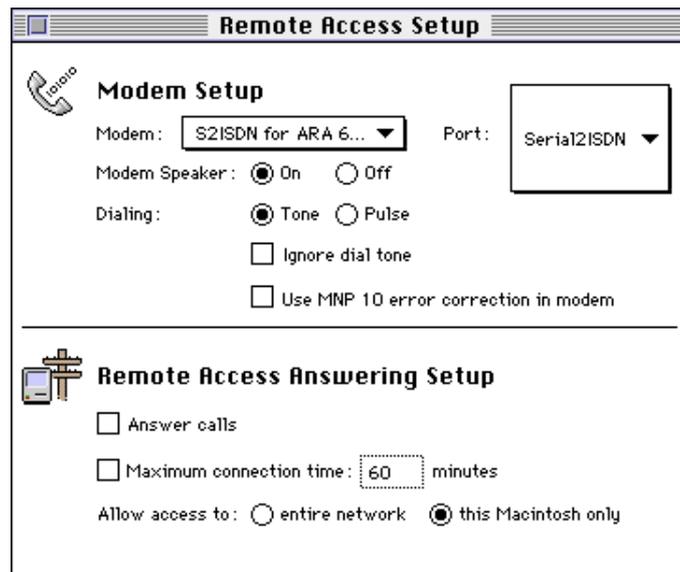
The ATD command, normally used to generate an outgoing call, will automatically replace the contents of the call number fields in all SAT connection tools (Planet-ISDN Tool, Meet-Me ISDN Tool, ISDN GeoPort Tool) with the call number that follows ATD. You don't need to fill in the "ISDN number to call" field.

Chapter 4 - Serial2ISDN with AppleTalk Remote Access

Serial2ISDN features specific scripts for ARA versions 2.0.1 up to 2.1: one of them uses the configuration you set up in the Serial2ISDN Control panel, whereas the four other ones lead to X25 connections and allow you to make ARA connections over ISDN.

You select a Serial2ISDN for ARA script when setting up your modem connection, according to your communication needs, and **without having to modify the settings of the Serial2ISDN Control Panel**.

From the Apple menu, select the "Remote Access Setup" Control Panel. The following window appears:



Remote Access Setup Control Panel

Select the appropriate script from the "Modem" pull-down menu, in the "Modem Setup" area. The five available scripts are "S2ISDN for ARA", "S2ISDN for ARA 64K" and "S2ISDN for ARA 128K", as well as "S2ISDN for ARA 56K" and "S2ISDN for ARA 112K" for communications with the United States and Japan.

From the "Port" pull-down menu, select Serial2ISDN. Then close the Control Panel to save the changes.

For further information on how to make ARA connections, please refer to the AppleTalk Remote Access Reference Guide.

Chapter 5 - Serial2ISDN with PPP

Most PPP connections over ISDN are in synchronous mode, whereas PPP software such as MacPPP, FreePPP or OpenTransport PPP, are based on the asynchronous mode while using the serial port.

Serial2ISDN features scripts and new Hayes commands that make the conversion of PPP synchronous to asynchronous mode and vice-versa, thus enabling your PPP software to connect over the ISDN network.

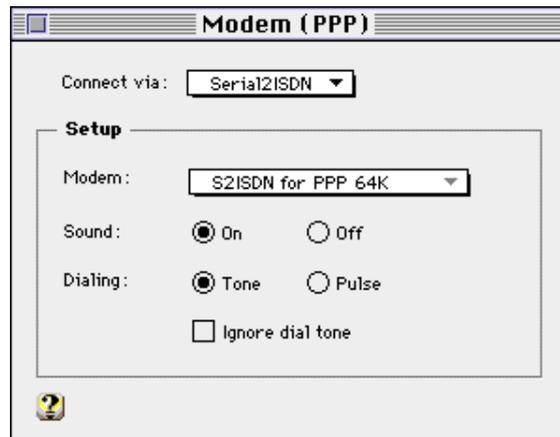
Important: to do so, you must first make sure that your Internet Provider offers ISDN access to his server.

As well as for ARA, the scripts and AT commands can be used **without having to modify the settings of the Serial2ISDN Control Panel**. They lead to HDLC synchronous PPP connections over ISDN.

Depending on your system configuration, you will either use one of the two scripts available for OpenTransport/PPP, or type in one of the two Serial2ISDN AT Commands, for software requiring a manual configuration.

Using OpenTransport/PPP 1.0

From the Apple menu, select the "Modem" Control Panel. The following window appears:



Modem (PPP) Control Panel

From the "Connect via" pull-down menu, select Serial2ISDN.

Select the appropriate script from the "Modem" pull-down menu, in the "Setup" area. The two available scripts are "S2ISDN for PPP 64K" and "S2ISDN for PPP 56K" for communications with the United States and Japan. Then close the Control Panel to save the changes.

Using Config PPP

From the Apple Menu, select the "Config PPP" Control Panel. The following window appears:



ConfigPPP Control Panel

From the "Port Name" pull-down menu, select Serial2ISDN.

Then click on the "Config..." radio button. The following window appears:

PPP Server Name:	<input type="text" value="Wanadoo"/>
Port Speed:	<input type="text" value="57600"/>
Flow Control:	<input type="text" value="None"/>
<input checked="" type="radio"/> Tone Dial <input type="radio"/> Pulse Dial	
Phone num	<input type="text" value="0836081313"/>
Modem Init	<input type="text" value="ATZ*PPP64K"/>
Modem connect timeout:	<input type="text" value="90"/> seconds
<input type="button" value="Connect Script..."/> <input type="button" value="LCP Options..."/>	
<input type="button" value="Authentication..."/> <input type="button" value="IPCP Options..."/> <input type="button" value="Done"/>	

ConfigPPP Control Panel options

In the "Modem init" field, type in the Hayes command that will allow you to make a PPP synchronous connection over ISDN. Two AT Command are available: "ATZ*PPP64K" and "ATZ*PPP56K" for the communications with the United States and Japan. Click on "Done", then close the ConfigPPP Control Panel to save the changes.

For information concerning the different options and fields of Config PPP, as well as how to make a PPP connection, please contact your Internet provider or your network administrator.

Chapter 6 - Use within an application

The following examples were executed with a terminal emulator (Red Ryder) that uses the Modem Port redirected by Serial2ISDN to the Planet-ISDN card.

Call

If the tool has been correctly configured, the ATD function will be sufficient:

Successful connection:

```
ATD92960100
CONNECT#
```

Unsuccessful connection:

```
ATD92960100
NO CARRIER
```

Answer

The default setting for Serial2ISDN is the automatic answer mode. The manual answer mode can be set using the command `ATS0=0`. In this case, the incoming call is indicated by the message RING, and the communication software must accept the incoming call with the command ATA.

Automatic answer:

```
RING
CONNECT
```

Manual answer:

```
ATS0=0
OK
RING
ATA
CONNECT
```

Disconnection

The current communication can be disconnected in three different ways:

- by closing the serial port used
- by requesting fall of the DTR on the serial port used
- by using the ATH command, having first gone back to command mode (by typing +++)

Disconnection using the ATH command:

```
CONNECT
OK
ATH          (ATH must be keyed in)
OK
```

Appendix 1 - AT commands used by Serial2ISDN

This appendix gives a list of AT commands accepted by Serial2ISDN and the effects they have.

ATA	To answer an incoming call in manual answering mode.
ATD	To generate an outgoing call. Generally followed by a call number.
ATH	To reject an incoming call, or cut a current call.
ATO	To return to data transmission mode if +++ was typed to go to command mode.
ATS	To position the registers. Only the 0 register is accepted. ATS0=0 puts Serial2ISDN in manual answering mode, ATS0=x, where x is different from 0 puts Serial2ISDN in automatic answering mode.
AT&ARA	This special AT comand MUST BE ONLY USED in a script for Apple Remote Access. It optimizes the transfer performance by using the ARA Protocol on ISDN

Serial2ISDN does not accept the other AT commands but still returns the "OK" message to the terminal.

Appendix 2 - Messages and problems

This appendix gives a list of the messages and problems that Serial2ISDN can display, and their probable causes.

- **Impossible to initialize Communications Toolbox!**
This problem is typically caused by a system malfunction following a serious error in an application. If the problem persists when you have restarted, re-install a clean system.
 - **Insufficient memory to use configured connection tool!**
This problem concerns the connection tool. Change the connection tool. If the problem persists with other tools, it is probably because an extension at start-up takes up more memory than was intended by its designer. Try to remove this additional extension and re-start the machine.
 - **No connection tool available!**
You have not installed a SAT Communications Toolbox hardware. Install them and configure Serial2ISDN.
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