Point of Sale Subsystem

IBM OPOS 1.7.0 User's Reference

Summary of Changes

Changes resulting in document revisions will be summarized in this table in reverse chronological sequence. Revision bars (|) will highlight the text changed in new document versions.

Version	Release Date	Change Description
V1.0		Initial release of the document (no change bars).
V1.1	10/31/2003	Updated for Release 1.7.0

Table of Contents

Preface

This manual provides reference information for programming devices used by the IBM OPOS 1.7 Subsystem.

Who should read this manual

This manual is intended for use by point-of-sale application programmers who choose to use the IBM point-of-sale hardware, and the IBM OLE for Retail POS 1.7 Subsystem on the Microsoft Windows operating system.

How to use this manual

Section 1 contains references to related documents, including hardware, software, and industry specifications.

Section 2 contains User's reference information, include supported properties and methods, tracing, and registry settings.

Section 3 lists areas where to get additional help.

Related Publications

The following is a list of related publications. For information about ordering these publications, contact your IBM authorized dealer or marketing representative.

Between major revisions of this manual we may make minor technical updates. The latest softcopy version of the *IBM Point of Sale Subsystem Installation, Keyboards, and Code Pages* manual is available on the IBM Retail Store Solutions Web site at:

> http://www.ibm.com/solutions/retail/store

Click Support, then Publications.

IBM OPOS 1.7 Related Publications

IBM Point of Sale Subsystem Programming Reference and User's Guide, SC30-3560

*IBM Point of Sale Subsystem Installation, Keyboards, and Code Page*s, GC30-3623

Non-IBM related Publications

* *UnifiedPOS Retail Peripheral Architecture* , found on the IBM Retail Store Solutions Web site listed above.

Store System Related Publications–Hardware

Scanners

1520 Hand-Held Scanner User's Guide, GA27-3685

4686 Retail Point of Sale Scanner: Physical Planning, Installation, and Operation Guide, SA27-3854

4686 Retail Point of Sale Scanner: Maintenance Manual, SY27-0319

4687 Point of Sale Scanner Model 1: Physical Planning, Installation, and Operation Guide, SA27-3855

4687 Point of Sale Scanner Model 1: Maintenance Manual, SY27-0317

4687 Point of Sale Scanner Model 2: Physical Planning Guide, SA27-3882

4687 Point of Sale Scanner Model 2: Operator's Guide, SA27-3884

4687 Point of Sale Scanner Model 2: Maintenance Manual, SY27-0324

4696 Point of Sale Scanner: Maintenance Manual, SY27-0333

4696 Point of Sale Scanner: Physical Planning, Installation, and Operation Guide, GA27-3965

4697 Point of Sale Scanner Model 001: Maintenance Manual, SY27-0338

4697 Point of Sale Scanner Model 001: Physical Planning, Installation, and Operation Guide, GA27-3990

4698 Point of Sale Scanner Scale Model 001 & 002: Physical Planning, Installation, and Operation Guide, GA27-4055

4698 Point of Sale Scanner Scale Model 001 & 002: Maintenance Manual, SY27-0344

Cabling

A Building Planning Guide for Communication Wiring, G320-8059

Cabling System Planning and Installation Guide, GA27-3361

Cabling System Catalog, G570-2040

Using the IBM Cabling System with Communication Products, GA27-3620

4610 SureMark Point of Sale Printer

4610 SureMark Point of Sale Printer: User's Guide, GA27-4151

4610 SureMark Point of Sale Printer: Hardware Service Manual GY27-0355

4610 SureMark Point of Sale Printer: DBCS User's Guide GA27-4256

4610 SureMark Point of Sale Printer: DBCS Hardware Service Manual GA27-0397

4694/4695 Point of Sale Terminals

4683/4684/4693/4694 Point of Sale Terminal: Parts Catalog, S131-0097

4693/4694/4695 Point of Sale Terminal: Maintenance and Test Summary,SX27-3919

Store Systems: Technical Reference, SY27-0336

4693/4694/4695 Point of Sale Terminal: Hardware Service Manual, SY27-0337

Store Systems: Hardware Service Manual for Point of Sale Input/Output Devices, SY27-0339

4694 Point of Sale Terminal: User's Guide, SA27-4005

4694 Point of Sale Terminal: Hardware Service Manual, SY27-0364

4695 Point of Sale Terminal: Installation and Operation Guide, GA27-4031

4695 Point of Sale Terminal: Hardware Service Manual, SY27-0361

Store Systems: Installation and Operation Guide for Point of Sale Input/Output Devices, GA27-4028

Store Systems: Point of Sale Terminals–Supplement for Installation, Operation, and Service, GA27-4035

SurePOS 700 Series

SurePOS 700 Series - Models 1xx & 2xx: Installation and Operation Guide, GA27-4223

SurePOS 700 Series - Models 732, 733, 752 & 753: Installation and Operation Guide, GA27-4293

SurePOS 700 Series: Hardware Service Manual, GY27-0363

SurePOS 700 Series - Models 1xx & 2xx: System Reference, SA27-4224

SurePOS 700 Series - Models 732, 733, 752 & 753: System Reference, SA27-4295

SurePOS 700 Series Options and I/O Devices Service Guide, SY27-0392

SurePOS 500/600 Series

SurePOS 500/600 Series: Installation and Operation Guide, GA27-4254

SurePOS 500/600 Series: System Reference, SA27-4255

SurePOS 500/600 Series: Hardware Service Guide, GY27-0396

SurePOS 300 Series

SurePOS 300 Series: Installation and Operation Guide, GA27-4309

SurePOS 300 Series: Technical Reference, 06/02

SureONE Series

SureONE Series: Quick Reference, GA27-4135-04

SureONE Series: Hardware Service Manual

SureONE Series: Technical Reference

SureONE Series: Programmable Keyboard Technical Reference

4820 SurePoint Solution

4820 SurePoint Solution: Installation and Service Guide, GY27-4231

4820 SurePoint Solution: System Reference, SA27-4249

7497 Point of Sale Attachment Adapter

Point of Sale Terminal Attachment Kit: Physical Planning, Installation, and Service Manual, GA27-4034

IBM 4689 SurePOS Receipt Journal Printer (Japan & ASEAN)

Installation and operation Guide, GA18-7713 08/00

Service Manual, GY18-2408

Kiosk

Installation and Operation Guide, GA27-4288

Hardware Service Guide, GY27-0398

System Reference, SA27-4289

CANPOS Keyboard

CANPOS Keyboard: User's Guide

Related software

Utility software, LAN drivers, video drivers, and diagnostic software are available.

See the latest list on the IBM Retail Store Solutions Web site at:

http://www.ibm.com/solutions/retail/store

Select the Support button, and then click the appropriate hardware or peripheral driver.

User's Reference

Introduction

The purpose of the IBM OLE for Retail Point of Sale Subsystem is to provide and Open Standards interface for IBM hardware in a Microsoft Windows based system.

System Requirements

This section describes the hardware, software, disk space, and memory that are required for the IBM OLE for Retail Point of Sale Subsystem.

Hardware Environment

The IBM OLE for Retail Point of Sale Subsystem supports the following hardware, provided the hardware supports the desired Windows Operating System:

Point of Sale Terminals:

Any of the following point-of-sale terminals:

- 4674 Point of Sale Terminal (Japan only) Models: 001, 011, 010, and DS1
- 4694 Point of Sale Terminal Models: 0x1, 0x4, Sx1, Sx4, 1x4, 2x4, 2x5, 2x6, 2x7, 3x7
- SurePOS 300
- SurePOS 500/600
- SurePOS 700
- Kiosk
- SureONE

RS485 and PS/2 Attached Point of Sale Devices:

One or more of the following point-of-sale devices:

Cash Drawers:

- Cash Drawer, No Till (Feature code 3360)
    - Adjustable Till (Feature code 1092)
    - Fixed Till (Feature code 3879)
- Cash Drawer, Removable Till (Feature code 3361)
- Flip-Top Cash Drawer (Feature code 3362)
- Cash Drawer I (P/N 6238669)
- Cash Drawer IV (P/N 09F3519)
- Cash Drawer V (Feature code 3370)
- Compact Cash Drawer with Vertical Till (Feature code 3368)
- Compact Cash Drawer with Horizontal Till (Feature code 3378)

Displays:

- Shopper Display (Feature code 3339)
- Operator Display (Feature code 3340)
- 40 Character Alphanumeric Display (Feature code 3343)
- 50-Key Modifiable Layout Keyboard/Operator Display (Feature code 6300)
- Character/Graphics Display (Feature code 3400)
    - Japan
        - Tall (Feature code 3402)
        - Short (Feature code 3403)
    - Korea
        - Tall (Feature code 3405)
        - Short (Feature code 3406)
- PLU Keyboard/Display - III
    - Japan (Feature code 3230)
    - Korea (Feature code 3232)
- 40-Character Vacuum Fluorescent Display II (Feature code 3501)
- 40-Character Vacuum Fluorescent Display II - Japan (Feature code 3506)
- Two-sided Vacuum Fluorescent Display II (Feature code 3502)
- Two-sided Vacuum Fluorescent Display II - Japan (Feature code 3507)
- 40-Character Liquid Crystal Display (Feature code 3503)
- Retail Point of Sale Keyboard with Card Reader and Display (Feature code 6300)
- 2x20 Character Vacuum Fluorescent Display Customer Display (Feature code 2826)

Keyboards:

- 50-Key Modifiable Keyboard (Feature code 3320)
- 50-Key Modifiable Layout Keyboard/Operator Display (Feature code 6300)
- Alphanumeric Point of Sale Keyboard (Feature code 3324)
- Retail Point of Sale Alphanumeric Keyboard with Card Reader
    - Brazil/Portuguese (Feature code 3200)
    - Danish (Feature code 3211)
    - Canada/French (Feature code 3201)
    - French (Feature code 3203)
    - German (Feature code 3204)
    - Italian (Feature code 3205)
    - Norwegian (Feature code 3212)
    - Spanish (Feature code 3206)
    - Swedish/Finnish (Feature code 3213)
    - US English (Feature code 3324)
    - UK English (Feature code 3202)
- Retail Point of Sale Keyboard (Feature code 3315)

- Retail Point of Sale Keyboard with Card Reader (Feature code 3320)
- Modifiable Layout Keyboard with Card Reader (Feature code 3323)
- 4820 SurePoint Solution Keypad
- CANPOS Keyboard
- PC Point of Sale Keyboard
  - Japan (Feature code 3207)
  - Korea (Feature code 3208)
- Point of Sale Keyboard V
  - Japan (Feature code 3220)
  - Korea (Feature code 3221)
- Point of Sale Keyboard VI - Korea (Feature code 3209)
- PLU Keyboard/Display - III
  - Japan (Feature code 3230)
  - Korea (Feature code 3232)
  - Attached to 4674 via expansion box
- Retail Point of Sale Keyboard with Card Reader and Display (Feature code 6300)
- 4685 Point of Sale Keyboard Model K01 (4685-K01)
- 4685 Point of Sale Keyboard Model K02 (4685-K02)

Magnetic Stripe Readers:

- One-Track Magnetic Stripe Reader (ISO Track 2) (Feature code 4010)
- Dual-Track Magnetic Stripe Reader (ISO Tracks 1 and 2) (Feature code 4192)
- Dual-Track Magnetic Stripe Reader (ISO Tracks 2 and 3) (Feature code 4193)
- Low Profile Dual-Track Magnetic Stripe Reader (ISO Tracks 1 and 2) (Feature code 6310)
- Low Profile Dual-Track Magnetic Stripe Reader (ISO Tracks 2 and 3) (Feature code 6320)
- Retail Point of Sale Alphanumeric Keyboard with Card Reader
  - Brazil/Portuguese (Feature code 3200)
  - Danish (Feature code 3211)
  - Canada/French (Feature code 3201)
  - UK English (Feature code 3202)
  - French (Feature code 3203)
  - German (Feature code 3204)
  - Italian (Feature code 3205)
  - Norwegian (Feature code 3212)
  - Spanish (Feature code 3206)
  - Swedish/Finnish (Feature code 3213)
  - US English (Feature code 3324)
- Retail Point of Sale Keyboard with Card Reader (Feature code 3320)

- Modifiable Layout Keyboard with Card Reader (Feature code 3323)
- PC Point of Sale Keyboard
  - Japan (Feature code 3207)
  - Korea (Feature code 3208)
- Point of Sale Keyboard V
  - Japan (Feature code 3220)
  - Korea (Feature code 3221)
- Point of Sale Keyboard VI - Korea (Feature code 3209)
- Retail Point of Sale Keyboard with Card Reader and Display (Feature code 6300)
- CANPOS Keyboard
- Three-track Magnetic Stripe Reader (Feature code 2905)
- Two-sided Magnetic Stripe Reader (Feature code 2906)
- SurePoint Magnetic Stripe Reader (Feature code 3951)
- SurePoint JUCC Magnetic Stripe Reader (Feature code 3953)
- 4685 Point of Sale Keyboard Model K01 (4685-K01)
- 4693 Point of Sale Terminal Model 202 (4693-202)
- 4693 Point of Sale Terminal Model 212 (4693-212)
- 4693 Point of Sale Terminal Model 2S2 (4693-2S2)

Non-Volatile Random Access Memory:

- 4674 Point of Sale Terminal (Japan only) Models: 001, 011, 010, and DS1
- 4694 Point of Sale Terminal Models: 0x1, 0x4, Sx1, Sx4, 1x4, 2x4, 2x5, 2x6, 2x7, 3x7
- SurePOS 700
- SureONE (except A04/A05)

Printers:

- Model 3 Printer (Feature code 4700)
- IBM Model 4 Printer (Feature code 4800)
- IBM Model 4A Printer (Feature code 4805) - SBCS Only
- IBM Model 4R Printer (Feature code 4801)
- 4610 SureMark Point of Sale Printers Models: TI1 (4610-TI1), TI2 (4610-TI2), TI3 (4610-TI3), TI4 (4610-TI4), TI5 (4610-TI5), TF6 (4610-TF6), TF7 (4610-TF7), TM6 (4610-TM6), TM7 (4610-TM7), TI8 (4610-TI8)
- 4689 Point of Sale Printer Models:
  - 001 - Japan (Feature code 4802)
  - 002 - Korea (Feature code 4803)
  - 301 (4689-301)
  - 3G1 (Japan only)
  - 3M1 (Japan only)
  - TD5 (Japan only)

Scales:

- 4687 Point of Sale Scanner Model 002
- 4696 Point of Sale Scanner Scale Model 001
- 4698 Point of Sale Scanner Model 002, 101, 102

Scanners:

- IBM Hand-Held Bar Code Reader Models:
    - 1 (Feature code 4500), 2 (Feature code 4501)
- IBM 1520 Hand-Held Scanner Model A02 (1520-A02)
- 4685 Hand-Held Bar Code Reader Models: 001 (Feature code 4502), L01 (Handy Scanner III), L0A (Japan only)
- 4685 Point of Sale Scanner Model L0F (Japan only)
- 4685 SurePOS Scanner (Asia Pacific country) Models: S01, L0C, L0H, 101
- 4687 Point of Sale Scanner Models: 001, 002
- 4696 Point of Sale Scanner Scale Model 001
- 4697 Point of Sale Scanner Model 001
- 4698 Point-of-Sale Scanner Models: 001, 002, 201 (Japan only)

SurePOS 500/600 Devices

Displays:

- Integrated Display
- Remote Display
- Remote APA Display

Cash Drawers:

- Full-size cash drawer (fixed till)
- Full-size cash drawer (adjustable till)
- Compact cash drawer (horizontal till)
- Compact cash drawer (vertical till)

Magnetic Stripe Readers:

- ISO Reader
- JUCC Reader

Motion Sensor:

- Presence Sensor

SurePOS 300 Devices

Displays:

- Remote Display
- Remote APA Display

Cash Drawers:

- Full-size cash drawer (fixed till)
- Full-size cash drawer (adjustable till)
- Compact cash drawer (horizontal till)
- Compact cash drawer (vertical till)

SureONE Devices

Displays:

- Remote Display

Cash Drawers:

- Full-size cash drawer (fixed till)
- Full-size cash drawer (adjustable till)
- Compact cash drawer (horizontal till)
- Compact cash drawer (vertical till)

Magnetic Stripe Readers:

- 1-2 Track Reader
- 2-3 Track Reader

Printers:

- Impact Printer
- Thermal Printer

Kiosk Devices

Displays:

- Integrated Display
- Remote Display
- Remote APA Display

Magnetic Stripe Readers:

- ISO Reader
- JUCC Reader

Motion Sensor:

- Presence Sensor

USB Devices

Keyboards:

- USB 50-key keyboard
- USB 50-key keyboard with magnetic stripe reader (MSR)
- USB 50-key keyboard with magnetic stripe reader (MSR) and Liquid Crystal Display (LCD)

- USB Alphanumeric point-of-sale (ANPOS) keyboard
- USB 133–key keyboard with MSR
- USB 4685 Point of Sale Keyboard Model K02 (4685-K02)

Displays:

- USB 40-character vacuum fluorescent display (VFD), one-sided
- USB 40-character VFD, two-sided
- USB 40-character LCD

Cash Drawers:

- Full-size cash drawer (fixed till)
- Full-size cash drawer (adjustable till)
- Compact cash drawer (horizontal till)
- Compact cash drawer (vertical till)

Printers:

- 4610 SureMark Point of Sale Printer Model TI3 (4610-TI3)
- 4610 SureMark Point of Sale Printer Model TI4 (4610-TI4)
- 4610 SureMark Point of Sale Printer Model TI5 (4610-TI5)
- 4610 SureMark Point of Sale Printer Model TM6 (4610–TM6)
- 4610 SureMark Point of Sale Printer Model TM7 (4610–TM7)
- 4610 SureMark Point of Sale Printer Model TF6 (4610–TF6)
- 4610 SureMark Point of Sale Printer Model TF7 (4610–TF7)
- 4610 SureMark Point of Sale Printer Model TI8 (4610–TI8)
- Model 4 Printer with Protocol Converter
- 4689 Point of Sale Printer

Miscellaneous:

- Standard USB devices (such as a mouse)

RS232 Attached Devices

Printers:

- 4610 SureMark Point of Sale Printer Model TI3 (4610-TI3)
- 4610 SureMark Point of Sale Printer Model TI4 (4610-TI4)
- 4610 SureMark Point of Sale Printer Model TI5 (4610-TI5)
- 4610 SureMark Point of Sale Printer Model TM6 (4610–TM6)
- 4610 SureMark Point of Sale Printer Model TM7 (4610–TM7)
- 4610 SureMark Point of Sale Printer Model TF6 (4610–TF6)
- 4610 SureMark Point of Sale Printer Model TF7 (4610–TF7)
- 4610 SureMark Point of Sale Printer Model TI8 (4610–TI8)

Software Environment

Prerequisites

Before running the IBM OLE for Retail Subsystem, the OPOS Common Control objects may be needed. These Common Control object may be obtained from http://www.monroecs.com/oposccos.htm.

IBM does not provide control objects with its installation.

Installing the IBM OLE for Retail Point of Sale Subsystem

To install the IBM OLE for Retail POS Suite:

1. Run Setup.exe and follow the directions on each panel.

2. After the installation is complete you need to restart your system for the configuration changes to take effect.

3. Silent installation and updating is supported using a response file. The response file is created in the initial installation with the name c:\opossetup.iss. Afterwards, it can be used to install or update the system without human interaction. To run the installation/update in silent mode, type:

   setup.exe /s /v/qn

   There should be no space between /v and /qn. To deploy the installation, the setup.exe and opossetup.iss files should be copied to the target systems.

4. By default, silent installation will reboot the system when complete. If a system reboot is not desirable at this point, an option is provided so that the system will not reboot when complete. This may be useful when a batch of updates are being applied, and a reboot is not required until all the updates are applied. To run the installation/update in silent mode, without rebooting, type:

   setup.exe /s /v"/qn REBOOT=A"

   The double quotes enclosing "/qn REBOOT=A" are required, and there should be no space between /v and "/qn.

Customizing the IBM OLE for Retail Point of Sale Subsystem

The IBM OLE for Retail Point of Sale Subsystem must be configured to access the point-of-sale devices you have attached to your system. It also provides defaults for all resources associated with devices that the IBM OLE for Retail Point of Sale Subsystem supports. This chapter discusses how the application can configure a device and use a value different from the assigned default, or can even allow the user to specify some resource values.

Configuring Your Applications

There are 4 tabs that the user is able to select for the four POS Terminal types the IBM OPOS package supports.
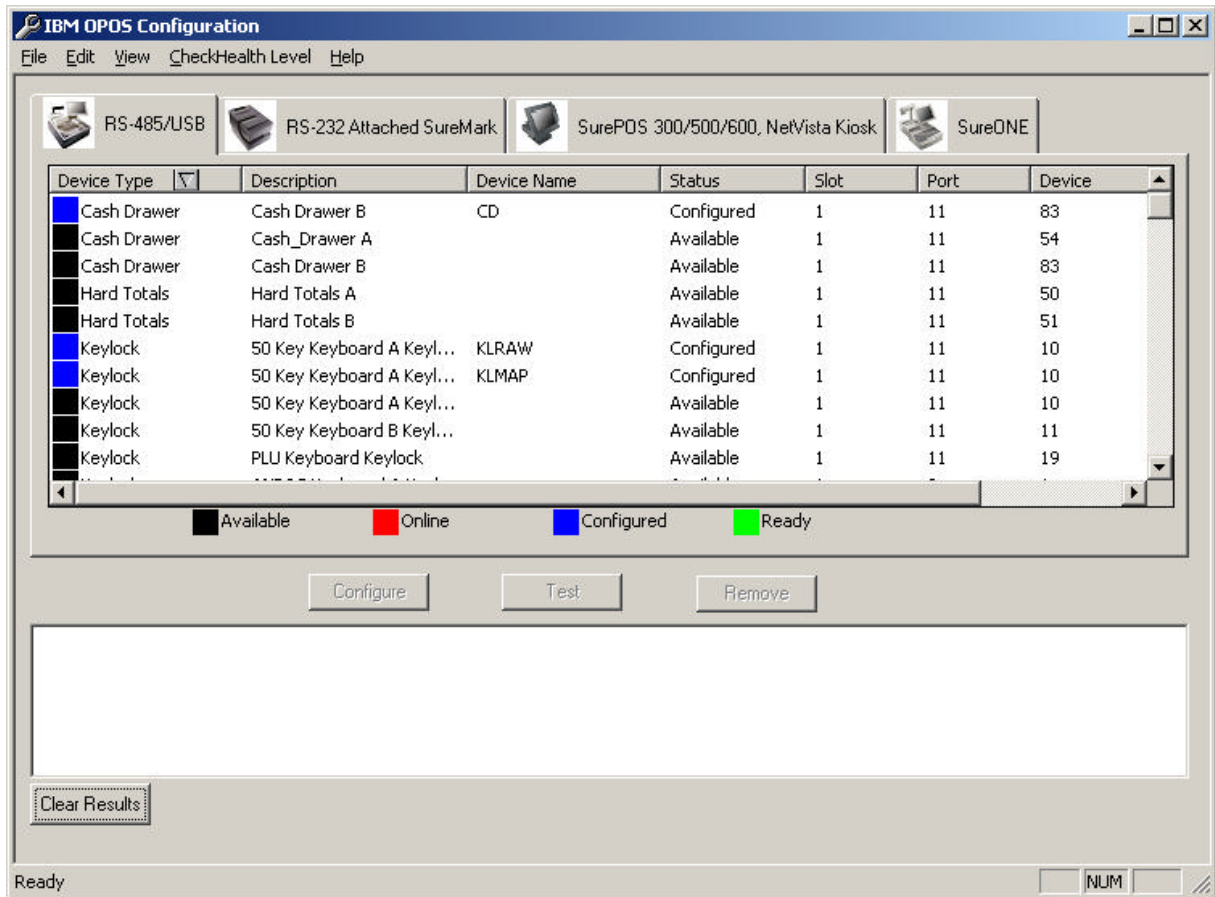
Each type contains a list of devices that are supported on the POS Terminal. Each device contains a list of settings as well as a status for each of the entries. The status shows what level of configuration is completed using a description and a color code.

The meaning of each status is as follows:

Status	Color	Description
Available	Black	The device is supported on the selected POS Terminal. It can only be used to add a new configuration. Its settings will not be modified. No device name is given.
Online	Red	The device is supported on the selected POS Terminal, and is detected to be online and available on the current system. It can only be used to add a new configuration. Its settings will not be modified. No device name is given.

Configured	Blue	The device is supported on the selected POS Terminal and has a configuration entry in the registry. It can be modified, tested for connectivity, or removed.
Ready	Green	The device is supported on the selected POS Terminal and is ready to use. It is online and has a configuration entry in the registry. It can be modified, tested for connectivity, or removed.
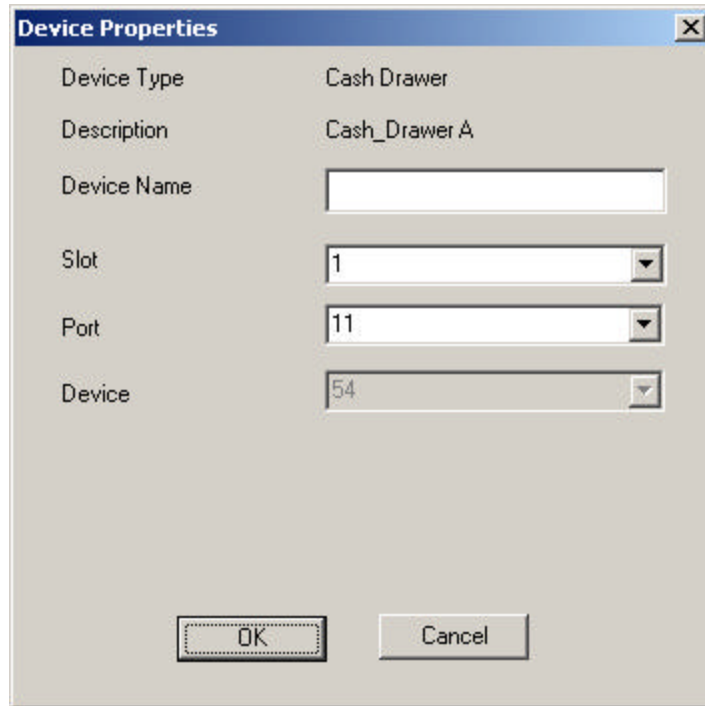
Only devices that are connected via RS485 and USB are detected online automatically. The system tone is always considered online since it will use the system speaker. Other devices may be detected online after testing. We will cover this more later.

Configuration

Device configuration functionality is enabled once an entry is selected from the device list. The "Configure" button will be un-greyed indicating that configuration is enabled.
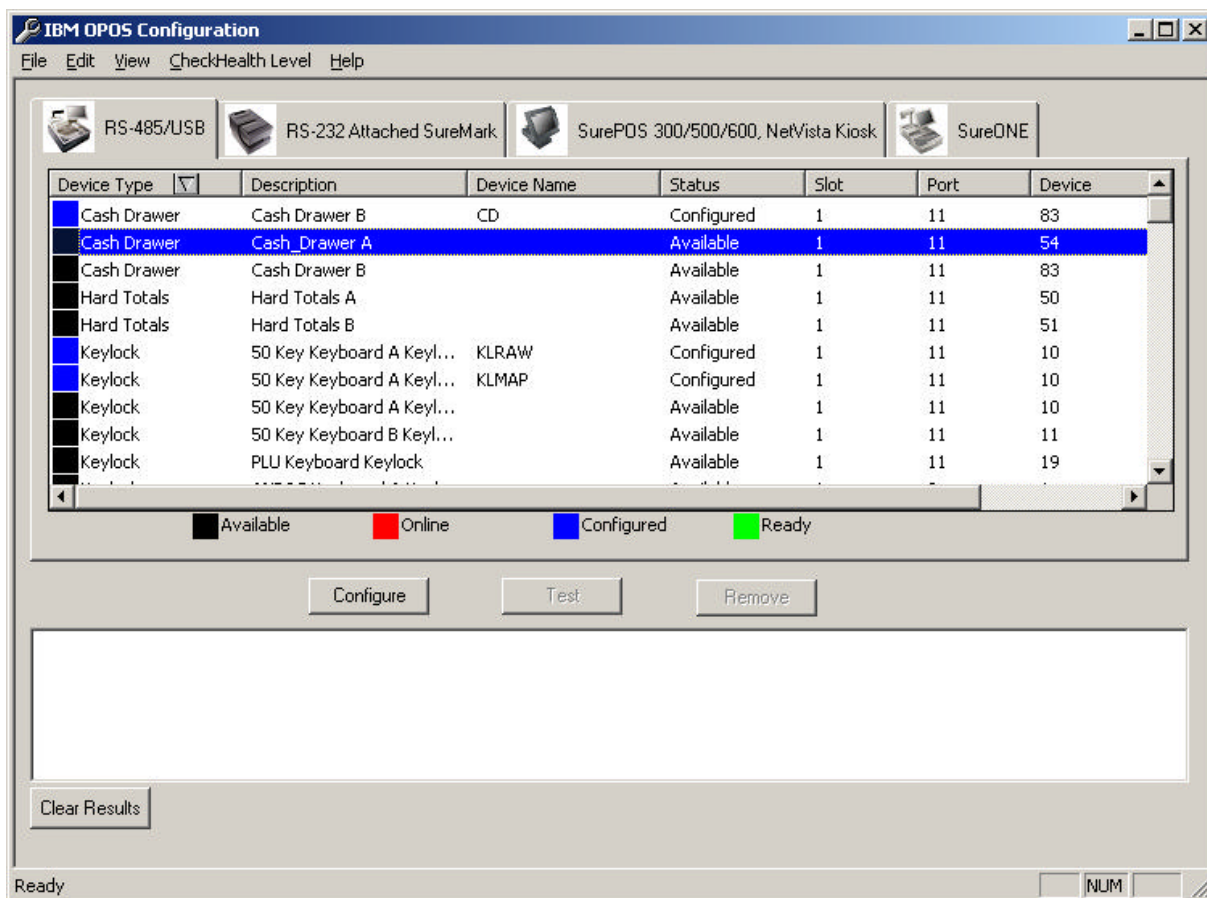
Clicking the "Configure" button will bring up a dialog box. This configuration dialog box will differ depending on the POS Terminal type and the device type. In most cases, a common configuration dialog box will be displayed.

Device Properties

Device Type	Cash Drawer
Description	Cash_Drawer A
Device Name	
Slot	1
Port	11
Device	54

[OK]   [Cancel]

In this example, the device is a RS485 device and the slot, port and device number are displayed. The device number is disabled because that number is specific to the type of device. Changing it could in effect change the device type. The configuration utility only lists some of the more common slot and port setting, but these can be modified for proper configuration on other POS terminals or feature cards. The supported options are listed in the combo boxes for the fields.
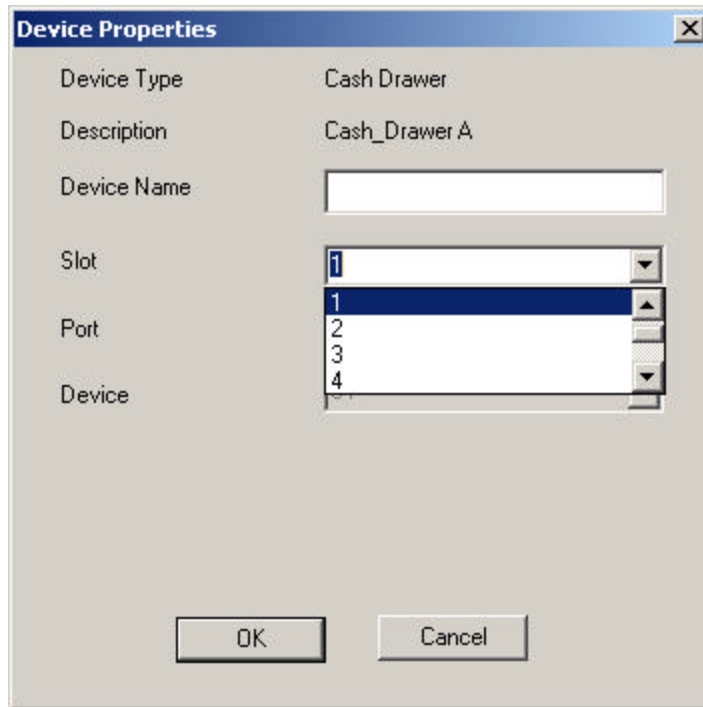
A name for the device should be entered and the "OK" is clicked. Once this is done, the entry is added to the device configuration list, such as the device name "CDA" at the top of the list.

Device Type	Description	Device Name	Status	Slot	Port	Device
Cash Drawer	Cash_Drawer A	CDA	Configured	1	11	54
Cash Drawer	Cash_Drawer A		Available	1	11	54
Cash Drawer	Cash Drawer B		Available	1	11	83
Hard Totals	Hard Totals A		Available	1	11	50
Hard Totals	Hard Totals B		Available	1	11	51
Keylock	50 Key Keyboard A Keyl...	KLRAW	Configured	1	11	10
Keylock	50 Key Keyboard A Keyl...	KLMAP	Configured	1	11	10
Keylock	50 Key Keyboard A Keyl...		Available	1	11	10
Keylock	50 Key Keyboard B Keyl...		Available	1	11	11
Keylock	PLU Keyboard Keylock		Available	1	11	19

Unlike the prior utility, this version does not require a device to be attached for configuration.

Testing Connectivity

Selecting a Configured or Ready device will enable the "Test" and "Remove" buttons, as well as the "Configure" button. Clicking on the Test button will test the connectivity and configuration of the device. While the device does not need to be attached to configure or remove a device configuration entry, it does need to be attached for a successful test. The "Test" button will use OPOS to open, claim when necessary, and enable the device. It will then perform a CheckHealth method. The CheckHealth level is set from the menu.
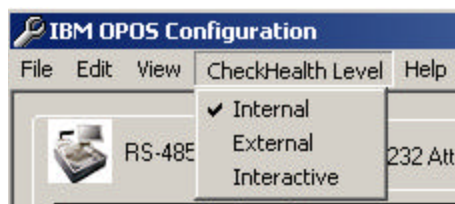
If all of these steps are completed successfully, then the test is considered successful. If the device configuration entry is not yet marked as Ready, it will be updated as such.

17
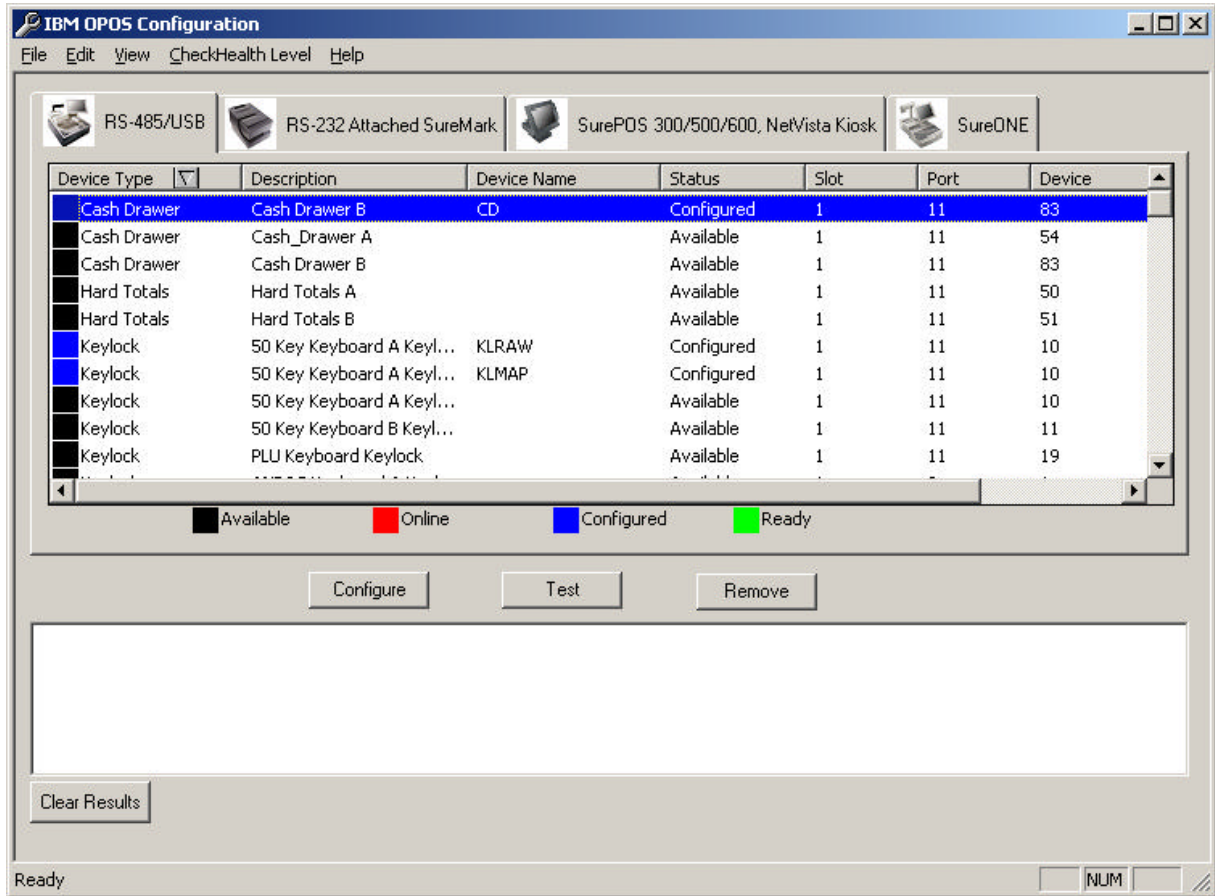
The list box at the bottom of the window is updated with the test results.

Entry Removal

Unlike the prior utility, which required regedit to remove entries from the registry, this utility will allow the user to delete entries during configuration. The results are displayed in the list box at the bottom.
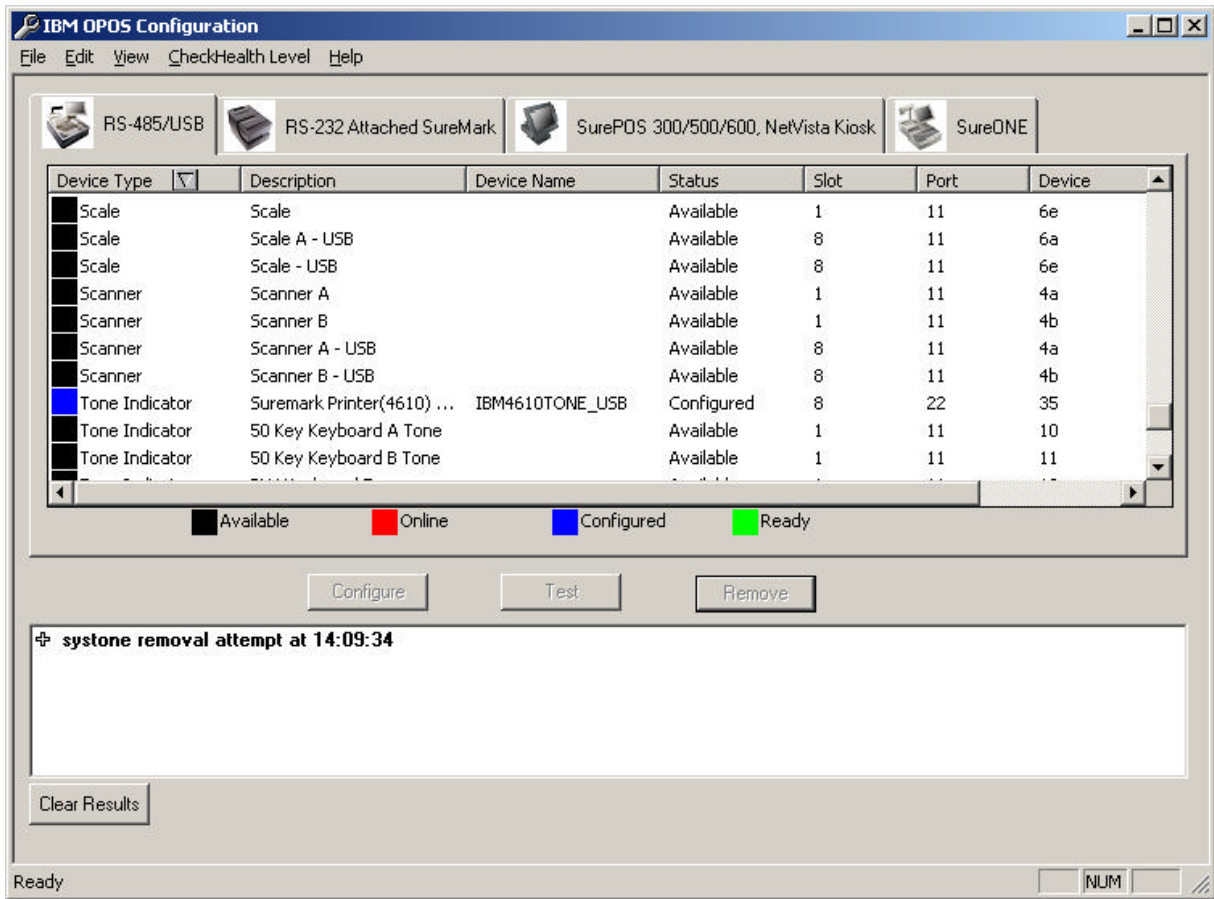
These three functions can also be done from the menu bar, under the "Edit" menu heading.

Navigation

Navigating the different POS terminal types is as simple as clicking on the tabs at the top. For finding specific device entries, the column headers are clickable for sorting, first in ascending, and then descending out. The order is based on ASCII text strings. Therefore a baud rate of 19200 will be listed before 9600 in ascending order. Only one sort is available at a time, and the first sort on a column is always ascending.   The example below shows the Com Port column sorted in ascending order first...
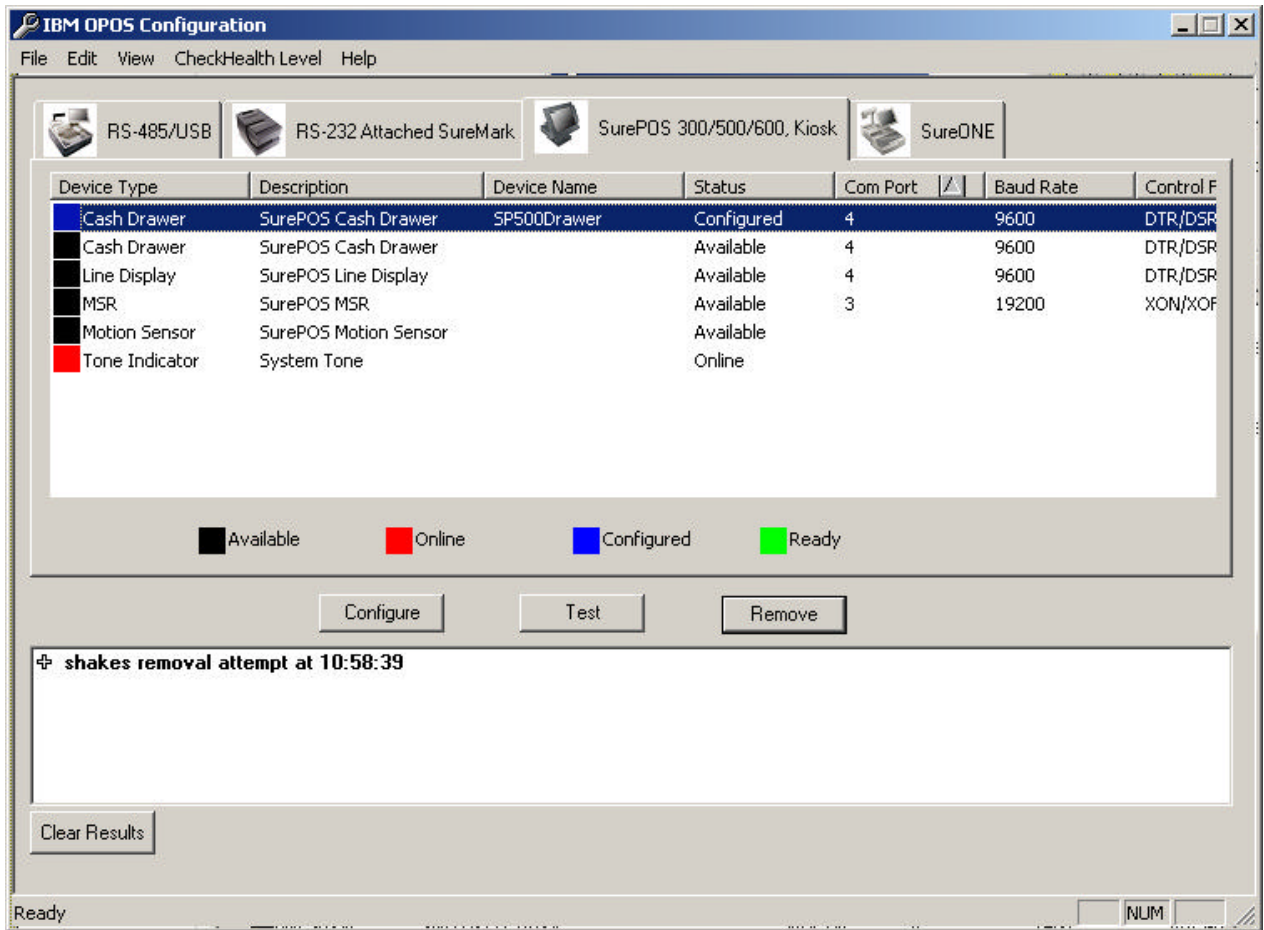
... And then in descending order.
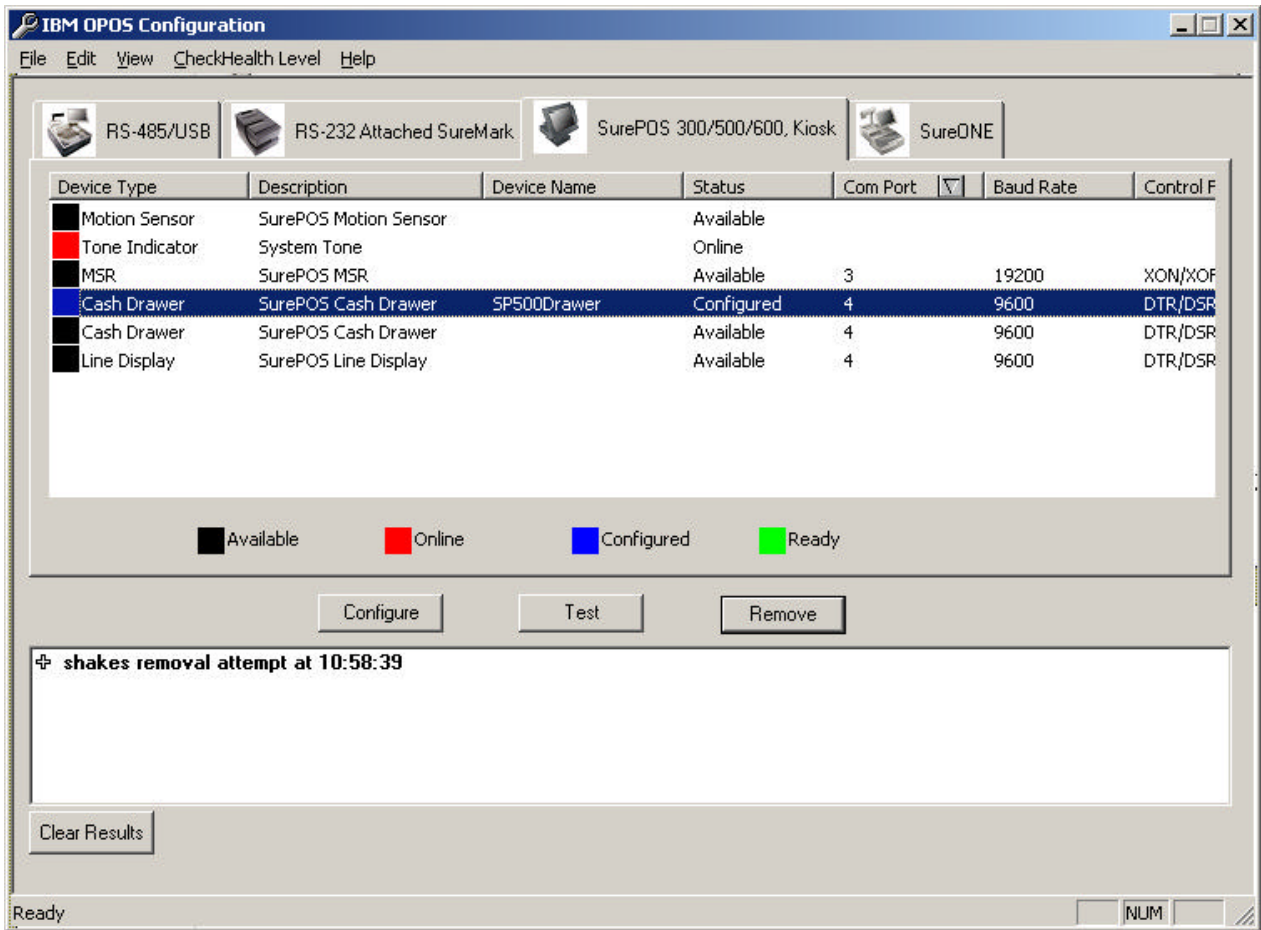
The current sort order is illustrated by the up/down arrow in the column header.
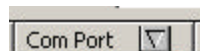
Deployment

Another complaint of the prior utility is that there is no simple way to deploy configuration information, or to store configuration information for different systems. Now, there is a way to import and export configuration information to and from an "OPOS Device Registry" file. These options are under the "File" menu header.
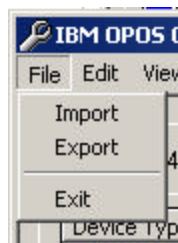
Selecting the "Import" menu item will bring up a file dialog window to select an import file. Opening an ODR file will read in the configuration information and update device listing and registry information.
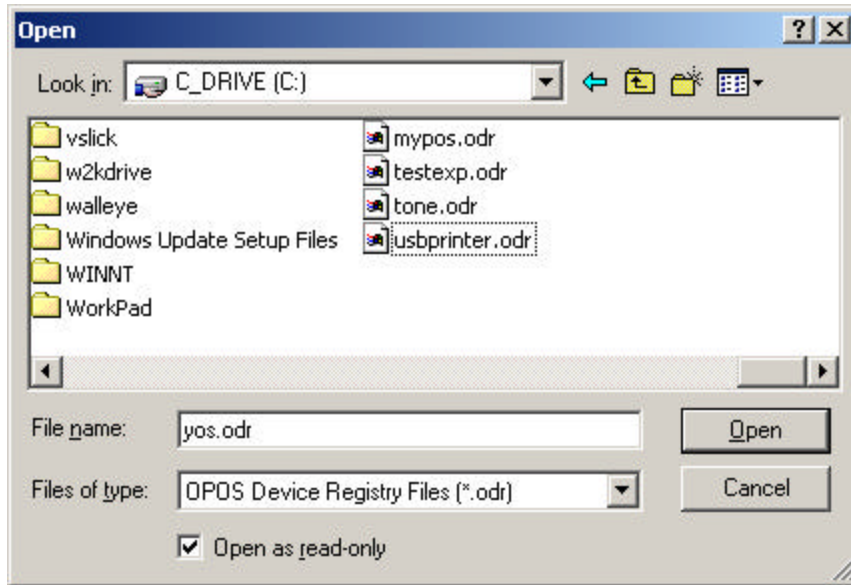
To export configuration information, select all the devices on all the tabs you wish to export. Hold down the shift or control keys to select more than one, then select "Export" from the "File" menu header. Only configured entries with device names will be exported. This allows the user to create files for different configurations, or for deploying new configurations to the stores.
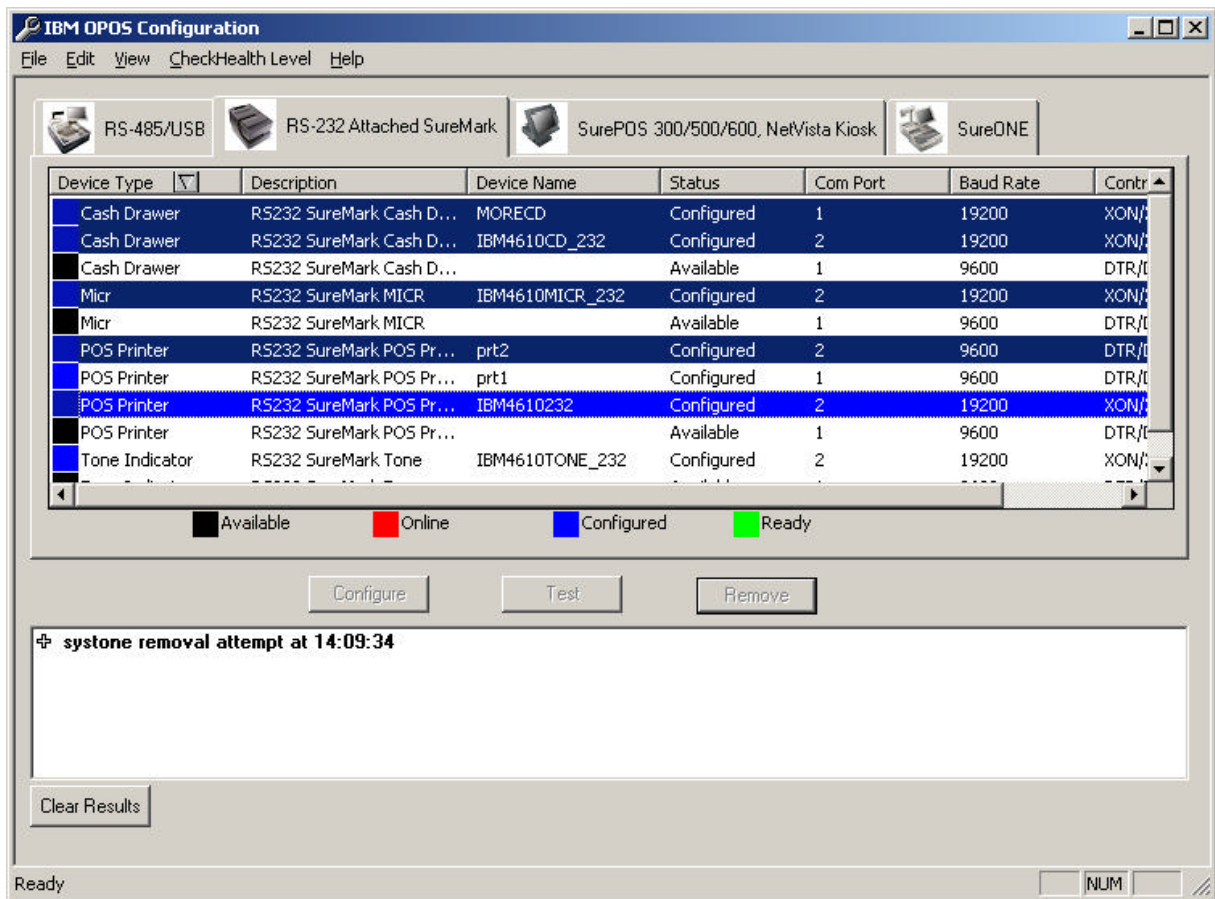
Keyboard Configuration

Keyboard and keyboard mapping are now fully integrated. Select a POS Keyboard entry and click on "Configure". This will display the keyboard configuration window. One significant difference between this window and other configuration windows is the Num Lock/Scroll Lock settings.
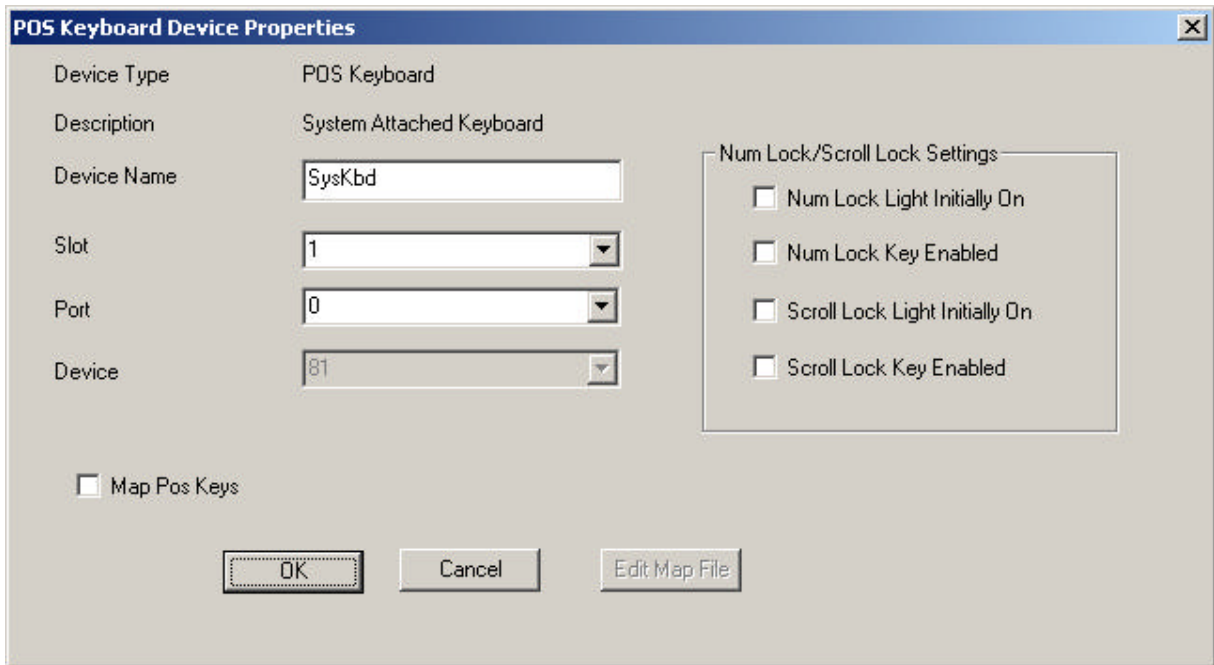
Clicking on these check boxes will configure how the user wants the Num Lock and Scroll Lock LEDs and keys to behave. For example, the user wants the Num Lock light on initially, and wants to enable the Num Lock key.
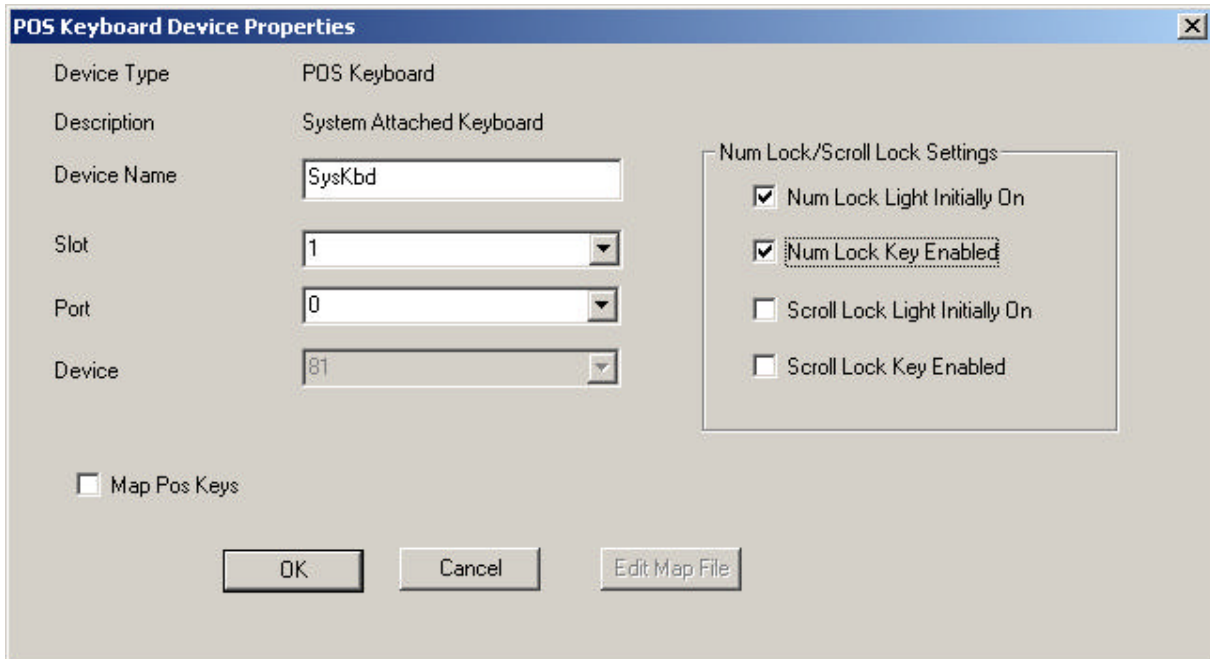
Another difference is the Map Pos Keys check box. Clicking on the check box will un-grey the "Edit Map File" button and display the file name edit field.
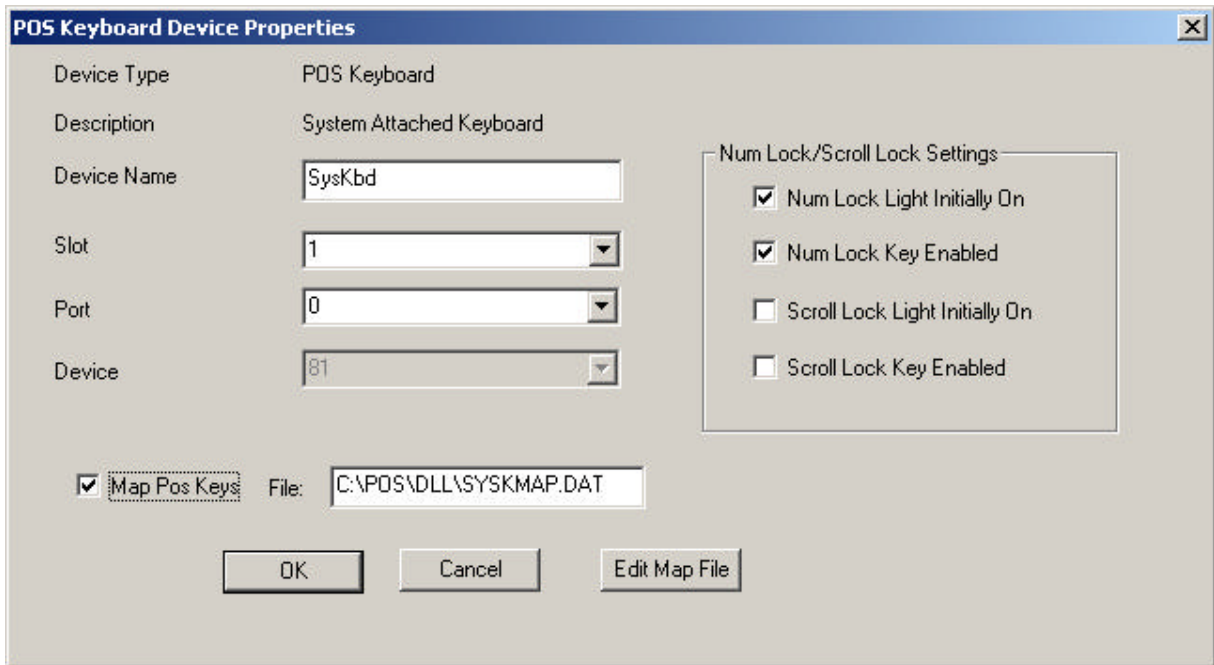
Clicking on the "Edit Map File" field will read in the specified file if it exists and display the values stored there in the POS Keyboard Mapping window. This window will allow the users to add, delete or edit entries in the file, as well as record keystrokes from the system. Non-unique entries are allowed so it is up to the user to ensure no duplicate entries exist. If so, the first entry will be used by the OPOS driver.
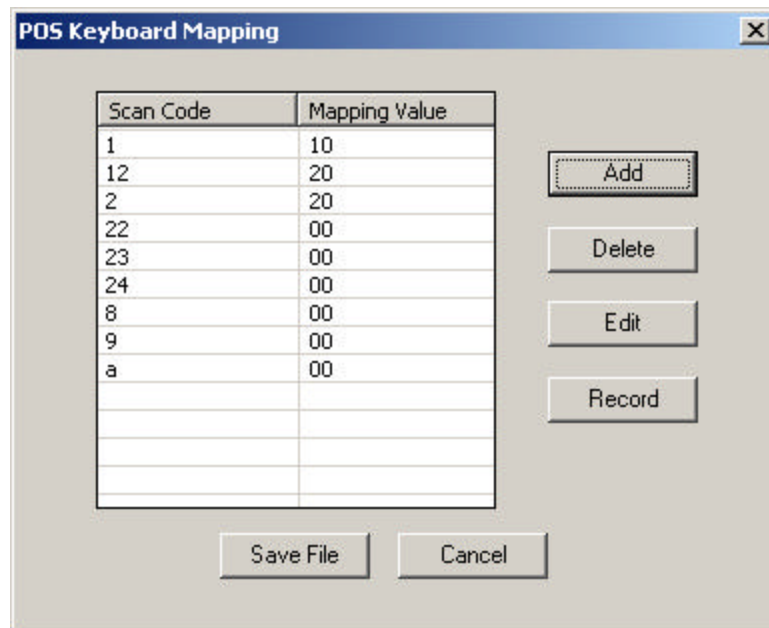
Clicking on "Add" will insert a new entry at the top of the list. The user can then add a new scan code and mapping value, and then click on "Save" to save the change.

POS Keyboard Mapping

Scan Code	Mapping Value
00	00
1	10
12	20
2	20
22	00
23	00
24	00
8	00
9	00
a	00
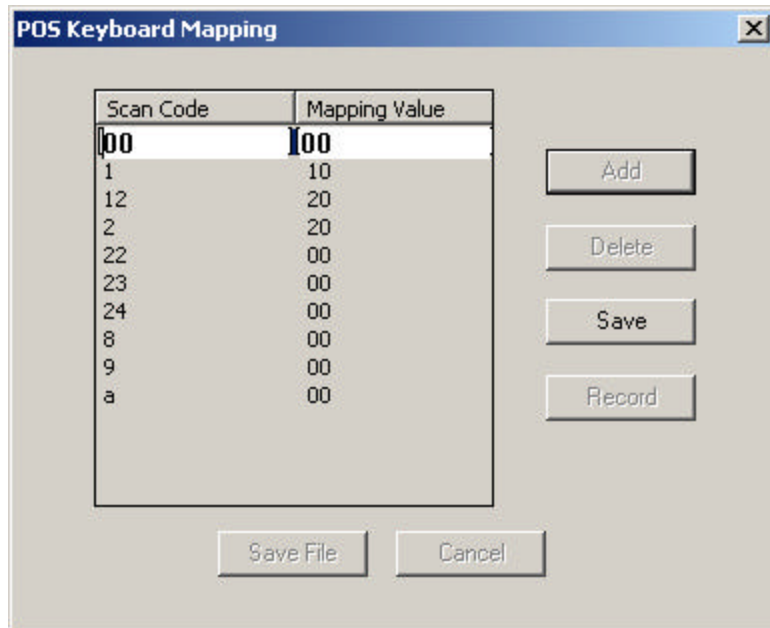
Clicking on "Edit" will highlight the selected item and put it in edit mode. The user can change the values and click on the "Save" button to save the changes.

POS Keyboard Mapping

Scan Code	Mapping Value
12	20
2	20
22	00
23	00
24	00
38	00
38	00
38	00
52	00
8	00
9	00
a	00
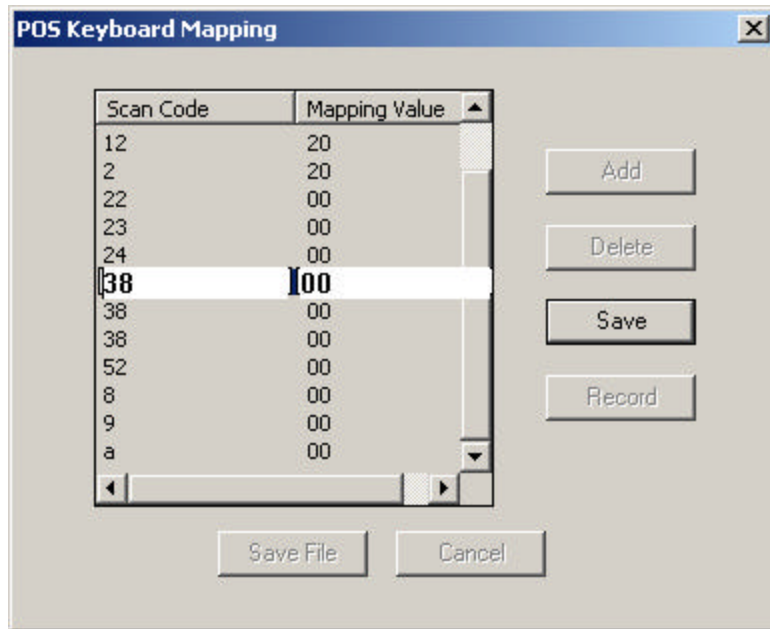
The "Delete" button will remove the selected entry from the list.

The "Record" button will put the window in record mode, meaning any keystroke will place an entry in the list with the correct scan code. Clicking on the "Stop" button will terminate record mode. The user can then use "Edit" to update the mapping values.
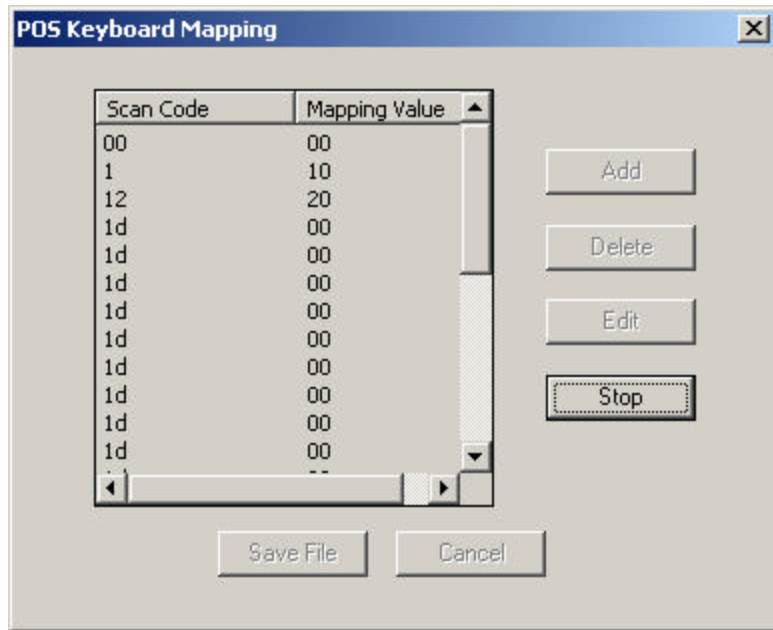
Any of the changes will not be saved to the file until the "Save File" button is clicked.
Clicking "Cancel" will drop any changes made since starting the mapping window.

Level of Support

Presence Sensor

As of this release, the presence sensor is now supported as a Motion Sensor described in the UnifiedPOS specification.

Supported OPOS Properties and Methods

Each device class has two tables. The first table lists all of the supported hardware. Each type of hardware has a numeric value associated with it. The second table lists the properties, methods and events supported. In the Supported Hardware device/Comments columns, often a specific piece of hardware is referenced using the numeric value from the first table.

Cash Drawer

Supported devices:

Name	Connectivity	Supported in Release	Comments
1. SurePOS 500/600 family built-in cash drawer	RS-232/MC	1.4.3	
2. SurePOS 700 family built-in cash drawer	USB	1.4.1	
3. 4694 family built-in cash drawer	RS-485	1.1	
4. 4610 Printer built-in cash drawer	RS-232	1.3	
5	USB	1.7	
6. SureOne family built-in cash drawer	ASIC	1.3	
7. SurePOS 300 family built-in cash drawer	--	1.7	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**			
BinaryConversion	1.2	1.3	
CapPowerReporting	1.3	1.3	All support STANDARD except 1 which supports ADVANCED.
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
CapStatus	1.0	1.0	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
CapStatusMultiDrawerDetect	1.5	1.5	All
DrawerOpened	1.0	1.0	All
•**Common Methods**			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1	1.0	All
Release, ReleaseDevice	1	1.0	All
CheckHealth	1.0	1.4.4	All except: 1 - OPOS 1.4.3
DirectIO	1.0	1.0	Not Supported
•**Specific Properties**			
OpenDrawer	1.0	1.0	All
WaitForDrawerClose	1.0	1.0	All
•**Events**			
DirectIOEvent	1.0	1.0	Not Supported
StatusUpdateEvent	1.0	1.0	All

Check Scanner

Not Supported in this release.

Hard Totals

Supported devices:

Name	Connectivity	Supported in Release	Comments
1. 4694 built-in NVRAM	ISA bus	1.0	
2. SurePOS 700 family built-in NVRAM	---	1.4.2	
3. SureOne built-in NVRAM		1.3	Except A04 and A05

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**			
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
CapError Detection	1.0	1.0	Not Supported
CapSingleFile	1.0	1.0	All
CapTransactions	1.0	1.0	Not Supported
FreeData	1.0	1.0	All
TotalsSize	1.0	1.0	All
NumberOfFiles	1.0	1.0	All - Maximum of 1file
TransactionInProgress	1.0	1.0	All - Always FALSE
•**Common Methods**			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
DirectIO	1.0	1.0	Not Supported

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
•Specific Methods			
ClaimFile	1.0	1.0	All
ReleaseFile	1.0	1.0	All
Read	1.0	1.0	All
Write	1.0	1.0	All
SetAll	1.0	1.0	All
ValidateData	1.0	1.0	Not Supported
RecalculateValidationData	1.0	1.0	Not Supported
Create	1.0	1.0	All
Find	1.0	1.0	All
FindByIndex	1.0	1.0	All
Delete	1.0	1.0	All
Rename	1.0	1.0	Not Supported
BeginTrans	1.0	1.0	Not Supported
CommitTrans	1.0	1.0	Not Supported
Rollback	1.0	1.0	Not Supported
•Events			
DirectIOEvent	1.0	1.0	Not Supported
StatusUpdateEvent	1.3	1.3	All

Keylock

Name	Connectivity	Supported in Release	Comments
Two-position keylock			
1. Alphanumeric POS keyboard keylock	PS/2	1.0	
2	USB	1.4.2	
3	RS-485	1.0	
4. 50-key keyboard keylock	USB	1.4.2	
5	RS-485	1.0	
6. 133-key keyboard keylock	USB	1.4.2	
7	RS-485	1.0	
8. 4820 keylock	USB	1.4.2	
9	RS-485	1.0	
Four-position keylock			
10. Alphanumeric POS Korea keyboard keylock	PS/2	1.0	
11	USB	1.4.2	
	RS-485	1.0	
13. Keyboard V keylock	USB	1.4.2	
14	RS-485	1.0	
Three-position keylock			
15. SureOne keylock		1.3	
Six-position keylock			
16. 4685-K02 (Ultra7) keyboard keylock	USB	1.7	
17	RS-485	1.7	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• Common Properties			
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•Specific Properties			

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
KeyPosition	1.0	1.0	All
PositionCount	1.0	1.0	All
•Common Methods			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	Always Shareable
Release,ReleaseDevice	1.0	1.0	Always Shareable
CheckHealth	1.0	1.4.4	All
DirectIO	1.0	1.0	Not Supported
•Specific Methods			
WaitForKeylockChange	1.0	1.0	All
•Events			
DirectIOEvent	1.0	1.0	Not Supported
StatusUpdateEvent	1.0	1.0	All

Line Display

Name	Connectivity	Supported in Release	Comments
•SBCS Devices			
1. SurePOS 300/500/600 line display	RS-232	1.4.3	
2. 50-key Keyboard LCD line display	USB	1.4.2	
3	RS-485	1.0	
4. Single-sided VFD	USB	1.4.2	
5	RS-485	1.0	
6. Double-sided VFD	USB	1.4.2	
7	RS-485	1.0	
8. Flag pole LCD	USB	1.4.2	
9	RS-485	1.0	
10. SureOne VFD	RS-232	1.3	
11. Character Graphic (C/G) line display	USB	1.4.2	
12	RS-485	1.4.2	
•DBCS Devices			
13. Character Graphic (C/G) line display	USB	1.4.2	
14	RS-485	1.4.2	
15. PLU keyboard line display	USB	1.4.2	
16	RS-485	1.0	
17. SurePOS 300/500/600 APA line display	RS-232	1.4.4	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• Common Properties			
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All Support STANDARD
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•Specific Properties			
CapBlink	1.0	1.0	Not Supported except

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
			17) - set CB_BLINKALL
CapBitmap	1.7	1.7	Not Supported
CapBlinkRate	1.6	1.7	Not Supported
CapBrightness	1.0	1.0	Not Supported except 1 & 17)
CapCharacterSet	1.0	1.0	All - Values based on HW
CapCursorType	1.6	1.7	Not supported
CapCustomGlyph	1.6	1.7	Not supported
CapDescriptors	1.0	1.0	All - Set TRUE 1 & 17) - set FALSE
CapHMarquee	1.0	1.0	Not Supported
CapICharWait	1.0	1.0	Not Supported
CapMapCharacterSet	1.7	1.7	Not Supported
CapReadBack	1.6	1.7	Not Supported
CapReverse	1.6	1.7	Not Supported
CapScreenMode	1.7	1.7	Not Supported
CapVMarquee	1.0	1.0	Not Supported
BlinkRate	1.6	1.7	Not Supported
CharacterSet	1.0	1.0	All - Values based on HW
CharacterSetList	1.0	1.0	All - Values based on HW
Columns	1.0	1.0	All
CurrentWindow	1.0	1.0	All
CursorColumn	1.0	1.0	All
CursorRow	1.0	1.0	All
CursorType	1.6	1.7	Not Supported
CursorUpdate	1.0	1.0	All
CustomGlyphList	1.6	1.7	Not Supported
DeviceBrightness	1.0	1.0	Not Supported - 0 or 100% only except 1 & 17) - 0-100%
DeviceColumns	1.0	1.0	All
DeviceDescriptors	1.0	1.0	All
DeviceRows	1.0	1.0	All
DeviceWindows	1.0	1.0	All
GlyphHeight:	1.6	1.7	Not Supported
GlyphWidth:	1,6	1.7	Not Supported
InterCharacterWait	1.0	1.0	Not Supported
MapCharacterSet	1.7	1.7	Not Supported
MarqueeFormat	1.0	1.0	Not Supported
MarqueeRepeatWait	1.0	1.0	Not Supported
MarqueeType	1.0	1.0	Not Supported
MarqueeUnitWait	1.0	1.0	Not Supported
MaximumX	1.7	1.7	Not Supported
MaximumY	1.7	1.7	Not Supported
Rows	1.0	1.0	All
ScreenMode	1.7	1.7	Not Supported
ScreenModeList	1.7	1.7	Not Supported
•Common Methods			
Open	1.0	1.0	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
DirectIO	1.0	1.0	11 & 12) Command 1 = ScreenMode, pData Value = (0-2x20,1-3x32) 15) Command 0 = ScreenMode, pData Value = (2-2x20,4-4x20,5-5x20)
•Specific Methods			
DisplayText	1.0	1.0	All
DisplayTextAt	1.0	1.0	All
ClearText	1.0	1.0	All
ScrollText	1.0	1.0	All
SetDescriptor	1.0	1.0	All except 1 & 17
ClearDescriptors	1.0	1.0	All except 1 & 17
CreateWindow	1.0	1.0	All
DestroyWindow	1.0	1.0	All
RefreshWindow	1.0	1.0	All
DefineGlyph	1.6	1.7	Not Supported
ReadCharacterAtCursor	1.6	1.7	Not Supported
DisplayBitmap	1.7	1.7	Not Supported
SetBitmap	1.7	1.7	Not Supported
•Events			
DirectIOEvent	1.0	1.0	Not Supported
StatusUpdateEvent	1.3	1.3	All

Magnetic Ink Character Recognition (MICR)

Name	Connectivity	Supported in Release	Comments
1. 4610 Printer family MICR	RS-232	1.0	
2	RS-485	1.0	
3	USB	1.4.2	
4. Model 4R Printer MICR	RS-485	1.0	
5	USB	1.4.2	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**			
AutoDisable	1.2	1.3	All
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DataCount	1.2	1.2	All
DataEventEnabled	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
CapValidationDevice	1.0	1.0	All
RawData	1.0	1.0	All
AccountNumber	1.0	1.0	All
Amount	1.0	1.0	All
EPC	1.0	1.0	All
ErrorReportingType	1.5	1.5	All
SerialNumber	1.0	1.0	All
TransitNumber	1.0	1.0	All
CheckType	1.0	1.0	All - cannot determine w/o Exception Processing
CountryCode	1.0	1.0	All - cannot determine w/o exception processing

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
•Common Methods			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
ClearInput	1.0	1.0	All
DirectIO	1.0	1.0	Not Supported
•Specific Methods			
BeginInsertion	1.0	1.0	All
EndInsertion	1.0	1.0	All
BeginRemoval	1.0	1.0	All
EndRemoval	1.0	1.0	All
•Events			
DataEvent	1.0	1.0	All
DirectIOEvent	1.0	1.0	Not Supported
ErrorEvent	1.0	1.0	All
StatusUpdateEvent	1.3	1.3	All

Magnetic Stripe Reader (MSR)

Name	Connectivity	Supported in Release	Comments
• ISO (3-track)			
1. Alphanumeric POS keyboard MSR	PS/2	1.0	
2	RS-485	1.0	
3	USB	1.4.2	
4. 50-key keyboard MSR	RS-485	1.0	
5	USB	1.4.2	
6. 133-key keyboard MSR	RS-485	1.0	
7	USB	1.4.2	
8. 4820 MSR	RS-232	1.4.3	
9	RS-485	1.0	
10	USB	1.4.2	
11. 4840 MSR	RS-232	1.4.3	
12. Sureone Built-in	Wedge	1.3	
13. CANPOS keyboard MSR	PS/2	1.7	Required manual firmware update for OPOS support
• JUCC			
14. 4820 MSR	RS-232	1.4.3	
15	RS-485	1.0	
16	USB	1.4.2	
17. 4840 MSR	RS-232	1.4.3	
18. Keyboard V MSR	RS-485	1.0	
19	USB	1.4.2	
20. Alphanumeric POS Korea keyboard	PS/2	1.0	
21	RS-485	1.0	
22	USB	1.4.2	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• Common Properties			
AutoDisable	1.2	1.3	All
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CapTransmitSentinels	1.5	1.5	All
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DataCount	1.2	1.3	All
DataEventEnabled	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
CapISO	1.0	1.0	All except 17)
CapJISOne	1.0	1.0	All except 11, 12 & 17)
CapJISTwo	1.0	1.0	All except 11 and 12)
TracksToRead	1.0	1.0	All
DecodeData	1.0	1.0	All
ParseDecodeData	1.0	1.0	All
ErrorReportingType	1.2	1.3	All
Track1Data	1.0	1.0	All
Track2Data	1.0	1.0	All
Track3Data	1.0	1.0	All
Track4Data	1.5	1.5	All JUCC
AccountNumber	1.0	1.0	All
ExpirationDate	1.0	1.0	All
Title	1.0	1.0	All
FirstName	1.0	1.0	All
MiddleInitial	1.0	1.0	All
Surname	1.0	1.0	All
Suffix	1.0	1.0	All
ServiceCode	1.0	1.0	All
Track1DiscretionaryData	1.0	1.0	All
Track2DiscretionaryData	1.0	1.0	All
TransmitSentinels	1.5	1.5	Not Supported
•**Common Methods**			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
ClearInput	1.0	1.0	All
DirectIO	1.0	1.0	Not Supported
Events			
DataEvent	1.0	1.0	All
DirectIOEvent	1.0	1.0	Not Supported
ErrorEvent	1.0	1.0	All
StatusUpdateEvent	1.3	1.3	All

Motion Sensor

Name	Connectivity	Supported in Release	Comments
1. SurePOS 500/600 and Kiosk	-	1.5	

Name	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**		
BinaryConversion	1.7	All
CapPowerReporting	1.7	All support NONE
CheckHealthText	1.7	All
Claimed	1.7	All
DeviceEnabled	1.7	All
FreezeEvents	1.7	All
OpenResult	1.7	All
PowerNotify	1.7	All
PowerState	1.7	All
ResultCode	1.7	All
ResultCodeExtended	1.7	All
State	1.7	All
ControlObjectDescription	1.7	All
ControlObjectVersion	1.7	All
ServiceObjectDescription	1.7	All
ServiceObjectVersion	1.7	All
DeviceDescription	1.7	All
DeviceName	1.7	All
•**Specific Properties**		
Motion	1.7	All
Timeout	1.7	All
•**Common Methods**		
Open	1.7	All
Close	1.7	All
ClaimDevice	1.7	Always Shareable
ReleaseDevice	1.7	Always Shareable
CheckHealth	1.7	All
DirectIO	1.7	Not Supported
•**Specific Methods**		
WaitForMotion	1.7	All
•**Events**		
DirectIOEvent	1.7	Not Supported
StatusUpdateEvent	1.7	All

POS Keyboard

Name	Connectivity	Supported in Release	Comments
• SBCS			
1. Alphanumeric POS keyboard	PS/2	1.1	
2	RS-485	1.1	
3	USB	1.4.2	
4.50-key keyboard	RS-485	1.1	
5	USB	1.4.2	
6. 133-key keyboard	RS-485	1.1	
7	USB	1.4.2	
8 32-key keypad	RS-485		
9	USB		
10. CANPOS keyboard	PS/2	1.7	Required manual firmware update for OPOS support
• DBCS			
11. POS Keyboard V	RS-485	1.1	
12	USB	1.4.2	
13. Alphanumeric POS Korea keyboard	PS/2	1.1	
14	RS-485	1.1	
15	USB	1.4.2	
16. PLU keyboard	RS-485	1.1	
17	USB	1.4.2	
18. Retail POS keyboard	RS-485	1.1	
19	USB	1.4.2	
20. Sureone Built-in Keyboard	Built-in	--	Not Supported - Key Mapping is configurable
21. 4685-K02 (Ultra7) keyboard	USB	1.7	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• Common Properties			
AutoDisable	1.2	1.3	All
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.1	1.4.4	All
Claimed	1.1	1.1	All
DataCount	1.2	1.3	All
DataEventEnabled	1.1	1.1	All
DeviceEnabled	1.1	1.1	All
FreezeEvents	1.1	1.1	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.1	1.1	All
ResultCodeExtended	1.1	1.1	All
State	1.1	1.1	All
ControlObjectDescription	1.1	1.1	All
ControlObjectVersion	1.1	1.1	All
ServiceObjectDescription	1.1	1.1	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
ServiceObjectVersion	1.1	1.1	All
DeviceDescription	1.1	1.1	All
DeviceName	1.1	1.1	All
•Specific Properties			
CapKeyUp	1.2	1.2	All
EventTypes	1.2	1.2	All
POSKeyData	1.1	1.1	All
POSKeyEventType	1.2	1.2	All
•Common Methods			
Open	1.1	1.1	All
Close	1.1	1.1	All
Claim,ClaimDevice	1.1	1.1	All
Release,ReleaseDevice	1.1	1.1	All
CheckHealth	1.1	1.4.4	All
ClearInput	1.1	1.1	All
DirectIO	1.1	1.1	Not Supported
•Events			
DataEvent	1.1	1.1	All
DirectIOEvent	1.1	1.1	Not Supported
ErrorEvent	1.1	1.1	All
StatusUpdateEvent	1.3	1.3	All

POS Printer

Name	Connectivity	Supported in Release	Comments
1. 4610 Printer Family	RS-232	1.0	Include SST (TM6/TF6/TM7/TF7), TI1, TI2, TI3, TI4, TI5, TI8 models.
2	RS-485	1.0	
3	USB	1.4.2	
4. Model 3/4 Printer Family	RS-485	1.0	Include 3, 4, 4R, 4A
5	USB	1.4.4	Printer Protocol Converter is used, include 3, 4, 4R, 4A
6. 4689 Printer Family Impact	RS-485	1.3	Include 001,002
7. 4689 Printer Family Thermal	RS-485	1.3	Include 301,3G1,3M1, TD5
	USB	1.4.2	TD5 only
9. SureOne Printer - Single Head Impact	RS-232	1.3	
10. SureOne Printer - Thermal	RS-232	1.3	
11. SureOne Printer - Double Head Impact	RS-232	1.5	
12. SureOne Printer - A04/A05 Impact	RS-232	1.7	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**			
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD expect 9 & 10 which support NONE
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
OutputID	1.0	1.0	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
CapCharacterSet	1.1	1.1	All - Values based on HW
CapConcurrentJrnRec	1.0	1.0	4,5,6,7,8,
CapConcurrentJrnSlp	1.0	1.0	Not Supported
CapConcurrentRecSlp	1.0	1.0	1,2,3 (TI1-5),
CapCoverSensor	1.0	1.0	All except 9, 10, 11 & 12
CapMapCharacterSet	1.7	1.7	Not Supported

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
CapTransaction	1.1	1.1	All
CapJrnPresent	1.0	1.0	4,5,6,7,8,
CapJrn2Color	1.0	1.0	Not Supported
CapJrnBold	1.0	1.0	4,5
CapJrnCartridgeSensor	1.5	1.5	
CapJrnColor	1.5	1.5	
CapJrnDhigh	1.0	1.0	4,5,7,8
CapJrnDwide	1.0	1.0	4,5,7,8
CapJrnDwideDhigh	1.0	1.0	4,5,7,8
CapJrnEmptySensor	1.0	1.0	4,5,6,7,8
CapJrnItalic	1.0	1.0	Not Supported
CapJrnNearEndSensor	1.0	1.0	7,8
CapJrnUnderline	1.0	1.0	7,8
CapRecPresent	1.0	1.0	All
CapRec2Color	1.0	1.4.4	1,2,3 (Tl3-4,Tx6-8) EC >33
CapRecBarCode	1.0	1.0	1,2,3,7,8,10,
CapRecBitmap	1.0	1.0	All
CapRecBold	1.0	1.0	1,2,3,4,5,9,10,12
CapRecCartridgeSensor	1.5	1.5	Not Supported
CapRecColor	1.5	1.5	1,2,3 (Tl3-4,Tx6-8) EC >33
CapRecDhigh	1.0	1.0	1,2,3,7,8,10,12 4,5 DH forces DW 9 Reverts to normal rotation in 180 mode
CapRecDwide	1.0	1.0	1,2,3,4,5,7,8,9,10,11,12
CapRecDwideDhigh	1.0	1.0	1,2,3,4,5,7,8,10,12 9 Reverts to normal rotation in 180 mode
CapRecEmptySensor	1.0	1.0	1,2,3,6,
CapRecItalic	1.0	1.0	Not Supported
CapRecLeft90	1.0	1.0	Not Supported
CapRecMarkFeed	1.5	1.5	Not Supported
CapRecNearEndSensor	1.0	1.0	7
CapRecPapercut	1.0	1.0	All except 9,11 & 12
CapRecRight90	1.0	1.4.0	1,2,3,
CapRecRotate180	1.0	1.4.4	1,2,3 EC >33 & 9,10,11,12
CapRecStamp	1.0	1.0	1,2,3, - Uses Stored Bitmap 1 6 - Physical Stamp 7,8 - Downloaded Stamp
CapRecUnderline	1.0	1.0	1,2,3,7,8,9,10,11,12
CapSlpPresent	1.0	1.0	1,2,3,4,5,
CapSlpFullslip	1.0	1.0	4,5,
CapSlp2Color	1.0	1.0	Not Supported

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
CapSlpBarCode	1.0	1.0	1,2,3 EC >1D
CapSlpBitmap	1.0	1.0	1,2,3,4,5,6,
CapSlpBold	1.0	1.0	1,2,3,4,5,
CapSlpBothSidesPrint	1.5	1.5	1,2,3 except SST
CapSlpCartridgeSensor	1.5	1.5	Not Supported
CapSlpColor	1.5	1.5	Not Supported
CapSlpDhigh	1.0	1.0	1,2,3, 4,5 DH forces DW
CapSlpDwide	1.0	1.0	1,2,3,4,5,
CapSlpDwideDhigh	1.0	1.0	1,2,3,4,5,
CapSlpEmptySensor	1.0	1.0	1,2,3,4,5,
CapSlpItalic	1.0	1.0	Not Supported
CapSlpLeft90	1.0	1.3	1,2,3,
CapSlpNearEndSensor	1.0	1.0	1,2,3,4,5,6,
CapSlpRight90	1.0	1.0	Not Supported
CapSlpRotate180	1.0	1.0	Not Supported
CapSlpUnderline	1.0	1.0	Not Supported
AsyncMode	1.0	1.0	All
CartridgeNotify	1.5	1.5	Not Supported
CharacterSet	1.0	1.0	All
CharacterSetList	1.0	1.0	All
CoverOpen	1.0	1.0	1,2,3,4,5, 7,8 - When printer not idle
ErrorLevel	1.1	1.1	All
ErrorStation	1.0	1.0	All
ErrorString	1.1	1.1	All
FontTypefaceList	1.1	1.1	1,2,3 (TI3-5, Tx6-8) EC >33, can list "Fixed, Proportional" based on downloaded UD Fonts, null string otherwise
FlagWhenIdle	1.0	1.0	All
MapCharacterSet	1.7	1.7	Not supported
MapMode	1.0	1.0	All
RotateSpecial	1.1	1.4.4	
_NORMAL			1,2,3,
_LEFT90			--
_RIGHT90			--
_ROTATE180			1,2,3 (TI3-5, Tx6-8) EC >33
JrnLineChars	1.0	1.0	1,2,3,9,10,11,12 - 0 4,5 - 38 6 - 25 7,8 - 32

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
JrnLineCharsList	1.0	1.0	1,2,3,9,10,11,12 - "" (Empty) 4,5 - "30,38,42" - Older models may only support "30,38" 6 - "25,30" 7,8 = "32,42"
JrnLineHeight	1.0	1.0	1,2,3,9,10,11,12 - 0 4,5,6, - 9 7,8 - 24
JrnLineSpacing	1.0	1.0	1,2,3,9,10,11,12 - 0 4,5,6, - 12 7,8 - 27
JrnLineWidth	1.0	1.0	1,2,3,9,10,11,12 - 0 4,5 - 380 7,8 - 420 6, - 300
JrnLetterQuality	1.0	1.0	Not Supported
JrnEmpty	1.0	1.0	4,5,6,7,8
JrnNearEnd	1.0	1.0	7,8
JrnCartridgeState	1.5	1.5	Not Supported
JrnCurrentCartridge	1.5	1.5	Not Supported
RecLineChars	1.0	1.0	1,2,3 (Tl3-5, Tx6-8 EC >33),11, - 56 1,2,3 (All other) - 48 4,5,6,7,8, - 38 9,10,11,12 - 40
RecLineCharsList	1.0	1.0	1,2,3 (Tl3-5, Tx6-8) EC >33, - "34,44,48,56" 1,2,3 (All other),10 - "34,44,48" 4,5 - "30,38,42" - Older models may only support "30,38" 6 - "25,30" 7,8 - "32,42" 9,12 - "22,33,40" 10 - "36,38,44,48" 11 - "33,40"
RecLineHeight	1.0	1.0	1,2,3, - 34 4,5,6, - 9 7,8 - 24 9,11,12 - 8 10 - 24

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
RecLineSpacing	1.0	1.0	1,2,3, - 34 4,5,6, - 12 7,8 - 27 9,11,12 - 9 10 - 32
RecLineWidth	1.0	1.0	1,2,3 (TI1-5, Tx6-8),10, - 576 1,2,3 Tx6-8 Narrow Paper - 400 4,5 - 380 6, - 300 7,8 -420 9,11,12 - 280 10 - 576
RecLetterQuality	1.0	1.4.4	1,2,3 (TI3-5, Tx6-8) EC >33,
RecEmpty	1.0	1.0	1,2,3,6,
RecNearEnd	1.0	1.0	7
RecSidewaysMaxLines	1.0	1.0	1,2,3 TI1-5, Tx6-8, - 25 1,2,3 Tx6-8 Narrow Paper - 18 7,8 - 19
RecSidewaysMaxChars	1.0	1.0	1,2,3,7,8 - 256
RecLinesToPaperCut	1.0	1.0	1,2,3, - 12 4,5,7,8 - 6 6 - 16 9,10,11,12 - 4
RecBarCodeRotationList	1.1	1.1	1,2,3 (TI3-5, Tx6-8) EC >33, can list "0,180" . Otherwise, 1,2,3 list "0".
RecBitmapRotationList	1.7	1.7	"0"
RecCartridgeState	1.5	1.5	Not Supported
RecCurrentCartridge	1.5	1.5	Not Supported
SlpLineChars	1.0	1.0	1,2,3, - 47 4,5 - 86 6 - 58
SlpLineCharsList	1.0	1.0	1,2,3, - "30,37,38,42,47,52" 4,5 - "30,38,42,68,86,94" - Older models may only support "30,38,68,86" 6 - "58,70"
SlpLineHeight	1.0	1.0	1,2,3, - 7 4,5,6, - 9
SlpLineSpacing	1.0	1.0	1,2,3, - 8 4,5,6, - 12

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
SlpLineWidth	1.0	1.0	1,2,3, - 470 4,5 - 880 6, - 300
SlpLetterQuality	1.0	1.4.4	1,2,3 (Tl3-5, Tx6-8) EC >33,
SlpEmpty	1.0	1.0	1,2,3,4,5,
SlpNearEnd	1.0	1.0	1,2,3,4,5,6,
SlpSidewaysMaxLines	1.0	1.0	1,2,3, - 19
SlpSidewaysMaxChars	1.0	1.0	1,2,3, - 148
SlpMaxLines	1.0	1.0	All - Values based on HW
SlpLinesNearEndToEnd	1.0	1.0	All - Values based on HW
SlpBarCodeRotationList	1.1	1.4.4	1,2,3 (Tl3-5, Tx6-8) EC >1D, has "0"
SlpBitmapRotationList	1.7	1.7	"0"
SlpPrintSide	1.5	1.5	1,2,3 except SST,
SlpCartridgeState	1.5	1.5	Not Supported
SlpCurrentCartridge	1.5	1.5	Not Supported
•Common Methods			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
ClearOutput	1.0	1.0	All
DirectIO	1.0	1.0	1,2,3) - 0x01=Flip Check
		1.7	1,2,3) - 0x10 - Write Flash Memory
			1,2,3) - 0x11 - Read Flash Memory
			1,2,3) - 0x12 - Query Flash Size
			1,2,3) - 0x13 - Query Maximum Records
			1,2,3) - 0x14 - Set Record Length
			1,2,3) - 0x15 - Erase Flash Memory
			1,2,3) - 0x16 - Get Record Length
•Specific Methods			
PrintNormal	1.0	1.0	All
PrintTwoNormal	1.0	1.0	1,2,3,4,5,6,7,8,
PrintImmediate	1.0	1.0	All
BeginInsertion	1.0	1.0	1,2,3,4,5,6,
EndInsertion	1.0	1.0	1,2,3,4,5,6,
BeginRemoval	1.0	1.0	1,2,3,4,5,6,
EndRemoval	1.0	1.0	1,2,3,4,5,6,
CutPaper	1.0	1.0	All except 10

Name		Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
RotatePrint		1.0	1.3	
_NORMAL				All
_LEFT90				1,2,3, (Slip)
_RIGHT90				1,2,3,7,8 (Receipt)
_ROTATE180				1,2,3 (Tl3-5, Tx6-8) EC >33, (Receipt) 9,10,11,12 (Receipt)
PrintBarCode		1.0	1.1	1,2,3,10, (Receipt)
				1,2,3 (Tl3-5, Tx6-8) EC>1D, (Slip)
PrintBitmap		1.0	1.1	1,2,3,4,5,6,7,8,9,10,11,12
TransactionPrint		1.1	1.1	All
ValidateData		1.1	1.1	All
SetBitmap		1.0	1.1	1,2,3,4,5,6,7,8,9,10,11,12
SetLogo		1.0	1.0	All
ChangePrintSide		1.5	1.5	1,2,3 except SST,
MarkFeed		1.5	1.5	Not Supported
•Events				
DirectIOEvent		1.0	1.0	Not Supported
ErrorEvent		1.0	1.0	All
OutputCompleteEvent		1.0	1.0	All
StatusUpdateEvent		1.0	1.0	All
• Escape Sequences				
Paper cut	ESC |#P	1.0	1.0	All except 9,11,12
Feed and Paper cut	ESC |#fP	1.0	1.0	All except 10
Feed, Paper cut, and Stamp	ESC |#sP	1.0	1.3	1,2,3,6,7,8,
Fire stamp	ESC |sL	1.0	1.3	1,2,3, - Prints downloaded receipt bitmap 1. 6,7,8 Supported Stamp, but not as a single command
Print bitmap	ESC |#B	1.0	1.0	1,2,3,4,5,6,7,8,9,10,11,12
Print top logo	ESC |tL	1.0	1.0	All
Print bottom logo	ESC |bL	1.0	1.0	All
Feed lines	ESC |#lF	1.0	1.0	All
Feed units	ESC |#uF	1.0	1.4.3	All
Feed reverse	ESC |#rF	1.0	1.0	4,5 - Cannot mix with feed forward
Font typeface selection	ESC |#fT	1.0	1.4.4	1,2,3 (Tl3-5, Tx6-8) EC >33 , with downloaded proportional font

Name		Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
Bold	ESC |bC	1.0	1.0	Same as CapXxxBold
Underline	ESC |#uC	1.0	1.0	Same as CapXxxUnderline
Italic	ESC |iC	1.0	1.0	Not Supported
Alternate color	ESC |rC	1.0	1.4.4	1,2,3 (Tl3-5, Tx6-8) EC >33 , with Configured setting and correct paper
Alternate color (Custom)	ESC |#rC	1.5	1.0	1,2,3 (Tl3-5, Tx6-8) EC >33 , with Configured setting and correct paper
Reverse video	ESC |rvC	1.0	1.0	1,2,3,8,10, 10 Reverts to normal rotation in 180 mode
Shading	ESC |#sC	1.0	1.0	7,8
Single high & wide	ESC |1C	1.0	1.0	All
Double wide	ESC |2C	1.0	1.0	Same as CapXxxDwide
Double high	ESC |3C	1.0	1.0	Same as CapXxxDhigh
Double high & wide	ESC |4C	1.0	1.0	Same as CapXxxDwideDhigh
Scale horizontally	ESC |#hC	1.0	1.4.2	1,2,3,4,5,6,7,8,10. Up to 2. Same as CapXxxDwide 10 Up to 6 1,2,3 (Tl3-5, Tx6-8) EC >33, Up to 8
Scale vertically	ESC |#vC	1.0	1.0	1,2,3,4,5,6,7,8,10. Up to 2. Same as CapXxxDwide 10 Up to 6 1,2,3 (Tl3-5, Tx6-8) EC >33, Up to 8
RGB color	ESC |#fC	1.5		Not Supported
Center	ESC |cA	1.0	1.3	All
Right justify	ESC |rA	1.0	1.3	All
Normal	ESC |N	1.0	1.0	All
SubScript	ESC |tbC	1.5		Not Supported
SuperScript	ESC |tpC	1.5		Not Supported
Embedded Escape	ESC |#E	1.7		Not Supported

Scale

Name	Connectivity	Supported in Release	Comments
1. 4687 Scanner/Scale	RS-485	1.0	
	USB	1.4.2	Using Protocol Converter
2. 4696 Scanner/scale	RS-485	1.0	
	USB	1.4.2	Using Protocol Converter
3. 4698 Scanner/scale	RS-485	1.0	
	USB	1.4.2	Using Protocol Converter
4. OEM Scale	USB	1.4.2	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**			
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DataCount	1.3	1.3	All
DataEventEnabled	1.3	1.3	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
CapDisplay	1.2	1.2	Not Supported except 1)
CapDisplayText	1.3	1.3	Not Supported
CapPriceCalculating	1.3	1.3	Not Supported
CapTareWeight	1.3	1.3	Not Supported
CapZeroScale	1.3	1.3	All except 1)
AsyncMode	1.3	1.3	All
MaxDisplayTextChars	1.3	1.3	Not Supported - 0
MaximumWeight	1.0	1.0	All
SalesPrice	1.3	1.3	Not Supported
TareWeight	1.3	1.3	Not Supported
UnitPrice	1.3	1.3	Not Supported
WeightUnit	1.0	1.0	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
•Common Methods			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
ClearInput	1.3	1.3	All
DirectIO	1.0	1.0	Not Supported
•Specific Methods			
DispalyText	1.3	1.3	Not supported
ReadWeight	1.0	1.0	All
ZeroScale	1.3	1.3	All except 1)
•Events			
DataEvent	1.3	1.3	All
DirectIOEvent	1.0	1.0	Not Supported
ErrorEvent	1.3	1.3	All
StatusUpdateEvent	1.3	1.3	All

Scanner (Bar Code Reader)

Name	Connectivity	Supported in Release	Comments
1. IBM 1520 hand held scanner	RS-485	1.0	
2. 4687 Scanner/scale	RS-485	1.0	
	USB	1.4.2	Using Protocol Converter
3. 4696 Scanner/scale	RS-485	1.0	
	USB	1.4.2	Using Protocol Converter
4. 4698 Scanner/scale	RS-485	1.0	
	USB	1.4.2	Using Protocol Converter
5. HHBCR	RS-485	1.0	
6. HHBCR2	RS-485	1.0	
7. OEM Scanner	USB	1.4.2	
8. IBM 4685 Scanner	RS-485	1.0	
	USB	1.7	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• **Common Properties**			
AutoDisable	1.2	1.3	All
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.0	1.4.4	All
Claimed	1.0	1.0	All
DataCount	1.2	1.3	All
DataEventEnabled	1.0	1.0	All
DeviceEnabled	1.0	1.0	All
FreezeEvents	1.0	1.0	All
OpenResult	1.5	1.5	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.0	1.0	All
ResultCodeExtended	1.0	1.0	All
State	1.0	1.0	All
ControlObjectDescription	1.0	1.0	All
ControlObjectVersion	1.0	1.0	All
ServiceObjectDescription	1.0	1.0	All
ServiceObjectVersion	1.0	1.0	All
DeviceDescription	1.0	1.0	All
DeviceName	1.0	1.0	All
•**Specific Properties**			
DecodeData	1.2	1.3	All
ScanData	1.0	1.0	All
ScanDataLabel	1.2	1.3	All
ScanDataType	1.2	1.3	All
•**Common Methods**			
Open	1.0	1.0	All
Close	1.0	1.0	All
Claim,ClaimDevice	1.0	1.0	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
Release,ReleaseDevice	1.0	1.0	All
CheckHealth	1.0	1.4.4	All
ClearInput	1.0	1.0	All
DirectIO	1.0	1.0	Not Supported
•Events			
DataEvent	1.0	1.0	All
DirectIOEvent	1.0	1.0	Not Supported
ErrorEvent	1.0	1.0	All
StatusUpdateEvent	1.3	1.3	All

Tone Indicator

Name	Connectivity	Supported in Release	Comments
• SBCS			
1.Alphanumeric POS Keyboard tone	PS/2	1.3	
2	RS-485	1.3	
3	USB	1.3	
4. 50-key Keyboard tone	RS-485	1.3	
5	USB	1.3	
6. 133-key Keyboard tone	RS-485	1.3	
7	USB	1.3	
8. 4820 tone	RS-485	1.3	
9	USB	1.3	
• DBCS			
10. POS Keyboard V tone	RS-485	1.3	
11	USB	1.3	
12.Alphanumeric POS Korea keyboard tone	PS/2	1.3	
13	RS-485	1.3	
14	USB	1.3	
15. PLU keyboard tone	RS-485	1.3	
16	USB	1.3	
17. Retail POS keyboard tone	RS-485	1.3	
18	USB	1.3	
19.4610 Tx6 and Tx7 Printer tone	RS-232	1.4.4	
20	RS-485	1.4.4	
21	USB	1.4.4	
22. System tone	Built-in	1.3	

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
• Common Properties			
BinaryConversion	1.2	1.3	All
CapPowerReporting	1.3	1.3	All support STANDARD
CheckHealthText	1.2	1.4.4	All
Claimed	1.2	1.3	All
DeviceEnabled	1.2	1.3	All
FreezeEvents	1.2	1.3	All
OpenResult	1.5	1.5	All
OutputID	1.2	1.3	All
PowerNotify	1.3	1.3	All
PowerState	1.3	1.3	All
ResultCode	1.2	1.3	All
ResultCodeExtended	1.2	1.3	All
State	1.2	1.3	All
ControlObjectDescription, DeviceControlDescription	1.2	1.3	All
ControlObjectVersion,	1.2	1.3	All

Name	Defined in Industry Spec Level	Supported in Release	Supported Hardware Device/Comments
DeviceControlVersion			
ServiceObjectDescription, DeviceServiceDescription	1.2	1.3	All
ServiceObjectVersion DeviceServiceVersion	1.2	1.3	All
DeviceDescription, PhysicalDeviceDescription	1.2	1.3	All
DeviceName, PhysicalDeviceName	1.2	1.3	All
•Specific Properties			
AsyncMode	1.2	1.3	All
CapPitch	1.2	1.3	All
CapVolume	1.2	1.3	All
Tone1Pitch	1.2	1.3	All
Tone1Volume	1.2	1.3	All
Tone1Duration	1.2	1.3	All
Tone2Pitch	1.2	1.3	All
Tone2Volume	1.2	1.3	All
Tone2Duration	1.2	1.3	All
InterToneWait	1.2	1.3	All
•Common Methods			
Open	1.2	1.3	All
Close	1.2	1.3	All
Claim,ClaimDevice	1.2	1.3	All
Release,ReleaseDevice	1.2	1.3	All
CheckHealth	1.2	1.4.4	All
ClearOutput	1.2	1.3	All
DirectIO	1.2	1.0	Not Supported
•Specific Methods			
Sound	1.2	1.3	All
SoundImmediate	1.2	1.3	All
•Events			
DirectIOEvent	1.2	1.0	Not Supported
ErrorEvent	1.2	1.3	All
OutputCompleteEvent	1.2	1.3	All
StatusUpdateEvent	1.3	1.3	All

Performing Problem Determination

Gathering Trace Information

Tracing Information

For all IBM OPOS device drivers (except for devices that are part of the RS-232 attached SureMark Printers), the following steps are used to gather trace information.

1. From a command line prompt, change to the directory where your application resides, or the setting can be put in the System Environment variables section of the control panel.
2. Enter "set AIP_OPOS_TRACE=ON"
3. Enter "set AIP_OPOS_TRACE_ALL=ON"
4. Start your application from the command line prompt

The resulting ASCII trace will be stored in C:\aipopos.log

If you are tracing the OPOS Printer activity, you can set the following environment variables to reduce the size of the trace file and speed its analysis.

AIP_OPOS_TRACE=on:ptrso
AIP_OPOS_TRACE_ALL=on:ptrso

To trace cash drawer activity..
AIP_OPOS_TRACE=on:cd
To trace scanner activity..
AIP_OPOS_TRACE=on:scnso

File Name and Flush options

If the user wishes to store this trace in another file, he can use another environment variable to set the file name.

1. From a command line prompt, change to the directory where your application resides, or the setting can be put in the System Environment variables section of the control panel.
2. Enter "set AIP_OPOS_LOG_FILE=c:\mytrace.log"
3. Start your application from the command line prompt

The trace information will now be stored in c:\mytrace.log instead of c:\aipopos.log.

By default, all trace information is flushed from the buffer and written to the log file. If for some reason, flushing the buffer is not desired, it can be turned off.

1. From a command line prompt, change to the directory where your application resides, or the setting can be put in the System Environment variables section of the control panel.
2. Enter "set AIP_OPOS_FLUSH=off"
3. Start your application from the command line prompt

The trace information will now be written when resources are available.

RS232 Attached SureMark Tracing

To gather trace information from any IBM OPOS devices that are part of the RS232 connection SureMark printer, the following steps are used.

1. Edit the registry and find the entry for the OPOS Device name you wish to trace, such as:

    HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter\IBMSureMark

2. Create a value of type DWORD with the name "TraceFlags".
3. Set the value of TraceFlags to x'FFFFFFFF'. This will gather trace information of all types.
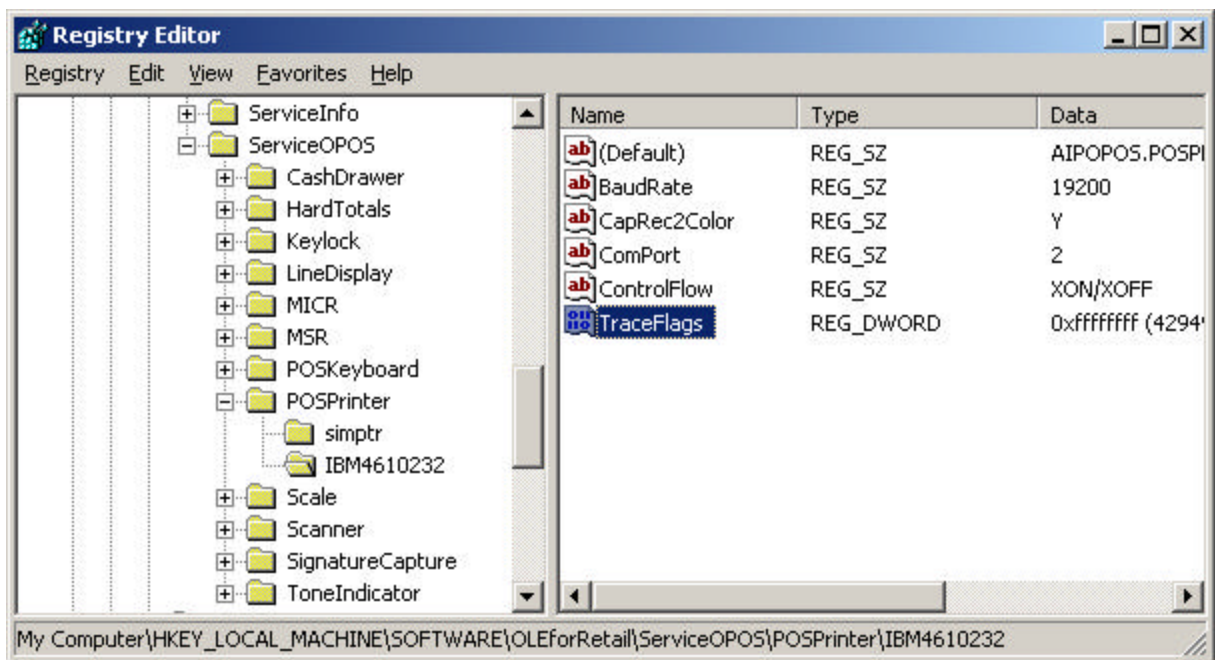

Figure 4 Registry Entry for RS232 SureMark Device

The trace information is placed in the file c:\aip4610.log. This trace is binary data and must be formatted by IBM support.

To change the name and location of the trace file, another Registry entry of type String with the name "TraceFile" can be used. The value should be a standard path and file name format.

To restrict trace information to certain areas, the following bit wise settings may be used instead:

COMM Information	0x0001
API Information	0x0002
Event Information	0x0004
Exceptions	0x0080
Debug Information	0x8000

Modifying Service Object Behavior

Service Object behavior can and should be modified using the Configuration tool. In nearly all cases, this is all that is required. In some special cases additional settings are available in the registry to further modify Service Object Behavior. The following is a table of settings and their uses:

Device	Keyword	Type	Set with Config Tool?	Comments/Settings	
All Devices					
	deviceName	String	Y	Name of the device (should not exceed 10 characters)	
SIO/USB Devices					
General Settings all devices of this type have these settings.	slotNumber	String	Y	The slot number the device is connected to.	
				0-8	Range
	portNumber	String	Y	The port number the device is connected to.	
				0, x11,x22	Range
	deviceNumber	String	Y	Unique number identifying the type of device	
				See "*IBM Point of Sale Subsystem Programming Reference and User's Guide*,SC30-3560" for list of device Numbers	
Cash Drawer - attached to 4610	CashDrawerNumber	String	Y	Drawer Number assigned to Cash Drawer	
				1	First Drawer (default)
				2	Second Drawer
Line Display	DefineCharacter	Key	N	Key containing key values for User Defined Characters	
	DefineCharacter\<X>	String	N	Decimal value of User Defined Character to be downloaded.	
				8 bytes of binary data for character definition	See "*IBM Point of Sale Subsystem Programming Reference and User's Guide*,SC30-3560" for Character format

Keylock	SecondKeyPosition	String	Y	When Present, the additional position on the Japanese ANPOS keyboard is mapped to a LOCK_KP_LOCK.	
	PositonCount (4685-K02)	DWORD	Y	Number of keylock positions (max of 6 for 4685-K02)	
	PositionMapFrom (4685-K02)	Binary	Y	Keylock position code mapping (from)	
	PositionMapTo (4685-K02)	Binary	Y	Keylock position code mapping (to)	
	LetLastKeepAcquired[1]	String	Y	Allows the last interface to access the physical POS Keyboard interface to keep the device acquired instead of passing it on to the next device that attempts to acquire it	
MICR	ExceptionFile	String	N	Path and file name of MICR Exception File. This file is used to store MICR exception processing information.	
				C:\POS\BIN\PARSE.DAT (default)	
	MinMicrSignalLevel	String	N	Specifies the minimum signal string for a successful MICR read	
				100	Full String (default)
				0-100	Total Range
POS Keyboard	Numlock	String	Y	Determines initial state of Numlock light	
				ON	Sets ON
				All others	Sets OFF (default)
	NumlockOn	String	N	Determines initial state of Numlock light - Overrides "Numlock" value	
				TRUE	Sets ON
				All others	Sets OFF (default)
	NumlockEnabled	String	N	Enables/Disables Numlock Key	
				TRUE	Numlock Enabled
				All others	Numlock Disabled (default)
	ScrolllockOn	String	N	Determines initial state of Scrolllock light	
				TRUE	Sets ON
				All others	Sets OFF (default)
	ScrolllockEnabled	String	N	Enables/Disables Scrolllock Key	
				TRUE	Scrolllock Enabled
				All others	Scrolllock Disabled (default)
	MapPosKeys	String	Y	File Name of Key Map file	
				C:\POS\BIN\KBDKMAP.DAT (default)	
	MapKeyboardToOS	String	N	Enabled Key events from SIO Keyboard to be converted to Windows Key Events	
				TRUE	Enables conversion
				All others	Disabled (default)

[1]This setting is an **unsupported, untested** option used to modify service object behavior only in very limited cases. This setting should not be used unless directed to by IBM Support personnel.

POS Printer	AsyncBufferDelay[1]	String	N	Number of milliseconds Async Thread will wait for Asynchronous request to be added to the queue before processing begins	
				100	(default)
	AsyncBlockChase[1]	String	N	Indicates whether the printer driver should wait for confirmation that the printer has printed the Asynchronous Block of data before continuing with print commands	
				ON	Wait for complete (default)
				OFF	Don't wait
	AsyncCarriageReturn[1]	String	N	Indicates whether to automatically add a carriage return after each print commands in AsyncMode	
				OFF	No Carriage Returns added(default)
				ON	Add Carriage Return
	SyncPrintWithoutWait[1]	String	N	Indicates whether the printer driver should wait for confirmation that the printer has printed the synchronous data before continuing with print commands	
				FALSE	Wait for complete (default)
				TRUE	Don't Wait
	ChineseDBCS[1]	String	N	4610 only. Supports use of bitmap printing to support DBCS characters. Character map downloaded to subsystem and converted to bitmap at print time. No longer supported due to availability of Tl5 and Tx7.	
				OFF	(default)
				ON	
	StripDBLineFeeds[1]	String	N	Strips out Carriage Returns and Line Feeds when in Chinese Double Byte Mode. Only valid if ChineseDBCS is ON	
				OFF	Do not strip of CR and LF (default)
				ON	Strip CR and LF
	PDF417ECCLevel	String	N	Number of Error Correction Codewords added when printing a PDF417 barcode	
				15	(default)
				0-400	Range
	PDF417AspectHeight	String	N	Aspect Ration Height when printing PDF417 barcodes	
				1	(default)

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[1]This setting is an **unsupported, untested** option used to modify service object behavior only in very limited cases. This setting should not be used unless directed to by IBM Support personnel.

				1-9	Range
PDF417AspectWidth	String	N	Aspect Ration Width when printing PDF417 barcodes		
			2	(default)	
			1-9	Range	
PDF417Truncation	String	N	Truncation setting when printing PDF417 barcodes		
			0	Disable (default)	
			1	Enable	
TranslateCharacter	Key	N	Key containing key values for translating from one character to another		
TranslateCharacter\<X>	String	N	Decimal value of character to translate		
			One byte value of character to translate to		
CapRec2Color	String	Y	Indicates if Color Thermal Paper is loaded in the SureMark Printer		
			N	Not color (default)	
			Y	Color Paper	
ProportionalFontFixedWidth	String	Y	Alignment width (in printer dots) used to align proportional font characters on a fixed width		
			20	20 dots (default	
			8-32	Range	
PrinterModel (4689)	String	Y	(4689) - Defines the model of the 4689 printer:		
			'4689-TD5'	4689-TD5 (default if no registry entry is found)	
			'4689-301'	4689-301	
			'4689-3M1'	4689-3M1	
			'4689-3G1'	4689-3G1	
			'4689-TD5(integrated into 4674)'	4689-TD5integrated into 4674	
			'4689-TG1(integrated into 4674)'	4689-TG1integrated into 4674	

	DoubleWideAndDoubleHighIsQuad	String	Y	(4610-Tl5 RS-485/USB) double-high and double-wide escape character sequences are handled as if they are quad characters. Otherwise, double-wide is x2-wide and x1-high and double-high is x1-wide and x2-high.	
				"ON"	Converted to Quad Characters
				All others	Not converted (default)
	PersistantBitmaps(4689)	String	N	Stored downloaded bitmap in the registry so that the service object does not need to download the bitmap each time the driver is opened.	
				FALSE	Must download on startup (default)
				TRUE	Store download information in registry
Scale	weightMode	String	Y	Units the scale shall use during operation	
				0	US Pounds (default)
				1	Kilograms
	RemoteDisplayAttached	String	N	Indicates if a Pole Display is supported	
				TRUE	Display Attached
				All Others	No Display (default)
	ZeroScale	String	N	Indicates if Zeroing the Scale is supported	
				0	No ZeroScale (default)
				1	

Device	Keyword	Type	Set with Config Tool?	Comments/Settings	
SurePOS 500/600					
Cash Drawer	ComPort	String	Y	Com Port for Device	
				COM4	Unit comes configured with COM4 for device (default)
				COM1-6	Can change device Com Port through BIOS. NOT RECOMMENDED.
	BaudRate	String	Y	Baud Rate for Device	
				9,600	Only supported value
	CashDrawerNumber	String	Y	Drawer Number assigned to Cash Drawer	
				1	First Drawer (default)
				2	Second Drawer
Line Display	ComPort	String	Y	Com Port for Device	
				COM4	Unit comes configured with COM4 for device (default)
				COM1-6	Can change Line Display Com Port through BIOS. NOT RECOMMENDED.
	BaudRate	String	Y	Baud Rate for Device	
				9,600	Only supported value
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	Only supported value
	Type	String	Y	Line Display Type	
				LINE	Single Byte Display
				APA	Double Byte Display
	Mode	String	Y	Screen Display Mode	
				2x20	Default
				4x20	
				5x20	

MSR	ComPort	String	Y	Com Port for Device	
				COM3	Unit comes configured with COM3 for device (default)
				COM1-6	Can change device Com Port through BIOS. NOT RECOMMENDED.
	BaudRate	String	Y	Baud Rate for Device	
				19,200	Only supported value
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	Only supported value
	MsrType	String	Y	Determines type of MSR reader attached.	
				ISO	Standard 3-Track Reader
				JUCC	JIS-I and II reader

Device	Keyword	Type	Set with Config Tool?	Comments/Settings	
SurePOS 300					
Cash Drawer	CashDrawerNumber	String	Y	Drawer Number assigned to Cash Drawer	
				1	First Drawer (default)
				2	Second Drawer
Line Display	ComPort	String	Y	Com Port for Device	
				COM4	COM4 (default)
				COM1-6	Can change Line Display Com Port
	BaudRate	String	Y	Baud Rate for Device	
				9,600	Only supported value
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	Only supported value
	Type	String	Y	Line Display Type	
				LINE	Single Byte Display
				APA	Double Byte Display
	Mode	String	Y	Screen Display Mode	
				2x20	Default
				4x20	
				5x20	
MSR	ComPort	String	Y	Com Port for Device	
				COM3	(default)
				COM1-6	
	BaudRate	String	Y	Baud Rate for Device	
				19,200	Only supported value
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	Only supported value
	MsrType	String	Y	Determines type of MSR reader attached.	
				ISO	Standard 3-Track Reader
				JUCC	JIS-I and II reader

Device	Keyword	Type	Set with Config Tool?	Comments/Settings	
RS-232 Attached SureMark					
General Settings	ComPort	String	Y	Com Port for Device	
				COM1	(default)
				COM1-6	Range
	BaudRate	String	Y	Baud Rate for Device	
				9,600	(default)
				19,200	
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	(default)
				XON/XOFF	
	TraceFlags	DWORD	N	Trace Facility - See "RS232 Attached SureMark Tracing" on page 44	
	TraceFile	String	N	Trace Facility - See "RS232 Attached SureMark Tracing" on page 44	
Cash Drawer	CashDrawerNumber	String	Y	Drawer Number assigned to Cash Drawer	
				1	First Drawer (default)
				2	Second Drawer
	PulseWidthOnTime	String	N	Used to modify pulse on time for firing a cash drawer	
				100	(default)
				0-512	Range
	PulseWidthOffTime	String	N	Used to modify pulse off time for firing a cash drawer	
				100	(default)
				0-512	Range
	SignalsReversed	String	Y	Used to indicate reverse wiring polarity for cash drawer.	
				TRUE	Use reverse polarity
				All others	Use regular polarity (default)
MICR	ExceptionFile	String	Y	Path and file name of MICR Exception File. This file is used to store MICR exception processing information.	
				C:\POS\BIN\PARSE.DAT (default)	
	MinMicrSignalLevel	String	N	Specifies the minimum signal string for a successful MICR read	
				100	Full String (default)
				0-100	Total Range

POS Printer	AsyncBufferDelay[1]	String	N	Number of milliseconds Async Thread will wait for Asynchronous request to be added to the queue before processing begins	
				100	(default)
	AsyncBlockChase[1]	String	N	Indicates whether the printer driver should wait for confirmation that the printer has printed the Asynchronous Block of data before continuing with print commands	
				ON	Wait for complete (default)
				OFF	Don't wait
	SyncPrintWithoutWait[1]	String	N	Indicates whether the printer driver should wait for confirmation that the printer has printed the synchronous data before continuing with print commands	
				FALSE	Wait for complete (default)
				TRUE	Don't Wait
	PDF417ECCLevel	String	N	Number of Error Correction Codewords added when printing a PDF417 barcode	
				15	(default)
				0-400	Range
	PDF417AspectHeight	String	N	Aspect Ratio Height when printing PDF417 barcodes	
				1	(default)
				1-9	Range
	PDF417AspectWidth	String	N	Aspect Ratio Width when printing PDF417 barcodes	
				2	(default)
				1-9	Range
	PDF417Truncation	String	N	Truncation setting when printing PDF417 barcodes	
				0	Disable (default)
				1	Enable
	TranslateCharacter	Key	N	Key containing key values for translating from one character to another	
	TranslateCharacter\<X>	String	N	Decimal value of character to translate	
				One byte value of character to translate to	
	CapRec2Color	String	Y	Indicates if Color Thermal Paper is loaded in the SureMark Printer	
				N	Not color (default)
				Y	Color Paper

[1]This setting is an unsupported, untested option used to modify service object behavior only in very limited cases. This setting should not be used unless directed to by IBM Support personnel.

	ProportionalFontFixedWidth	String	Y	Alignment width (in printer dots) used to align proportional font characters on a fixed width	
				20	20 dots (default
				8-32	Range
Tone Indicator	See "General Settings"				

Device	Keyword	Type	Set with Config Tool?	Comments/Settings	
SureONE Devices					
Line Display	ComPort	String	Y	Com Port for Device	
				COM2	Unit comes configured with COM2 for device (default)
				COM1-6	Can change device Com Port through BIOS. NOT RECOMMENDED.
	BaudRate	String	Y	Baud Rate for Device	
				9,600	Only supported value
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	Only supported value
POS Printer	ComPort	String	Y	Com Port for Device	
				COM1	Unit comes configured with COM1 for device (default)
				COM1-6	Can change device Com Port through BIOS. NOT RECOMMENDED.
	BaudRate	String	Y	Baud Rate for Device	
				9,600	Only supported value
	ControlFlow	String	Y	Control Flow for Device	
				DTR/DSR	(default)
				XON/XOFF	
	ThermalPrinter	String	Y	Indicates if printer is impact or thermal.	
				0	Impact (default)
				1	Thermal
	NarrowPaper	String	Y	Indicates if paper is normal or narrow width.	
				0	Normal (default)
				1	Narrow
	BitmapResolution	String	Y	Indicates bitmap resolution (Thermal Printers Only	
				9	High Resolution
				0	Low Resolution (default)
	PrinterModel	String	Y	Indicates Printer Model	
				0	Single Head Impact (default)
				1	Double Head Impact
				2	Thermal
				3	A04/A05 Impact

Improving Printer Performance

> "When AsyncMode is FALSE, then these methods print synchronously and return their completion status to the application.
>
> -- OPOS Specification

The leading quote is from the OPOS Specification. We wish to clarify why IBM's OPOS Printer drivers can sometimes appear to be slower than the rated printer throughput. IBM's drivers verify each print line is printed on the paper in synchronous mode, not just sent to the printer, giving the application an accurate completion status. Some steps you can take to improve printer driver throughput are:

- Set AsyncMode to TRUE so that groups of printer lines are sent out to the printer as they are received by the driver
- Use Transaction Mode
- Group Lines in single print command
- Format a full line

CANPOS Notes

The CANPOS keyboard must be manually updated to firmware level 1.2.3. The OPOS drivers cannot be used to update the firmware or configure the function keys on the CANPOS keyboard. A separate utility, available on the IBM Retail Store Solutions support web site, is available to update and configure the CANPOS keyboard. This utility cannot be installed on the same system in which the OPOS drivers or POSS for Windows subsystem are loaded.

Installation of USB System Attached Keyboard on Windows XP

The installation of the proper device driver is now done automatically in this release for the USB System Attached Keyboard on Windows XP. During OPOS 1.7.0 installation, after selecting the "IBM Alphanumeric Point of Sale Keyboard" and that it is attached to a Universal Serial Bus Port, the system will reboot the will display a Windows message indicating that you are installing the POS USB Keyboard. This message may not display right away as the installation can take several minutes. Click on "Continue Anyway" to install IBM's driver after seeing this message.

NOTE: If this is the first time that this keyboard is on this system, it will need to reboot the system again for the new driver to be used.

Storing 20 bitmap

In order to better exploit the capabilities of our printers and to meet customer demand, this release will now allow up to 20 bitmaps to be stored by SetBitmap. This level of support is slated to be added to the UnifiedPOS specification 1.8, but because of customer demand, we've added it to this release, which supports the 1.7 specification.

Printer Notes - SureMark Printer

TI8 Firmware Download

When a system is first initialized, often, this package will check the firmware level of the device and upgrade the firmware if necessary. With the TI8, the firmware file is large and the initial download could take several minutes.

TI8 Check Scanning Support

Check Scanning on the TI8 is not support in this release.

Barcode printing

The width parameter of the PrintBarcode method is not a definite value. Since the ratio of the width of thick and thin lines must be fixed, the width parameter is used to calculate a percentage of the total line width of the station, such as RecLineWidth. The printer hardware accepts values of 2-4. Therefore, if width is less than 34% of XxxLineWidth, then 2 is used, 34% to 66% will send a 3 and greater than 66% will send a 4.

The height parameter for the Receipt Station accepts 1-255 dot rows. On the slip station, it height parameter is converted to head passes. The acceptable number of head passes is 3 to 5, or 27 to 45 dots in map mode, when SlpLineSpacing equals 9 dots.

Rotated Printing

In RotatePrint mode sideways, the print attribute escape sequences are ignored on the receipt, including alignment. On the slip, only the alignment settings are ignored. Bold and Double High attributes are ignored by the hardware.

DBCS Support

Downloading of code pages to the SureMark printers that support DBCS is explained in

"Installation, Keyboards, and Code Pages" GC30-3623

Color Printing

In order to use color printing capability. The firmware level must be 33 or greater, supported color thermal paper must be used, and the CapRec2Color option must be set at configuration time.

User Defined Fonts

The SureMark printers support of up to 4 User Defined Character sets by adding 102-105 for the RS232 driver and 101-104 to the RS485/USB driver to the CharacterSetList

property. The RS232 driver already supported character set 101 so that it can print the printer's generic code page. The RS485/USB driver does not support this. User Defined Fonts also include Proportional Fonts. Proportional Fonts take up 2 character sets, so they will be valid at only 1 or 3, which will translate to 101 and 103 on the SIO/USB attached printer, 102 and 104 on the RS232 attached printer.

Only 2 user defined fonts are supported on the impact station. Therefore, when using a printer that has an impact station, the following assumptions are made:

1. The odd numbered user defined code pages on the thermal will map to user defined code page 1 on the impact station, even numbered pages will map to impact user defined code page 2.
2. Based on assumption 1, if the application developer intends to use user defined code pages, then both impact and thermal code pages should be downloaded to the printer.

Proportional Font Support

The printer drivers will default to fixed width. In order to switch between fixed and proportional fonts, the Font Typeface will be used. To illustrate this difference, the FontTypefaceList should be "Fixed, Proportional". This is only valid for User Defined Proportional Fonts. The resident fonts are fixed width.

The OPOS Specification assumes that all characters are fixed width. We can support Proportional font printing to some degree provided we make clear a couple assumptions. First, if a proportional font is active and the current font typeface is set to proportional, all properties such as RecLineChars, RecLineHeight and RecLineSpacing are set to zero and RecCharList is set to a null string. The downloaded font will determine the properties of the printed line.

Based on this assumption, we will not wrap lines in proportional mode when the number of characters on a line is greater than RecLineChars. Instead, it is up to the application developer to send a line feed when the print line is complete or the printer will feed when it has reached the end of the line.

Second, text alignment is based on the fact that a fixed number of characters will fit on a line. This is not possible with proportional fonts. Therefore, when the printer is in proportional mode, instead of formatting the line within the SO, we will pass on the Alignment Escape Sequences within the printer to let the printer format the alignment. This will allow the printer to center text or split left and right aligned text at the hardware.

 Finally, if the font typeface is set to Fixed when a proportional font is used, the printer will print the characters a fixed distance apart, and all of the Line properties will be valid. The actual fixed width will be set in the registry entry for the printer, using the keyword "ProportionalFontFixedWidth". The range of values the printer supports is 8 to 32. If this value is not specified, the control will use a width of half of the height and then adjust it for a best fit within the valid range.

Device Sharing

Certain models for SureMark printers are equipped with tone devices. While the OPOS model states that tone indicators are shareable devices, this device cannot be shared from separate applications. Trying to enable this device from two applications with cause the enabled to fail on the second application. If using the tone indicator from two applications, it is suggested that the applications claim the device before using it.

Code 128 A/B/C Support - RS232 Attached

Printing Code 128 A/B/C barcodes has been added in this release, used in defined format slated to be included in the UnifiedPOS specification 1.8.

The Code 128 Bar Code Symbology is has three code sets and also includes some special characters that indicate a change in code set, a function, or a shift from Code Set A to B, or vice versa. The characters for each code set are:

Code Set	Character Set
Code A	0x00-0x5F, FNC1, FNC2, FNC3, FNC4, SHIFT, CODE B, CODE C
Code B	0x20-0x7f, FNC1, FNC2, FNC3, FNC4, SHIFT, CODEA, CODE C
Code C	0x00-0x63 for decimal values 00-99, FNC1, CODE A, CODE B

Characters are mapped from ASCII to the corresponding value for the selected code set. In Code Sets A and B, this will be a one to one mapping. In Code Set C, each two digits is converted to a single value. A sentinel character, the left curly bracket "{" followed by a certain value, is used to indicate a special character. A starting code set is required at the start of the data. The symbology value to use is 123.

The following table lists the character pairs for encoding the special characters:

Special Characters	ASCII
SHIFT	{S
CODE A	{A
CODE B	{B
CODE C	{C
FNC1	{1
FNC2	{2
FNC3	{3
FNC4	{4
{	{{

Cash Drawer Support

With the addition of cash drawer support for USB attached SureMark printer, it is clear that some OEM cash drawers are wired opposite of IBM cash drawer for determining the cash drawer status, thus the Signals Reversed check box in the configuration utility. The USB attached SureMark printer has standardized on the IBM cash drawer wiring. However, it was determined that the RS232 attached SureMark printers was coded using the opposite OEM wiring. The driver has been changed to match the USB attached SureMark driver. Therefore, it may be necessary to reconfigure your RS232 attached SureMark printer cash drawer and set or clear the Signals Reversed check box.

Flash Memory

All OPOS access to the Flash memory in the SureMark printer is by using DirectIO() methods. To support the flash memory in the 4610 printer, the following DirectIO Commands are added to the SureMark OPOS Service Object for the RS-485, USB and RS232 interfaces. The following DirectIO() commands are provided:

WRITE_FLASH_MEMORY (0x10)

Write a record to flash memory. The format of the data to be written is '**r1.r2.r3.r4.n1.n2.data**'. Where *r1*, *r2*, *r3*, and *r4* is a 32 bit number, ***in little-endian***

format, indicating the record number and *n1* and *n2* is a 16 bit number, ***in little-endian format***, indicating the number of data bytes to be written.

When *AsyncMode* is set to *TRUE*, the data will be queued to the printer. Any error associated with this write will cause a DirectIoEvent with the EventNumber set to **DIRECTIO_FLASH_ERROR (0xFE)**. If the record number is beyond the maximum records supported, **pData** will be set to **DIRECTIO_FLASH_ERROR_REASON_OUT_OF_RANGE (0x2F).** If the record number is beyond the record length or is longer than the set record length or the maximum supported, **pData** will be set to **DIRECTIO_FLASH_ERROR_REASON_TOO_LONG (0x2D).**

When *AsyncMode* is *FALSE*, this command will wait until the memory is written to the printer (or an error condition) before returning control to the application. If there is an error, ResultCodeExtended will be set with either of the two values above, or with the POSSWIN interal error.

READ_FLASH_MEMORY (0x11)

Read the flash memory record number. The format of the data to be read is '**r1.r2.r3.r4.**'. Where *r1*, *r2*, *r3*, and *r4* is a 32 bit number, ***in little-endian format***, indicating the record number.

When *AsyncMode* is set to *TRUE*, the data will be returned to the application by a DirectIoEvent with the EventNumber set to **DIRECTIO_FLASH_DATA (0xFD)**. Any error associated with this read will cause a DirectIoEvent with the EventNumber set to **DIRECTIO_FLASH_ERROR (0xFE)**. If the record number is beyond the maximum records supported, **pData** will be set to **DIRECTIO_FLASH_ERROR_REASON_OUT_OF_RANGE (0x2F).** If there is not response to the request within 5 seconds, **pData** will be set to **DIRECTIO_FLASH_ERROR_REASON_CMD_TIMEOUT (0x2E).** If the record number is beyond the record length or is longer than the set record length or the maximum supported, **pData** will be set to **DIRECTIO_FLASH_ERROR_REASON_TOO_LONG (0x2D).**

When *AsyncMode* is *FALSE*, this command will wait until the memory is read from the printer (or an error condition) before returning the data to the application. The record will be returned in the pString field of the DirectIO call. If there is an error, ResultCodeExtended will be set with either one of the three values above, or with the POSSWIN interal error.

QUERY_FLASH_SIZE (0x12)

Returns the size of memory. The value will be returned in the pData field of the DirectIO call.

QUERY_MAXIMUM_RECORDS (0x13)

Returns the maximum number of records. This number will be calculated by dividing the maximum printer memory by the application requested memory size. The value will be returned in the pData field of the DirectIO call.

SET_RECORD_LENGTH (0x14)

Specifies the number of bytes for each record written to the flash memory. The flash memory should be erased after changing the record size. The OPOS drivers will not automatically erase the memory. The value should be set in the pData field of the DirectIO call.

ERASE_FLASH_MEMORY (0x15)

Erases all data stored in the flash memory on the 4610 printer.

GET_RECORD_LENGTH (0x16)

Retrieves the number of bytes for each record written to the flash memory. The value will be zero if it has not yet been set after an erase.

SureOne Notes

POS Keyboard

The keyboard on the SureOne is a normal PS/2 Keyboard. It is not a POS Keyboard. The POS Keyboard will not be supported by OPOS.

MSR limitations

The MSR on the SureOne is part of the Keyboard. The raw data coming in will be in ASCII. When a credit card is swiped without setting the MSR DataEventEnabled to True, the incoming data will be treated as keyboard data. The only way to get data is to set DataEventEnabled to true. Therefore, credit card data is not queued unless FreezeEvents is set when DataEventEnabled has already been set to true.

DBCS Printer limitations

There is no programmatic way to determine what code page the DBCS printer is set for on the SureOne. Therefore, the assumption is that the printer code page will be the same as the locale of the Windows Operating System.

Hard Totals

The SureOne A04 and A05 does not support Hard Totals. No non-volatile RAM is available on these models.

Motion Sensor Notes

If the motion sensor is not polling after open and enable, check the LEGACY_ASICIO was registered under HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/Enum/Root. If not, make sure your Task Scheduler service is started.

To register this key go to WindowExplorer, select POS\Bin double click install.vbs.

To unregister this key go to WindwExplorer, select POS\Bin, double click uninstall.bat

MICR Exception File

An exception file is provided for MICR processing to handle micr data that does not conform to some of the standard formats. If a micr exception file is indicated during

configuration, the file will be scanned for an entry matching the transit number every time the micr data is read.

```
#
#
#P/B TRANSIT SPC FIELD SKIP SZ ACC
#
#
  P 123456789 D    1    5     5   R
  P 123456780 D    1    5     5   R
  P 121000248 D    1    10    5   R
  P 121100782 D    1    9     4   R
  P 011000028 D    1    10    4   R
  P 121139711 D    1    8     4   R
  P 052101106 D    1    10    4   R
  P 052000618 D    1    10    4   R
  P 055001122 D    1    10    4   R
  P 055000657 D    1    10    4   R
  P 055000372 D    1    10    4   R
  P 055001698 D    1    10    4   R
  P 055002150 D    1    10    4   R
  P 055000770 D    1    10    4   R
  P 055003133 D    1    10    4   R
  P 055001070 D    1    10    4   R
```

The other columns describe the desired parsing for the micr data matching the transit number.

P/B	The first field indicates if it is a business or personal check. It is not used for parsing but is used to set the checktype property which is usually set to UNKNOWN.
TRANSIT	This field is the bank transit number. This is what is used as the key to determine if special processing is required.
SPC	If set to D, all spaces are removed from the ONUS field for processing. Set to some other value otherwise.
FIELD	This denotes which subfield in the ONUS field will contain the account number.
SKIP	SKIP holds the index of the character that contains the starting point of the account number in the field.
SIZE	Contains the length of the serial number.

ACC	Says whether the account number aligns on the (L)eft or (R)ight of the field.

Getting help

Web Site

The IBM Retail Store Solutions Web site contains the latest version of the IBM OPOS software as well as fixes to known problems, hints, and tips for using the software. The URL for our Web site is:

http://www.ibm.com/solutions/retail/store/support

Your first stop for help should be the IBM Retail Store Solutions Knowledgebase. It is filled with the latest tips, hints and FAQs on our product lines. It is indexed and you can search on keywords such as "OPOS and printer" to find all related articles. At the bottom of the home page you will see a link to the Knowledgebase. Currently the address is:

http://www.ibm.com/solutions/retail/store/support//html/knowledgebase.html

Your next stop is to check for updated driver modules. It couldn't be easier; all you have to do is go to the registration page for the POS drivers you are using and look for the "module update" link. Click it and all changed modules along with comments on where to use them will be listed.

If you have general pre-sale or usage questions on our drivers not answered in the publications and are an IBM Business Partner, you can submit questions to the Partnerline team from our Knowledgebase web page.

Reporting Problems

To report problems, please visit:

http://www.ibm.com/solutions/retail/store/support/guide

Appendix A. Version differences

Version	Release Date	Comments
1.0.0	6/30/97	First version of IBM OPOS support.
1.0.1B	12/19/97	Maintenance release. Supports RS-485 devices only. Contains fixes and performance enhancements
1.0.1C	2/01/98	Maintenance release Adds support for RS-232 4610 Printer Contains fixes and performance enhancements.
1.0.1D	2/04/98	Maintenance release Contains fixes and performance enhancements.
1.0.1	2/13/98	Maintenance release
1.1.0	4/01/98	Adds support for: RS-232 4610 Printer with CashDrawer. RS-485 Toledo Scale.
1.3.0	6/01/98	First version of IBM OPOS support for SureOne.
1.4.0	6/04/99	This version supports both RS-232 and RS-485 in one package. Adds support for: - Hard Totals - POS Keyboard (RS-485 and system attached). - Tone
1.4.1	03/09/2000	This version supports both RS-232 and RS-485/USB.
1.4.2	06/15/2000	This version supports both RS-232 and RS-485/USB.
1.4.3	09/29/2000	Added support for the SurePOS 500 and SureMark (RS232) Emulation support for the Single Station SureMark printer.
1.4.4	01/20/2001	Added support for the SurePOS 500 APA Display and Full support for the Single Station SureMark printer, including Tone Indicator, Upside-Down Printing, Color Printing, User Defined Fonts and 58mm wide paper
1.4.4A	2/28/2001	Maintenance Release
1.4.5	12/21/2001	Maintenance Release
1.5	4/30/2001	Presence Sensor Support SurePOS 300 Support Support 1.5 Specification Enhancements
1.7	3/31/2003	Updated to version 1.7 of the UnifiedPOS Specification Added support for 4800 Added support for Silent Installation and update Added support for CANPOS Keyboard Improved Configuration Utility 4610 printer • Added support of Cash Drawer on USB attached 4610 printer

		• 58mm Paper Width
		• TI8 Printing Support
		• Support 20 bitmaps stored with SetBitmap
		4689 Printer Updates
		• Barcode Print on 4689
		• Increase Bitmap Area to 16KB or Greater
		• Support 20 bitmaps stored with SetBitmap
		SureOne Update
		• Added support for A0x
		• Support 20 bitmaps stored with SetBitmap
		Added support 4685-K02 (Ultra7) Keyboard
		Support PLU Keyboard and Expansion Box on 4674
		Code 128 A/B/C printing SureMark Printer
		Support of SurePOS 31x

Appendix B. Copyrights and Trademarks

- IBM is a registered trademark of the International Business Machines Corporation.
- Windows is a registered trademark of the Microsoft Corporation.