training & documentation

SMART CARD
MS-DOS DRIVER

User's Guide

PHILIPS

MS-DOS DRIVER USER'S GUIDE

A publication of:

Philips Information Systems B.V.

System Support -Training &
Documentation
P.O. Box 245
7300 AE Apeldoorn,
The Netherlands

Printed in The Netherlands, May 1991

Order number: 5122 995 69532
Manual number: Q46D

PREFACE

The manual provides the information required for installation and use of the MS-DOS Smart Card driver software. This software is suitable for controlling any of the Philips range of Smart Card devices, both internal and external devices, including devices used with the Boot Control Option.

It does not include instructions for the installation of the hardware itself. For this information, please refer to the Reference Manual supplied with the hardware itself.

Chapter 1 introduces the system and its components, explaining the available functions and their use.

Chapter 2 explains the installation of the driver. It lists the different versions of the software provided, and explains how to choose the correct version for your system.

Chapter 3 describes the user interface provided by the driver.

Appendix A describes the various files involved with the operation of the driver software. It also describes the changes made by the SMART configuration program to the normal MS-DOS system files to ensure the Driver will function.

Appendix B contains details of error messages and file layouts.

Related Manuals

Q12D - MS-DOS Smart Card Driver Manual
Q21D - PE 111 Smart Card Reader
Q29D - PE 113-102 Smart Card Reader
Q47D - Boot Control System Reference Manual
Q49D - PE 117 Reference Manual
Q50D - PE 118 Reference Manual

CONTENTS

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ONE INTRODUCTION

This chapter deals with the following aspects of the Driver:

- Versions
- Hardware requirements
- Requirements
- Software components
- Use

From time to time you will see references in this manual to the "Boot Control Option". This driver is available in two forms - with or without support for extra hardware installed on the controller boards of the PE 117 and PE 118 packs.

Boot Control installation is not a part of this manual.

VERSIONS

There are two versions of this software package. One is the standard basic Smart Card device driver, capable of controlling all standard Philips card readers. The second is a superset of the first, containing all the same functions, and also extended to provide an interface for the the Boot Control Option.

Within this manual, we shall refer to the first version as the "normal" version, and to the second as the "extended" version, so as to distinguish between the two.

The two are easily distinguished by the addition of the letter "B" to the filenames otherwise common to both.

Distribution Contents

The following table provides a partial listing of the files to be found on your distribution diskette(s).

Whatever version of the software you have received, you will receive at least one diskette, marked with the driver type.

If you have chosen to purchase the boot control option, you will have an extra diskette, labeled "S.C. Boot Control Inst. MS-DOS".

TABLE 1-01 CONTENTS OF DISTRIBUTION DISKETTES

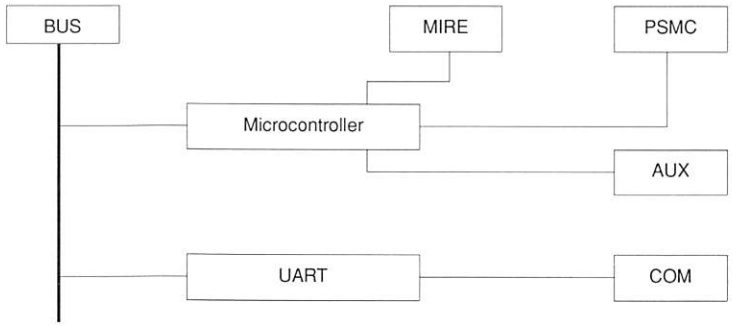
Normal Version	Extended Version	
SMARTPC.SYS	SMARTPCB.SYS	(E)ISA-bus version of the driver.
SMARTPS.SYS	SMARTPSB.SYS	MCA-bus version of the driver.
SMART.EXE	SMARTB.EXE	Driver configuration program.
	SMART.ENV	Definition of driver dialog screen.
	SMART.MES	Driver dialog messages.
	WELCOME.PAG	Layout of driver dialog screen.
@6A4A.ADF	@6A4A.ADF	Configuration data file for MCA.

HARDWARE COMPONENTS

This section explains the hardware configurations supported by this software package.

Configuration

FIGURE 1-01 HARDWARE CONFIGURATION



MIRE : Serial interface for the Internal Reader Encoder

PSMC : Philips Security Micro Circuit (Optional)

AUX : Serial interface for an external reader encoder, such as a PE 111 or PE 113 unit operating under the EFTNet protocol

COM : Standard communication serial interface for any RS-232 device. May also be used for an external reader operating under the EFTNet protocol

Figure 1-01 shows the general hardware configurations required by the software.

Card Acceptor Devices and Controllers

The hardware controlled by this driver may include any one or more of the following CADs (Card Acceptor Devices):

- PE 111-102 Smart Card reader(s)
- PE 113-102 Smart Card reader(s)
- PE 116 Smart Card reader(s)
- PE 202-201 Smart Card reader(s)
- PE 202-301 Smart Card reader(s)
- PE 202-302 Smart Card reader(s)
- PE 202-303 Smart Card reader(s)
- PE 204 PIN Input keypad(s)

The various devices are attached to the host PC via RS-232 serial links or special controller boards. The driver supports:

- Devices attached to the PE 116 controller board

- Devices attached to the COM ports of the PC

- Devices attached to the ports of the PE 117 and PE 118 boards

- PE 117 controller board(s). This board may contain a chip (the PSMC) functionally identical to a D2 Smart Card. This board is produced for the MCA bus. It comes in two versions:
  - model 202: This is a plain controller. It has no PSMC and does not support the Boot Control Option.
  - model 212: This is the same controller, but fitted with the PSMC (described below) and the relevant firmware.

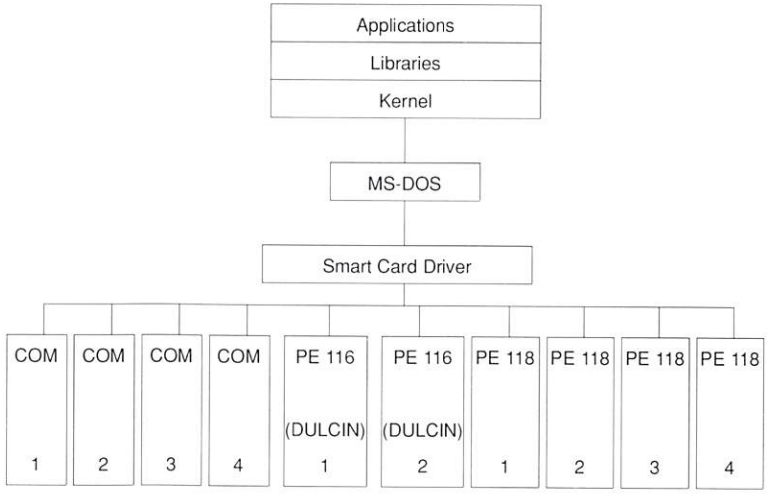
- PE 118 controller board(s). This board may also contain a PSMC; it is produced for the (E)ISA bus. It also comes in the same two versions:
  - model 202: This is a plain controller. It has no PSMC and does not support the Boot Control Option.
  - model 212: This is the same controller, but fitted with the PSMC (described below) and the relevant firmware.

Please note that these devices may be withdrawn or replaced by Philips, but the driver software will support all the devices listed above.

In summary, the user may attach external readers to:

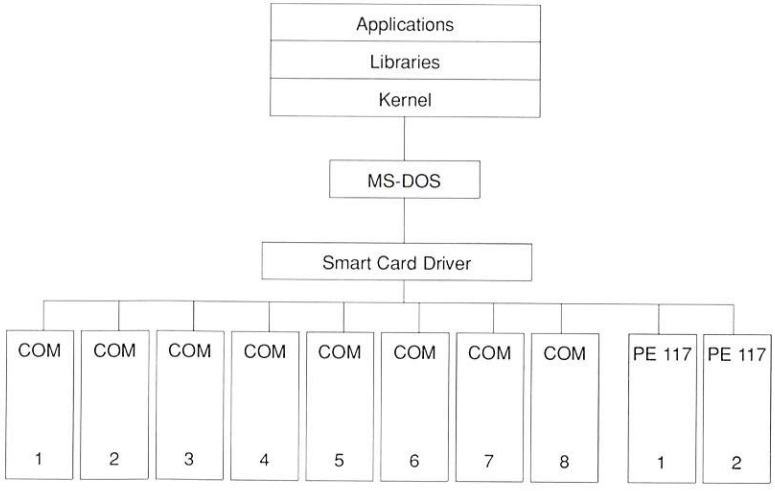
- any COM port supported by the system
- up to two PE 116 (DULCIN) boards
- the controller boards required for the Boot Control Option. These boards are part of the PE 117 and PE 118 packages.

FIGURE 1-02 EXAMPLE HARDWARE SETUP - (E)ISA HARDWARE



- Cards supported. In normal operation, the driver will operate with any Smart Card acceptable to the readers. For the Boot Control Option, however, D2-type cards are required as Bearer Cards.

FIGURE 1-03 EXAMPLE HARDWARE SETUP - MCA HARDWARE



REQUIREMENTS

- A PC or compatible with a hard disk. The Smart Card software is designed for use with a colour monitor; a monochrome monitor can be used, but it will give inferior results, and some messages may be difficult to read. An EGA- or VGA-standard display system is greatly to be preferred.

- Operating system. MS-DOS. This should be version 3.00 or later.

- Any standard Philips Card Acceptor Device.

- PE 117 or PE 118 controller board (depending on the type of bus in the PC) if the Boot Control Option is fitted. Otherwise, any COM port or a PE 116 (DULCIN) board.

- PSMC (if the Boot Control Option is required).

SOFTWARE COMPONENTS

The software is an installable device driver loaded under the appropriate operating system before any other software (see also under "Requirements" below).

According to the parameters it finds in its own invocation sequence in the CONFIG.SYS file, it will:

- in all cases, load and initialise itself for any and all devices defined in the command string. When the Boot Control Option is invoked, these must also include the PSMC chip mounted on the controller board. All these devices are declared to the driver in a line in your CONFIG.SYS system file. This line is composed automatically when you run the configuration program (SMART.EXE or SMARTB.EXE). Your responsibility is only to configure your system correctly within the configuration program.

- If the Boot Control Option is required, it then uses the screen, keyboard, card reader (internal or external, as defined in the CONFIG.SYS file), Bearer Card, and PSMC Smart Card chip to implement a hardware security system to prevent unauthorised access to the PC.

SmartEFT Network

To identify the various CADs attached to a machine, a set of logical device addresses is used. Normally, each device has an internal jumper to allow the user to choose between two possible addresses. This allows two devices to be cascaded from one port on the PC. As there is only one PSMC mounted on any PE 117 or PE 118 board, and as these boards only support one internal reader, the addresses for these devices may be fixed. The addresses are listed in Appendix A.

The Security Pack controller boards also have an external V.24 port, as does the Philips PE 116 (DULCIN) controller board, and the rules for attaching CADs to this port are similar to those for the PE 116 (DULCIN).

USE

To use the software, you must:

- install your hardware. This includes such items as internal boards and internal or external readers.

- restart your machine. At this stage the new hardware will not be recognised by the system.

- install your software onto your hard disk.

- configure your software. This involves running SMART.EXE (or SMARTB.EXE, depending on the version of the software that you have) with or without the I parameter. The I parameter is explained on the following page.

- reboot again. The system will now recognise the CADs that you have installed.

- if you wish to use the Boot Control Option, configure the PSMC on the internal board to implement the protection. Do not forget to set up at least one user card for the machine! This allows you to gain access to the protected machine.

- reboot again.

CONCEPTS

This section deals with concepts used in this and other Smart Card documentation that may be unfamiliar to the new user.

Card Acceptor Device (CAD)

Philips produce a number of card "readers" (that also write to cards!): all these qualify as being CADs. Other items with apparently no connection to Smart Cards may also be considered as CADs for the purposes of configuring your system. These include the POS keyboards and display units also found in the Philips range.

EFTNet

This proprietry (to Philips) protocol allows two apparently identical devices to be connected to one PC serial port. In fact, almost all of the CADs manufactured by Philips have an internal jumper that can be changed to give the device a different address within the EFTNet protocol.

Lines

The driver deals in "lines", through which it communicates with devices. The hardware knows only I/O ports by their addresses ('03F8', for example) and possibly interrupt levels, you see these same ports as "COM1", "COM2", etc.. Once the configurator has linked a device to a line the application software refers to a CAD by a Logical Name such as "LC1".

To connect all these, you use the Smart Card Configuration Program (SMART.EXE or SMARTB.EXE, depending on your proposed configuration). This program allows you to select the line seen by the driver software in the Line Window and connect it to a Port. Using the Device Window you specify a name for the device on the line, and the address is calculated for you. Drivers can be configured to respond to interrupts generated by ports or controller boards - this may be necessary in some circumstances. In this case the configurator program must be started with the parameter "I":

```
C:\SMARTDVR> SMART I [Enter]
```

for the non-boot control version, or

```
C:\BOOTCTRL>SMARTB I [Enter]
```

for the boot control version.

GENERAL

The installation procedure consists of the following steps:

- decide on the type of system you have. There are two types of extension bus for PCs, and their boards are not compatible.

- install your hardware. This may just be a matter of plugging a cable into the back of your PC; on the other hand, you may need to install both extension board and an internal CAD. In either case, look to the documentation that was delivered with the hardware for detailed instructions on how to carry out this installation.

- choose the correct driver software to install. If you are installing the boot control version there are batch files for both the PC and PS/2 type computers (INSTBCPC.BAT, INSTBCPS.BAT). For the normal version of the driver you simply copy the files to your selected directory on your hard disk.

- use the configuration program to set up your system.

  If you are installing the Boot Control Option as well, you will have two further steps to carry out:

- initialise the PSMC on the controller board of the hardware you installed to set up the identity of the machine, the valid users, etc. Also, do not forget to set up at least one valid User Card for the PC.

- reboot your machine. At this point, you will require that User Card to gain access to the machine.

CONFIG.SYS

Before you start, please note that the device driver configuration program will modify your CONFIG.SYS file. Due to the diverse nature of the PC environment, and the complexity of individual CONFIG.SYS files, it is strongly recommended that you make a back-up copy of this CONFIG.SYS file so that you can take appropriate action.

This modification may occur in two parts:

- the addition of a line (in capital letters throughout) to define the device driver and its configuration. This line will be inserted before what was previously the first line of the file. This may have two effects:
  - if the device holding the driver files requires a declaration in CONFIG.SYS, then the driver will not be found when you reboot. You can, of course, use an editor to change the position of this line within the file. It is recommended, however, that you move the driver file itself to the boot device (normally C:) root directory, to avoid this problem.
  - With the Extended version of the driver, when used with the Boot Control Option, there is only a limited time allowed for the machine to perform all the required checks before it either boots or locks up. It is for this reason that the driver declaration is included on the first line, since by using a subsequent position you risk running out of time during the boot process.

- the suppression of a line involving the previous version of this driver. Such a line will be of the form

```
device=[disk:][\path\]scr.sys [switches]
```

Please note that the configuration program will always assume such a line to be an invocation of the older driver, so check that you do not have another driver named "SCR.SYS" named in your CONFIG.SYS file. If you do, then change its name before starting this installation.

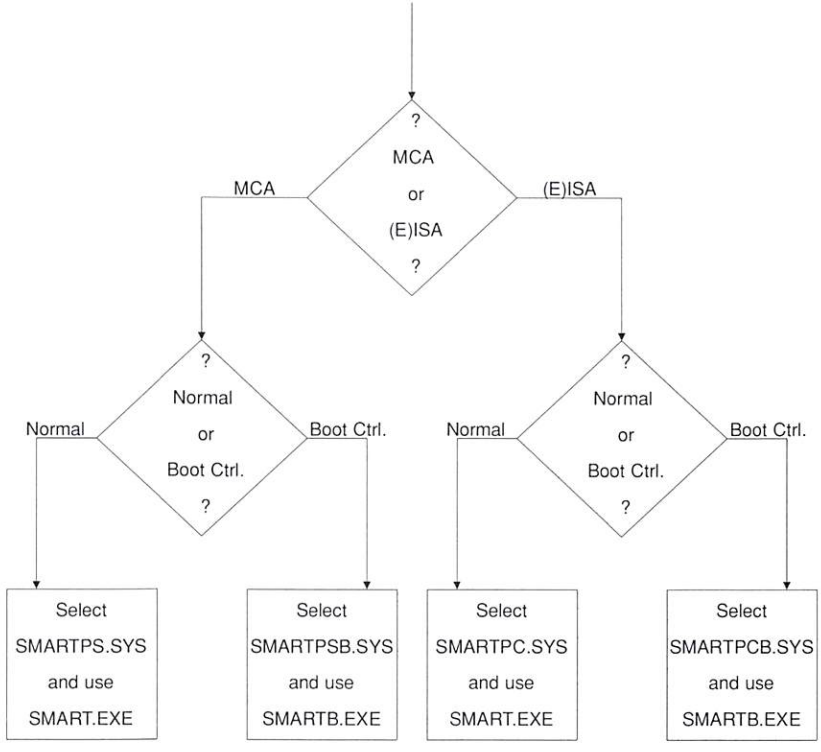
NOTE

Please note again that this manual is **not** concerned with the installation of the Boot Control Option. If you are installing the Boot Control Option, you should also refer to the appropriate manual, Q47D.

SYSTEM TYPES

This driver comes in a total of four versions. Which one you use depends on your PC system and the type of Smart Card system you wish to install. The flow diagram should enable you to decide which version you should install. The paragraphs which follow explain the terms used in the diagram.

FIGURE 2-01 CONFIGURATION FLOW DIAGRAM



Hardware

There are two types of hardware involved. The number and types of ports vary depending on the type of hardware. The configuration program can normally determine what kind of hardware you are using by itself, but you should check to see that it was successful.

- (E)ISA : These are all "normal" PCs. This includes **all** PCs sold prior to April 1st 1987, when IBM introduced the MCA hardware architecture. Since the end of 1989, other manufacturers have also started to make MCA machines, but the bulk of PCs are either "ISA" ("Industry Standard Architecture") or "EISA" ("Extended Industry Standard Architecture")

- MCA : These are all IBM PS/2 machines (excepting the Models 20, 25, and 30). IBM PS/2 MCA machines use the VGA display standard; their other PS/2 machines use the MGCA display standard. A number of other manufacturers (Bull and Tandy, for example) also produce MCA ("Micro-Channel Architecture") machines in addition to their (E)ISA ranges.

There are two types of installation of the driver:

NORMAL - without the Boot Control option. This version will accept use of CADs attached to the system COM ports or to a PE 116 (DULCIN) board, as well as to the PE 117/118 controller board.

EXTENDED - with the Boot Control option. This facility allows management to control access to any PC on a very flexible basis. Use of the option requires a special controller board (PE 117/118 controller), which itself carries a Smart Card, in the form of a chip (the PSMC). This card can support internal and external CAD sub-systems.

For details of this system and of its installation, see manual Q47D. This Extended version of the driver can also support all of the devices accepted by the Normal version.

INSTALLATION

Precautions

There is one precaution that you should take before installing this, or any other software: make a working copy of the distribution disk. Having done this, store the original safely and use only the working copy. If anything happens to this copy, you can always recreate it from the original.

Overview

This sub-section sketches out the task of installing the driver software on your system. It points out the information and equipment that you must have at each stage.

SYSTEM — We covered the different options supported by the driver, and how to decide between them, in the last section. You should, therefore, now know the filename of the driver you intend to install.

HARDWARE — Install any hardware at this point.

WARNING — For your own safety, ENSURE THAT **ALL** CONNECTED PERIPHERALS, such as printers, external card readers, video monitors, etc., have also been **COMPLETELY DISCONNECTED** from the power supply.

LOCATION — In writing this manual, we have assumed that your system is booted from drive C:. If not, use your boot-device identifier instead of C:. We have also assumed that you will not wish to leave the driver and other debris in your root directory, so we have used a sub-directory called *\smartdvr*. Please note that the default directory for Boot Control Option installations will be *\bootctrl*. If you use another name, make the appropriate substitutions; if you choose to use the root directory, omit the sub-directory completely.

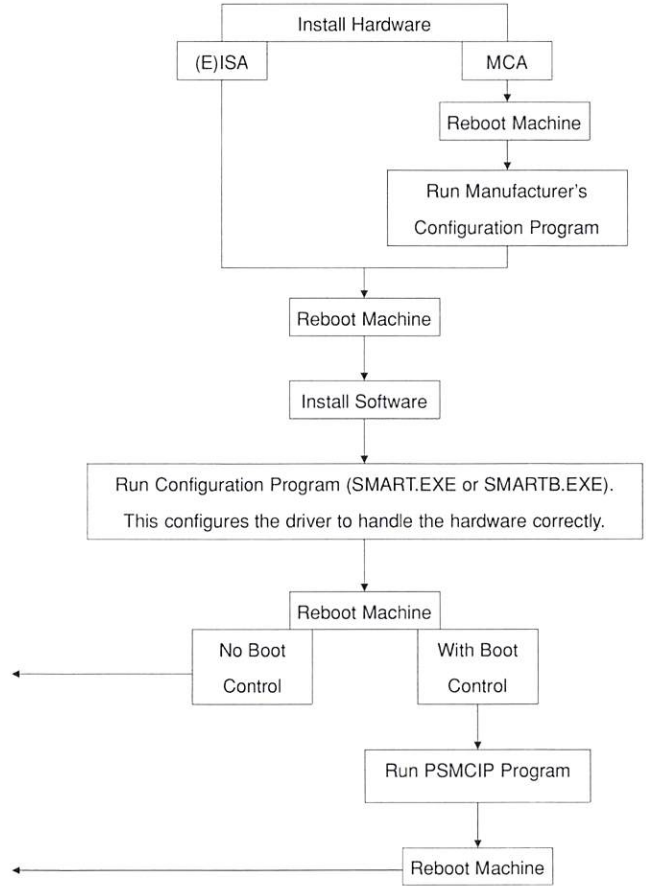
LOADING — In this stage, for the normal version, copy the software from the distribution disk to the chosen location on your hard disk. You should only copy one version of the driver - the copy decided upon in the last section. If you believe that you have the wrong version, please consult your dealer or distributer before installing the software. For the extended (boot control) version see the notes at the end of this chapter.

SETUP — Use the Smart Card Configuration program to set up your software. If you are using the boot control version, the batch file will start this program automatically. The program will create, alter, or use the following files:

- CRCONF.TXT
- CONFIG.SYS (copy your original to CONFIG.BAK)

Appendix A has details and examples of these files.

FIGURE 2-02 THE INSTALLATION PROCESS



Before you start the installation, please take a moment to check this diagram to make sure that you understand the installation that you are about to do, and that you have all the right tools.

If you are installing into an MCA machine, or an EISA machine with a configuration program, check now that you have the installation program disk.

For MCA workstations, the hardware configuration will have to be updated. To do this, find the floppy disk containing the manufacturer's configuration program. Copy the file @6A4A.ADF onto the disk. This file is supplied with the driver. Insert the floppy disk and switch on the machine.

A menu will appear on the screen. Select "Configuration" from the menu. Now select either "Automatic Configuration" for default configuration parameters, or "Modify the configuration" if you want to use other parameters (see Appendix C).

Configuration

As mentioned above, this is carried out by the configuration program. There are two files concerned with the configuration process:

- CONFIG.SYS. Your system configuration file.
- CRCONF.TXT. Your Smart Card configuration file.

FIGURE 2-03 CONFIGURATION PROGRAM SCREEN (SMARTB I)

SMART CARD CONFIGURATOR Copyright N.V. Philips' Gloeilampenfabrieken 1991 V1.5

Driver Path: C:\SMARTDVR

Boot Parameters: Line: . Address: Present:

Lines

LINE	NAME		BAUD	IRQ	PRES
1	COM1		....	4	Y
2	COM2		....	..	N
3	COM3		....	..	N
4	COM4		....	..	N
5	PE 116	1 LOW	....	..	N
6	PE 116	1 HIGH	....	..	N
7	PE 116	2 LOW	....	..	N
8	PE 116	2 HIGH	....	..	N
9	PE 118	1	....	..	N
A	PE 118	2	....	..	N
B	PE 118	3	....	..	N
C	PE 118	4	....	..	N

Devices

NAME	LINE	ADDRESS	PRESENT
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	

Messages

Make your choice: Q Quit S Save and Quit

P Set Driver Path . B Set Boot Parameters . L Set Line . D Set Device

Figure 2-03 shows the configurator screen for the boot control driver with the interrupt option selected. If the non-interrupt version is selected, all the entries in the IRQ column will show "N".

WARNING

The SMART(B) program will modify your CONFIG.SYS file. Please make a copy of this file **before** running the configuration program (SMART.EXE or SMARTB.EXE, depending on your proposed configuration)

You can leave this program without altering anything by pressing [Q] when prompted at the bottom of the screen.

There are five **Windows** used in this screen:

- the **Path Window**. From the Prompt Window, press [P] to activate this window.
  - If there is already an entry for the driver in the CONFIG.SYS file, the path to the driver file will be displayed. Otherwise, the default setting will be offered. You may edit the displayed path to suit your own installation.
  - Use the [RETURN] key to confirm the path. The program will check that the path exists, and that the correct driver file does exist in that directory.

- the **Boot Window**. This window is only available with the SMARTB.EXE program, where the device to be used for the Boot Control Option must be specified. In the normal version of the software, this window is not selectable. Press [B] to gain access to this window.
  - if you are running the version supplied with the Normal version of the driver, this window will display the legend "NOT AVAILABLE", and the window will not be available for selection.
  - if you are running the version supplied with the Extended version of the driver, this window will display the legend as shown in the Figure 2-03. When you select the window, the default values (Line 9 and Address 12) will be filled in.
  - The *Line* item is restricted to the options "9", "A", "B", or "C" for (E)ISA and "9" or "A" for MCA, as noted in the prompt window when your cursor is positioned for entering the line number. For further information, please see Appendix A.
  - Help on the options for the *Address* item will be displayed when you press the [H] key.

- the **Line Window**. From the Prompt Window, press [L] to activate this window. This window displays the lines currently configured in CONFIG.SYS.
  - You may edit these to change the baud rate of the line. Use the cursor keys to move to the line you wish to change, enter the number (from 1 to 4) corresponding to the baud rate you want (as shown in the Prompt Window at the bottom of the screen), and press [RETURN].
  - If you have started SMART(B) with the "I" parameter to enable interrupt operation, the current IRQ values are shown. You may change them if necessary; you will have to alter the values on the controller board as well. In general, any interrupt from 3 to 7 for the PC-XT or 3 to 15 for the PC-AT upwards can be used. If you are using a PE 116 board the window offers two lines ("high" and "low"). These can only have interrupts 3 or 4, and both lines must have the same value.

NOTE The maximum configurations are shown in Table 2-01, together with the baud rates allowed for each type of card.

TABLE 2-01 ALLOWED CONFIGURATIONS

System	Configuration	Baud Rates			
(E)ISA	4 COM ports	1200	2400	4800	9600
	2 PE 116 boards	1200			9600
	4 PE 118 boards				9600
MCA	8 COM ports	1200	2400	4800	9600
	2 PE 117 boards				9600

- the **Device Window**. From the Prompt Window, press [D] to activate this window. This displays the logical devices found in the CRCONF.TXT file. New ones may be added. For this, use the [↑] and [↓] cursor keys to get to the line desired, and you will be prompted for a device name (Figure 2-04A).
  - After entry, the cursor will skip to the Line column, and you will see the prompt in Figure 2-04B. You choose from the line numbers shown in the Lines window.
  - Next, you are prompted for the CAD address (Figure 2-04C). You can use the [H] key for help (Figure 2-04D); this gives a list of the addresses available for each type of device; in the case of MCA machines PE 117 appears here instead of PE 118. Enter the CAD value and press [RETURN]

FIGURE 2-04 DEVICE WINDOW PROMPTS

A	Enter the logical reader name composed with 2 alphanumeric and 1 digit ESC to abort . CR to valid . DEL to delete . Arrow key
B	Enter the line of the device Authorised Value 1 to C (PC), 1 to A (PS) ESC to abort . CR to valid . DEL to delete . Arrow key
C	Enter the address of the reader composed with 2 digits H for Help ESC to abort . CR to valid . DEL to delete . Arrow key
D	PE111 : 23-24 . PE113 : 25-26 . PE116 : 21-22 . PE118 : 11-12 . PINPAD : 30 DYKB : 35-36 . DATACARD : 21 .
E	This line is not initialised. You can not save a such device.

- The device list may be changed. Each time you press [RETURN] to leave the window, the list is checked to ensure that there are no duplicate devices, and that each is initialised.

NOTES

This checking implies that you must set up a line before using that line number in the Device Window.

When changing the reader address, use the H key to see the other possibilities (Figure 2-04D).

For all the windows, if you press [RETURN] too early, or if you make a mistake in one of the parameters, you will get a warning message (Figure 2-04E) and be returned, after a pause of a few seconds, to the beginning of the line to enter the correct parameters.

- the **Prompt Window**. From any of the other windows, use ESC to return to this window. When active, you may choose from:
  - P - move to the Path Window
  - L - move to the Line Window
  - D - move to the Device Window
  - Q - Quit: leave the program without saving any alterations that may have been made
  - S - Save the alterations made.

  In the case of the Save operation, the following checks are made:
  - If no Path at all is given: The driver will not be installed, or, if already installed, it will be removed. Confirmation is requested before the save is performed.
  - If the driver is in the directory specified by the path

  Problems
  The following two cases, although caused by the correct functioning of the software, are often the cause of some confusion:

- If you install no lines and no devices when you use the configuration program, the driver will not be installed. Your CONFIG.SYS file will be changed, but the driver declaration will have no parameters. When you reboot, the driver software will run, display its first message, find no parameters, and halt without installing itself. The rest of your system will then continue to reboot.

WARNING If this situation occurs with the Boot Control Option hardware already installed, your machine will not run. Such a situation may be encountered if your CONFIG.SYS file is corrupted, or the parameters are removed "by hand", and not replaced.

- If the Boot Control Option has been installed and the configuration program finds the "/BC=" parameter in the CONFIG.SYS declaration for the driver, you will see the message:

```
Warning: PE 118/117 already installed. The bus will be blocked.
```

  if you try to exit after specifying a configuration without the Boot Control Option parameters.

Installation Example

This section gives you an example of installing the driver on a typical system. We will install a copy of the driver on a standard ((E)ISA bus) PC, not equipped with the Boot Control Option, and using drive A for the distribution diskette.

CREATE SUB-DIRECTORY

```
C:\> md smartdvr RETURN
C:\> cd smartdvr RETURN
```

LOAD DRIVER

Put the copy of the distribution disk into the floppy drive and get all the files from it.

```
C:\SMARTDVR\> copy a:*.* RETURN
```

CONFIGURE

```
C:\SMARTDVR\> smart i RETURN
```

FIGURE 2-05 CONFIGURATION PROGRAM SCREEN (SMART I)

SMART CARD CONFIGURATOR Copyright N.V. Philips' Gloeilampenfabrieken 1991 V 1.5

Driver Path

Boot Parameters
NOT AVAILABLE

Lines

LINE	NAME		BAUD	IRQ	PRES
1	COM1		....	4	Y
2	COM2		....	..	N
3	COM3		....	..	N
4	COM4		....	..	N
5	PE 116	1 LOW	....	..	N
6	PE 116	1 HIGH	....	..	N
7	PE 116	2 LOW	....	..	N
8	PE 116	2 HIGH	....	..	N
9	PE 118	1	....	..	N
A	PE 118	2	....	..	N
B	PE 118	3	....	..	N
C	PE 118	4	....	..	N

Devices

NAME	LINE	ADDRESS	PRESENT
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	

Messages

Make your choice: Q Quit S Save and Quit

P Set Driver Path . L Set Line . D Set Device

You will be presented with the screen above. As you are not installing the Boot Control Option, the *Boot Parameters* window will contain the legend "NOT AVAILABLE", and will not be offered in the menu at the bottom of the screen.

There are, in fact, five options available:

PATH - **P** — Path. The path is the name of the disk and directory where you have installed the driver software. The configuration program needs this to find the driver software. When it known that it is there, it will use this path in the CONFIG.SYS line for declaring the driver.

When you run the configuration program for the first time, this window will be blank until you select this window. It will then fill with the default value. If, as in this case, you are running SMART.EXE for the Normal version of the driver, the default is *c:\smartdvr* and for the Extended version it is *c:\bootctrl*.

LINES - **L** — Lines. The screen will show a list of lines — how many and of what sort depends on your computer — with a "Y" in the column labeled "Pres" if the port both exists and is connected to something. You may possibly get a false echo off a piece of programmable hardware such as a mouse; these should be easily recognised as the normal English names are also given. Please ignore these.

For any line connected to a Smart Card CAD, you can set the baud rate and if using the I parameter in the configurator, the IRQ level appropriate to that device. Appendix A has lists of device types and possible baud rates, and your hardware manual will tell you the baud rate setting of your CAD.

DEVICES - **D** — Devices. Each CAD that you install is a "device" and must be declared. Different devices have different characteristics and the driver must know what is on the other end of a physical connection.

Your hardware manual will tell you the EFTNet address of each of your devices. The EFTNet address is a reference attached to each device so that if you attach two to the same physical line there is a way of telling them apart.

For example, you can attach two PE 111 CADs to COM1 if you wish. One is attached directly to the port on the PC, and the other to a secondary serial port on the first PE 111. The EFTNet addresses of the two must then be different to allow the driver to address them separately.

QUIT - **Q** — Quit. This option lets you leave the program immediately, without saving your new setup. Use it if you have forgotten to make a copy of your CONFIG.SYS file before starting the configuration.

SAVE - **S** — Save and quit. Your new configuration is used to change your CONFIG.SYS and CRCONF.TXT files, and then the program ends.

After running the configuration program you will need to reboot your machine to load the PC with your new configuration. It will remind you of this.

Boot Control Option

With this version of the software, there are a few differences to the procedure described above:

- You copy the driver and configurator program to the "S.C. Boot Control Inst. MS-DOS" disk and then use one of the two installation batch program files *INSTBCPC* or *INSTBCPS*.

- The installation program uses *\bootctrl*, rather than *\smartdrv*, for your files.

- More files are copied to your disk. See Chapter 1 for a list.

- Your configuration program is called SMARTB.EXE, rather than SMART.EXE and it is started automatically by the installation batch program.

- Installing the extended version of the driver, you have access to the Boot Parameters window. This window acts just like the Device window, except that the lines available are restricted, as shown in the menu presented by the program.

This chapter describes the user interface provided by the driver.

GENERAL

There are two forms of user interface for this driver:

- the basic form, which is always present. Figure 3-01 shows the display presented when a typical system is booted up with the driver installed.
- the Boot Control Option form. This is only available with the Extended Version of the driver, and this is described in document Q47D.

BASIC FORM

The basic form of display is presented by the driver as it is loaded. It shows, as illustrated in Figures 3-01 and 3-02, the name and version or the driver, together with a list of the ports successfully configured.

FIGURE 3-01 LOADING DISPLAY - (E)ISA SYSTEM

```
*** SMARTPC.SYS driver is being loaded - Version 2.0  ***
*** Copyright N.V. Philips' Gloeilampenfabrieken - 1990,1991 ***
        Serial port : 1    Baud rate : 9600


*** The SMARTPC.SYS driver is loaded
```

FIGURE 3-02 LOADING DISPLAY - MCA SYSTEM

```
*** SMARTPS.SYS driver is being loaded - Version 2.0  ***
*** Copyright N.V. Philips' Gloeilampenfabrieken - 1990,1991 ***
        Serial port : 1    Baud rate : 9600


*** The SMARTPS.SYS driver is loaded
```

EXAMPLE

We will assume that the driver is kept in sub-directory *\smartdvr*, and that we wish to attach a single PE 111 reader to the COM1 port of the PC. Figure 3-03 shows the screen of SMART.EXE called with the "I" parameter, just before choosing the *Save and Quit* option which will update the CONFIG.SYS file.

FIGURE 3-03 EXAMPLE SETUP DISPLAY

SMART CARD CONFIGURATOR Copyright N.V. Philips Gloeilampenfabrieken 1991 V 1.5

Driver Path: C:\SMARTDVR

Boot Parameters: NOT AVAILABLE

Lines

LINE	NAME		BAUD	IRQ	PRES
1	COM1		9600	3	Y
2	COM2		....	..	N
3	COM3		....	..	N
4	COM4		....	..	N
5	PE 116	1 LOW	....	..	N
6	PE 116	1 HIGH	....	..	N
7	PE 116	2 LOW	....	..	N
8	PE 116	2 HIGH	....	..	N
9	PE 118	1	....	..	N
A	PE 118	2	....	..	N
B	PE 118	3	....	..	N
C	PE 118	4	....	..	N

Devices

NAME	LINE	ADDRESS	PRESENT
LC0	1	23	Y
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	
...	.	..	

Messages

Make your choice: Q Quit S Save and Quit

P Set Driver Path . L Set Line . D Set Device

Figure 3-04 shows a listing of the resulting CONFIG.SYS file. The file is unchanged except for the addition of line 1. This line defines the serial port in use as COM1.

FIGURE 3-04 EXAMPLE CONFIG.SYS FILE

```
1   DEVICE=C:\SMARTDVR\SMARTPC.SYS PI=1,3;N=10
2   device=c:\vidbios.sys
3   device=c:\ansi.sys
4   device=c:\mouse\mouse.sys
5   shell=c:\command.com /p /e:384
6   lastdrive=h:
7   files = 20
8   buffers = 20
9   break = on
10  country =001
```

Figure 3-05 shows the single line in CRCONF.TXT that defines the link between the logical name LC0 (the device name in the SMART program) which will be used by applications programs and the device and line number used by the driver. Both these are required to allow multiple devices on one line.

FIGURE 3-05 EXAMPLE CRCONF.TXT FILE

```
LC0=1,23
```

Figure 3-06 shows the message seen on the PC VDU when the machine is next rebooted.

FIGURE 3-06 RESULTANT START-UP MESSAGE

```
*** SMARTPC.SYS driver is being loaded - Version 2.0  ***
*** Copyright N.V. Philips' Gloeilampenfabrieken - 1990,1991 ***
       Serial port : 1    Bauds rate : 9600

*** The SMARTPC.SYS driver is loaded
```

ERROR MESSAGES

The basic form of display is presented in Figures 3-01 and 3-02, where it is assumed that the driver is loaded successfully. If not, you may expect to see a display such as in Figure 3-07.

FIGURE 3-07 LOADING DISPLAY - (E)ISA SYSTEM - FAILURE

```
*** SMARTPC.SYS driver is being loaded - Version 2.0  ***
*** Copyright N.V. Philips' Gloeilampenfabrieken - 1990,1991 ***
```

Error message(s)
Hit a key to go on
*** The SMARTPC.SYS driver is not loaded

The line "error message(s)" represents here one or more of the messages listed in Table 3-01 below.

TABLE 3-01 ERROR MESSAGES

Message	**Information**
Incorrect Parameters in CONFIG.SYS File	Have you changed the driver line ? Rerun SMART.EXE
The SMARTPC driver is not loaded	This is the last line with error messages
A reader address is composed with decimal digits	Hex values are not allowed !
A port value must be 1 to C	Check Appendix A for a list
The baud rate is composed with only decimal digits	Hex values are not allowed !
Incorrect value for a baud rate	Check Appendix A for a list of values
Serial port : Not present	A parameter defined a non-existant port
The Boot port must be a PE 118 port	You cannot use a CAD attached to a normal serial port or to a PE 201-001 board for boot control.
The Boot PE 118 board does not exist	You **must** have a Boot Control Option board for Boot Control !
The SMART.xxx Files can not be opened	As defined in the Boot Control Installation Manual, Q47D, the extended version of the driver requires three files: these were not found on booting the machine.
The User Screen File is not found	The screen file defined in SMART.ENV (delivered defined as WELCOME.PAG) could not be found.
The SMART.MES File is not conformed	The message file SMART.MES has been altered or corrupted.

TABLE 3-02 INFORMATION MESSAGES

Message		Meaning
Hit a key to go on		The driver waits after an error.
Serial port :	Baud rate :	Tells you which ports are operational

GENERAL

This appendix contains annotated examples of the following files and protocols:

- CONFIG.SYS
- Driver Parameters
- CRCONF.TXT
- EFTNet Address List
- Driver Status Values

CONFIG.SYS FILE

This file determines your system setup.

```
device=c:\smartdvr\smartpc.sys PS=1,4800;
device=ansi.sys
device=mouse.sys
shell=c:\command.com /p /e:384
lastdrive=h:
files=20
buffers=20
break=on
country=001
```

The items in the file are the following:

- the Smart Card driver is loaded. Although the configuration program will always place this line at the beginning of the file, it may appear anywhere. If you keep the driver software on a disk that can only be accessed after loading a special driver, remember to place the Smart Card driver invocation *after* the line for the hard disk driver.
- the screen driver ANSI.SYS is declared. It will be found in the boot directory of the boot device
- the mouse driver (also kept in the root directory) is declared
- the version of command.com to be used is declared
- the system is to have at least eight logical disk drives
- up to twenty files may be open at the same time
- twenty 512-byte disk-access data buffers are declared
- the BREAK key is enabled
- the country code is defined as being the U.S.A.

NOTE

If you are using a version of the driver that supports the Boot Control Option, you **must** leave the line invoking it as the very first line in your CONFIG.SYS file.

DRIVER PARAMETERS

NOTE

The driver is invoked by a declaration line in your CONFIG.SYS file. This line is placed there automatically by the driver configuration program, and, in normal circumstances, should not be touched.

General Form

The form of the driver invocation from the CONFIG.SYS file is as follows:

```
DEVICE = SMARTPH[B].SYS [BC=x,y;] (PS/I)=p1[,r1],v1;p2[,r2],v2; ...
```

where the driver type is defined by its name. The

- **H** — This defines the hardware bus system in use:
  - "C" - indicating that the driver is written to run with (E)ISA hardware
  - "S" - indicating that the driver is written to run with MCA hardware

- **B** — This defines whether the driver will support the Boot Control Option.
  - "B" exists - indicates that the driver **does** support the Boot Control Option. Including the "BC" parameter (see the next section) is not mandatory, but if you wish to use the Boot Control Option, you **MUST** include it. If you do not, the driver will not be able to communicate with the systems on the controller card.
  - "B" omitted - indicates that the driver **does not** support the Boot Control Option. The "BC" parameter **is not** required.

Table A-01 summarises the four files and their operating requirements.

TABLE A-01 DRIVER FILENAMES

Name	Meaning
SMARTPC.SYS	Driver for (E)ISA; no Boot Control Option
SMARTPCB.SYS	Driver for (E)ISA; with Boot Control Option
SMARTPS.SYS	Driver for MCA; no Boot Control Option
SMARTPSB.SYS	Driver for MCA; with Boot Control Option

Boot Control Parameters

"BC=x,y;": This parameter is obligatory for the two versions of the driver that control the Boot Control Option, and should not be used for the other two versions. Do **not** leave spaces in the parameter string. The first space found by the driver signifies the end of the string of parameters of this type ("BC="). The two parameters to "BC" are:

- **x** — This is the line identifier for the Boot Control Option. The value (in hex) depends on the architecture (MCA or (E)ISA), and may be:
  - 9: available for MCA *and* (E)ISA systems
  - A: available for MCA *and* (E)ISA systems
  - B: available for (E)ISA systems *only*
  - C: available for (E)ISA systems *only*

- **y** — This is the boot control reader address (12) if the CAD to be used is the internal one, or else the EFTNet address of whichever external reader is to be used. If it is an external reader, it **must** be attached to the serial port on a PE 117 or PE 118 controller card, and **not** to any other serial port. See below for a list of the EFTNet addresses available for the various types of reader.

Serial Port Parameters

The serial port information is given in one of the following forms

```
PS=p1,v1;p2,v2; ... ...
```

or

```
PI=p1,r1,v1;p2,r2,v2; ... ...
```

The variant used depends upon whether interrupt operation has been enabled or not.

There are **no** spaces left **anywhere** in the block of information; the groups of numbers (p,r and v) are divided by commas (",") and separated into groups by semi-colons(";"). The first space found by the driver signifies the end of the string of parameters of this type ("PS=" or "PS=").

- **p** — This is the line number for a CAD. The addresses are different for MCA and (E)ISA machines because different devices are supported. The next two tables summarise the available line numbers and their occupants.

TABLE A-02 (E)ISA BUS LINE ADDRESSES

Number	Device	Address
1	COM1	"03F8"
2	COM2	"02F8"
3	COM3	"03E8"
4	COM4	"02E8"
5	PE 116 1A	"0290"
6	PE 116 1B	"0298"
7	PE 116 2A	"0390"
8	PE 116 2B	"0398"
9	PE 118 1	"0320"
A	PE 118 2	"0328"
B	PE 118 3	"0330"
C	PE 118 4	"0338"

TABLE A-03 MCA BUS LINE ADDRESSES

Number	Device	Address
1	COM1	"03F8"
2	COM2	"02F8"
3	COM3	"3220"
4	COM4	"3228"
5	COM5	"4220"
6	COM6	"4228"
7	COM7	"5220"
8	COM8	"5228"
9	PE 117 1	"0320"
A	PE 117 2	"0328"

- **r** — This is the interrupt level, chosen so the card does not interfere with other peripherals. The value used will be that selected for the specific controller board that you are using. This parameter is used if interrupt operation has been selected when the configurator was run, with the "I" parameter.

- **v** — this is the baud rate for the corresponding line (p). The rates available for any line depend on the type of line it is: Table A-03 gives a list of line types and the baud rates available.

TABLE A-04 LINES AND BAUD RATES

Line Type	Available Rates			
COM Ports	1200	2400	4800	9600
PE 116 Boards	1200			9600
PE 117 Boards				9600
PE 118 Boards				9600

The default is always 9600 baud.

Examples

There follow a set of examples of invocations of the driver in the form that they would appear in a CONFIG.SYS file. For each, we give a point-by-point explanation of the parameter values.

```
device = smartpsb.sys BC=9,12; PS=1,4800;
```

NOTES

- the spaces around the first "=" sign are optional.
- the **only** other spaces allowed are those shown. Do **not** put spaces within the parameters.
- the driver version is the Extended MCA-bus version for the Boot Control Option.
- because of the last point, the first parameter (BC=9,12) is mandatory, otherwise the driver will not be able to contact the Boot Control process.
- The spaces around the first parameter block ("BC=") delimit the block.
- There is one line defined. It is:
  - COM1: See Table A-02. This number defines the COM Port Address
  - 4800 baud: See Table A-03. Only COM ports can operate at a speed of 4800 baud with card readers.

```
device = smartpc.sys PS=1,2400;2,9600;
```

NOTES

- the driver version is the Normal (E)ISA version.
- There are two lines defined. They are:
  - COM1 at 2400 baud.
  - COM2 at 9600 baud.

Note that the baud rate for a device is determined by the device and conformed to by the PC serial port. Please refer to the reference Manual for your device(s) for instructions on how to set the baud rate(s).

```
device = smartpc.sys PS=1;2;
```

NOTES

- the driver version is the Normal (E)ISA version.
- There are again two lines defined. They are:
  - COM1 serial port at 9600 baud.
  - COM2 serial port at 9600 baud.

This example shows one aspect of the driver software. As all types of equipment can operate at 9600 baud, this is assigned as a default, and declaring a line as existing without defining a baud-rate will leave the driver to default to 9600 baud.

CRCONF.TXT FILE

This is a text file which is updated by the SMART configuration program. It holds a number of lines - one for each CAD configured on the system. It provides the connection between the logical unit names used by the operating system interface to programs (and, therefore, to the user) and the internal identifiers used by the driver. In this way it enables the operating system to communicate with the driver.

This file is present for all versions of the driver software, regardless of operating system.

The file will be sought first in the sub-directory where the configuration program and driver are stored, and then in the root directory of the boot device.

WARNING

With previous releases of the driver software it has been possible to edit the CRCONF.TXT file using a pure ASCII editor. Although this is still possible, the configuration possibilities are now considerably more complex, and the risk (if you have installed the Boot Control Option) of ending up with a system that will not boot is now considerable.

For these reasons, you are requested to use the configuration program supplied (SMART.EXE or SMARTB.EXE), and **not** to try doing the configuration by hand.

General Type

The declaration of a port in this file is of the following general form:

```
XXn = y, zz
```

where:

- XXn is the logical name of the device. It must consist of two letters and one number. It is case insensitive, but the letters must be in the English alphabet and the number is in decimal.
- y is the number of the serial port to which the device to be named "XXn" is physically attached. To decide the value of "y", consult Table A-01 if you have a machine with an (E)ISA bus, or Table A-02 for MCA bus machines.
- zz is the device EFTNet address. Each device has an address for this protocol, so as to enable the system to distinguish between two otherwise identical devices attached to the same serial port. Table A-04 gives a list of these.

Examples

The following are typical lines from a CRCONF.TXT file.

- a PE 111 connected to COM2:

```
LC0 = 2,23
```

- a PE 111 connected to COM6:

```
LC1 = 6,23
```

- a PE 111 connected to the external port of a PE 117 board. It is connected to the external serial port of the board (there may be two boards installed simultaneously).

```
EX0 = 9,23
```

- this defines the internal reader, connected to the first (possibly of two) PE 117 controller board.

```
IN0 = 9,12
```

- this is the PSMC of a PE 117 board. The board is the second of two installed in the PC.

```
PM0 = A,11
```

EFTNET ADDRESSES

These are given for reference, so that you can choose the correct EFTNet address for use with the "BC=" parameter of the driver invocation in the CONFIG.SYS file, and so that you can understand the contents of the CRCONF.TXT file.

TABLE A-05 EFTNET ADDRESSES

EFTNet Addr.	Device Type
09	Reserved
10	Internal Boot Control Device
11	PSMC chip
12 [1]	Card Reader attached to the PE 117 or PE 118.
13	CAD attached to the external serial line
21	PE 116 internal card reader
22	PE 116 internal card reader
23	PE 111-102 external card reader
24	PE 111-102 external card reader
25	PE 113-102 external card reader
26	PE 113-102 external card reader

[1] : if you are running the Boot Control Option with an *internal* reader, then this is your **only** option for an address for connecting the reader.

DRIVER STATUS VALUES

TABLE A-06 SYSTEM STATUS VALUES

Value	Meaning
0x30	Attempt to access a peripheral which is not open
0x31	CRCONF.TXT file unknown or not found
0x32	Specified peripheral unknown
0x34	Opening this driver file not possible
0x36	Specified connection unknown
0x37	Creation of configuration table not possible
0x38	No peripheral declared
0x39	Incorrect input length (from Application to the Library)
0x3A	Incorrect input length (from Driver to the Library)
0x41	Request too long
0x42	Sequencing error
0x43	Unknown command
0x51	Unknown data unit type
0x52	Maximum number of connections exceeded
0x53	Specified peripheral not connected
0x54	Programmable controller error
0x55	Resumption not possible
0x56	Unknown command
0x57	Connection not possible
0x61	No reply to "selecting" or "polling"; specified device does not reply.
0x62	Negative acknowledge
0x63	Transmission error
0x64	The peripheral answers EOT
0x65	Programmable controller error
0x66	No reply from PE 117 / PE 118 micro-processor
0x67	Protocol error in dialog with PE 117 / PE 118 micro-processor
0x68	Transmission error in dialog with PE 117 / PE 118 micro-processor

GENERAL

This appendix contains annotated examples of the following files, with explanations of which parts are altered to allow the driver and the Boot Control Option to operate:

- SMART.ENV
- SMART.MES
- SMART.LOG
- SCREEN.DEF

Note that files such as CRCONF.TXT are included in Appendix A because they are connected with the driver, regardless of whether the Boot Control Option is being used.

SMART.ENV

This file contains the information used by the driver to produce a pleasing display on your screen when you start the machine.

SMART.ENV consists of a list of definition lines, telling the driver which colours to use, together with a reference to the screen layout file, here called SCREEN.DEF (see later in this appendix).

Example

```
CSF=BLACK
CSB=HMAGENTA
CBD=HYELLOW
CGM=GREEN
CEM=HRED
PSF=C:\CARDSYS\SCREEN.DEF
```

Symbol Definitions

The are two sorts of symbol used here - the area to be coloured and its colour.

The areas to be coloured are:

- CSB: Screen background colour
- CSF: Screen foreground colour
- CBD: Border colour
- CGM: General messages colour
- CEM: Error messages colour

- PSF: Path and name of the file defining just what is to appear on-screen.

The colours available are:

- BLACK
- RED
- GREEN
- YELLOW
- BLUE
- MAGENTA
- CYAN
- WHITE

Each of these is available in two forms - Normal and High intensity. The corresponding initial - N or H - is used as a distinguishing prefix to form the colour codes seen in the example above.

SMART.MES

This is a file of all the messages that are produced by the driver software. The driver actually reads this file for the text part of its display, so changing it will change the messages produced on the screen.

File Contents

The following is the SMART.MES file as found on the distribution disk.

```
BOOT CONTROL RUNNING
BOOT CONTROL SUCCESSFUL. HIT A KEY TO GO ON
BOOT CONTROL NOT PERFORMED. HIT A KEY TO GO ON
BOOT CONTROL FAILED. BUS BLOCKED
Floppy not authorised
Enter your Card
Enter your confidential code (1st try) : ....
Enter your confidential code (2nd try) : ....
Enter your confidential code (3rd try) : ....
Take out your Card
Security Micro Circuit Reading : PLEASE WAIT
Operator Card Identity Reading : PLEASE WAIT
Operator Card Checking : PLEASE WAIT
Operator Authetication in process : PLEASE WAIT
Cluster Number : __ Machine Number : ____
Fatal System Error
Device Status : ____
Reader Status : ____
No boot control zone in Operator card
Security Micro Circuit Mask not D2
Unable to open line with Security Micro Circuit
Security Micro Circuit not present
Security Micro Circuit not personalised
No boot control zone in Security Micro Circuit
Operator Authentication failed
Micro Circuit Reading error
Unable to open line with Operator Card Reader
Operator Card not swallowed
Operator Card mute
Invalid Card mask
Operator Card out of date
Operator Card is blocked (3 false PIN presented)
No identity zone in Operator Card
Wrong PIN length definition in SMART.MES
Operator not allowed on this workstation
3 false PIN presented : Card blocked
Operator Card Reading error
Invalid driver version
Unexpected Status value
Boot Control Time out
Group Number :      Subgroup Number :
Boot failed in specific driver part
```

These messages are placed in a file accessible to the used to allow customisation to suit local languages, etc. The only restriction is to leave the lines at the same length each, as the program only reads a fixed number of characters.

Messages

This is a list of the messages in SMART.MES, together with notes on their meanings and causes.

- **BOOT CONTROL RUNNING** — this message is displayed during the time that the Boot Control System is in control of your system.
- **BOOT CONTROL SUCCESSFUL. HIT A KEY TO GO ON** — after finishing, the Boot Control System will pause to allow you to see that it was successful, and has not been circumvented.
- **BOOT CONTROL NOT PERFORMED. HIT A KEY TO GO ON** — if the PSMC has not yet been initialised, all the software and hardware is in place, but without information. You will see this message on booting the machine until you initialise the PSMC.
- **BOOT CONTROL FAILED. BUS BLOCKED** — this message is displayed if you used the wrong card or tried a third wrong value for the PIN.
- **Floppy not authorised** — your Operator Card does not authorise you to boot from a floppy disk (see the section on the program OCIP.EXE).

The next five messages are those you see when you are prompted for your card and PIN code.

- **Enter your Card**
- **Enter your confidential code (1st try) : ....**
- **Enter your confidential code (2nd try) : ....**
- **Enter your confidential code (3rd try) : ....** — you have three tries in all; you have tried two incorrect versions of your PIN, and a third will result in the machine being blocked.
- **Take out your Card** — after reading the PIN from the keyboard and verifying it with the version on the card, the machine will continue to boot, and you may remove your card.

The following four are messages you will see from time to time, indicating that the PC and card are working. These messages should not last a long time.

- **Security Micro Circuit Reading : PLEASE WAIT**
- **Operator Card Identity Reading : PLEASE WAIT**
- **Operator Card Checking : PLEASE WAIT**
- **Operator Authentication in process : PLEASE WAIT**

- **Cluster Number : __ Machine Number : ____** — the spaces in this message will be filled in with your machine i.d.

- **Fatal System Error** — this message indicates that something has gone wrong with your Boot Control System; consult your dealer or distributor.

The following two messages are only produced in case of error. You should note them down, as they may help to pinpoint the cause of the problem.

- **Device Status : ____**
- **Reader Status : ____**

The next set of messages concern the PSMC chip mounted on your controller board. This chip must be mounted in the socket available on the board and then provided with the correct information to act as a controller for the Boot Control System.

- **No boot control zone in Operator Card** — the Operator Card has not been processed by the OCIP program.
- **Security Micro Circuit Mask not D2** — the PSMC installed in the Security Device board in the PC is not compatible with the Boot Control Option software (driver, etc.) being used.
- **Unable to open line to Security Micro Circuit** — the software cannot access the PSMC
- **Security Micro Circuit not present** — physical non-presence; the boards can be ordered with or without the chip, and the chip can be installed during the life of the board.
- **Security Micro Circuit not personalised** — personalisation is done with a program available from Philips together with the chip; see manual Q47D for details.
- **No boot control zone in Micro Circuit** — the comments about the previous error also apply here.
- **Operator Authentication failed** — check that you are using the correct card and PIN; then consult your authority manager.
- **Micro Circuit Reading error** — hardware failure; consult your dealer or distributor.

The next sixteen messages apply to the card reader that you are using for Boot Control.

- **Unable to open line with Operator Card Reader** — if external, is it physically connected and switched on ? : If internal, has the machine been reconfigured recently, and the control cable accidentally disconnected ? . In either case, it might be helpful to run the configuration program again to check that your configuration and the driver settings are still the same.
- **Operator Card not swallowed** — are you using a valid, undamaged Operator Card ? If the card reader is not motorised, did you push the card far enough in ? If the card reader is motorised, is it still connected to power ?
- **Operator Card mute** — Operator Card has been blocked for some reason, and must now be rehabilitated.
- **Invalid Card mask** — You require a D2 Philips Smart Card.

- **Operator Card out of date** — Operator Cards have an expiry date written in the Boot Control Zones: the BCZ associated with this machine is no longer valid.
- **Operator Card is blocked (3 false PIN presented)** — after you have failed three times in a row to give the right PIN, your Operator Card blocks itself to prevent someone searching systematically for your PIN. In this case, you must go to your issuing authority to have the card *rehabilitated*.
- **No identity zone in Operator Card** — the Operator Card has not been set up properly. Return it to the appropriate authority for replacement.
- **Wrong PIN length definition in SMART.MES** — the number of digits in your PIN may be from one to four, and this was incorrectly defined in the SMART.MES file.
- **Operator not allowed on this workstation** — your Operator Card is not valid for this machine. Consult your issuing authority, who should be able to create a correct card for you.
- **3 false PIN presented : Card blocked** —
- **Operator Card Reading error** — for some reason the system was unable to read your Operator Card. Try cleaning it – with something soft, **not** an abrasive substance – in the area where the micro-circuit is embedded.
- **Invalid driver version** — the driver installed is incompatible with the PSMC or other hardware installed
- **Unexpected Status value** — the status returned from the card was not one of the documented possibilities for an Operator Card. This may indicate a bad connection to the card reader: consult your hardware support.
- **Boot Control Time out** — you have taken too long to insert your Operator Card and enter your PIN: try this again. If this happens often, you may wish to use the PSMCIP program to alter the time-out values to allow users more time.
- **Group Number : Subgroup Number :** — a message defining the group and sub-group found on the Operator Card and corresponding to the identity of the machine as stored in the PSMC.
- **Boot failed in specific driver part** — this is a software failure: consult your dealer.

File Layout

The SMART.MES file must conform to the following limitations:

- it is a pure ASCII file. The character set used is that of the IBM PC for the full 256 characters. Characters "00" and "FF" (255) are, of course, not used
- each line of the file is no more than 50 characters long
- each line is terminated by the characters CR ("0D", 13) and LF ("0A", 10)

Changing The File

This file may be changed to allow the use of translated versions for other languages. The following items should be noted:

- the program uses certain lines for certain functions, so lines must not be swapped - just translated
- certain lines are "split", in that values are inserted into them by the program before output. The locations of these "splits" must be retained after alteration, otherwise text will be replaced by values. These lines are:
  - Line 15. The cluster number is a two-digit code, starting at position 18; the machine number is a four-digit code, starting at position 38.
  - Line 17. The device status occupies four spaces, starting at position 17.
  - Line 18. The reader status occupies four spaces, starting at position 17.
    Line 41. The group and subgroup numbers start at positions 16 and 39.

SMART.LOG

When you run the Boot Control System it keeps a log of the date and time of "log on" and "log off" of each user, together with the user i.d. from the User Card. this is kept in the SMART.LOG file in a form that can be printed out directly from MS-DOS.

SCREEN.DEF

This is a file containing twenty-five eighty-character-long lines. These are displayed by the driver as it proceeds through the Boot Control process, and are controlled (in terms of their colour and intensity) by the parameters in the SMART.ENV file. The line in the SMART.ENV file that specifies a file is, in fact, specifying this file, so you can change the file in use just by changing the SMART.ENV file.

A default example called WELCOME.PAG is included on your distribution diskette.

You can change the display on your PC by editing this file. Use an ASCII text editor rather than a word processor, or remember to save it in ASCII format.

This file only applies to the MCA type Security Device which is designed for use with the MCA type workstations. Ignore this appendix if you are using the XT/AT type Security Device, designed for use with XT/AT workstations.

```
AdapterId 06A4Ah

AdapterName  "SCATE Prog Controller Smart Card + V24"

NumBytes 1

NamedItem
        Prompt "Multicontroller SMART CARD MIRE/PSMC/V24 AUX connector"
      choice "MCSC_320it3"  pos[1]=X0000XXXb  io 0320h-0327h  int 3
      choice "MCSC_328it3"  pos[1]=X0001XXXb  io 0328h-032fh  int 3
      choice "MCSC_320it4"  pos[1]=X0010XXXb  io 0320h-0327h  int 4
      choice "MCSC_328it4"  pos[1]=X0011XXXb  io 0328h-032fh  int 4
      choice "MCSC_320it5"  pos[1]=X0100XXXb  io 0320h-0327h  int 5
      choice "MCSC_328it5"  pos[1]=X0101XXXb  io 0328h-032fh  int 5
      choice "MCSC_320it7"  pos[1]=X0110XXXb  io 0320h-0327h  int 7
      choice "MCSC_328it7"  pos[1]=X0111XXXb  io 0328h-032fh  int 7
      choice "MCSC_320it9"  pos[1]=X1000XXXb  io 0320h-0327h  int 9
      choice "MCSC_328it9"  pos[1]=X1001XXXb  io 0328h-032fh  int 9
      choice "MCSC_320noit"  pos[1]=X1010XXXb  io 0320h-0327h
      choice "MCSC_328noit"  pos[1]=X1011XXXb  io 0328h-032fh
   Help
"The SCATE board multicontroller unit gives a choice of 2 address areas 320 and
328) and within these areas 5 different interrupt settings (I.T 3/4/5/7 and 9).
Addresses '328noit' and '320noit' (noit stands for no I.T setting) are without an
interrupt setting.  To change the setting, select the 'Configuration Modification
Screen' from the MCA workstation installation disk menu, and use the [F5] and [F6]
keys to select the choice you want. The settings marked with an asterisk are in
conflict and must be changed before the controller board can be used."


NamedItem
        Prompt "COM Connector"
      choice "SERIE_3it3"  pos[1]=XXXXX00Xb  io 3220h-3227h  int 3
      choice "SERIE_4it3"  pos[1]=XXXXX01Xb  io 3228h-322fh  int 3
      choice "SERIE_5it3"  pos[1]=XXXXX10Xb  io 4220h-4227h  int 3
      choice "SERIE_6it3"  pos[1]=XXXXX11Xb  io 4228h-422fh  int 3
   Help
"The asynchronous transmission controller of the SCATE board has 4 communication
settings numbered 3,4,5 and 6. To change the setting, select the 'Configuration
Modification' menu from the MCA bus workstation installation disk menu, and use
the [F5] and [F6] keys to select the choice you want. The settings marked with an
asterisk are in conflict and must be changed before the controller board can be
used."
```

5122 995 69532