

NCR

Release 3.2

Retail Controls User Guide



B005-0000-1489

Issue B

The product described in this book is a licensed product of NCR Corporation.

NCR is a registered trademark of NCR Corporation.

NCR RealPOS, NCR RealPrice, NCR RealScan, NCR EasyPoint and NCR FastLane are either registered trademarks or trademarks of NCR Corporation in the United States and/or other countries.

It is the policy of NCR Corporation (NCR) to improve products as new technology, components, software, and firmware become available. NCR, therefore, reserves the right to change specifications without prior notice.

All features, functions, and operations described herein may not be marketed by NCR in all parts of the world. In some instances, photographs are of equipment prototypes. Therefore, before using this document, consult with your NCR representative or NCR office for information that is applicable and current.

To maintain the quality of our publications, we need your comments on the accuracy, clarity, organization, and value of this book.

Address correspondence to:

Manager, Information Products
NCR Corporation
2651 Satellite Blvd.
Duluth, GA 30096

Copyright © 2002
By NCR Corporation
Dayton, Ohio U.S.A.
All Rights Reserved

Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

Notice: This document is NCR proprietary information and is not to be disclosed or reproduced without consent.

References

- NCR FitClient Software User's Guide
(B005-0000-1235)
- B005-0000-1432 Linux Software User's Guide

Table of Contents

Retail Controls for Linux

Additional Software Requirements	1-3
NCR 5932 USB keyboard:	1-3
NCR 5932 Wedge keyboard:	1-3
NCR 788x and NCR 7892 Scanners, NCR 787x Scanner/Scales with USB connection	1-3
Using FitClient Manager LE for Linux	1-5
Using Serial Ports	1-6
Default values in the Configuration Entries tables.....	1-6
Cash Drawer.....	1-7
Cash Drawer Configuration Entries.....	1-7
Hard Totals.....	1-10
Hard Totals Configuration Entries	1-10
Keylock	1-12
Keylock Configuration Entries.....	1-12
Line Display	1-14
Line Display Configuration Entries	1-14
MICR	1-17
DirectIO - MICR Parsing	1-17
DirectIO - Set Remove Non Digits.....	1-23
Clear Exception Table.....	1-24
MICR - Magnetic Ink Character Recognition Configuration Entries	1-25
MSR	1-27
MSR - Magnetic Stripe Reader Configuration Entries	1-27
POS Printer	1-29

DirectIO - Raw Output.....	1-30
DirectIO - Set Barcode Width.....	1-31
DirectIO - Set Bitmap Type.....	1-32
DirectIO - Sound Audible Tone	1-33
DirectIO - Set Minimum Number of Characters Per Line.....	1-34
DirectIO - Get the Current Printer Status	1-35
Updated Methods	1-37
CutPaper Method	1-37
PrintBarCode Method	1-38
PrintBitmap Method	1-40
PrintImmediate Method	1-42
PrintNormal Method.....	1-44
PrintTwoNormal Method.....	1-45
RotatePrint Method	1-47
TransactionPrint Method.....	1-48
POS Printer Configuration Entries	1-49
Scale	1-53
DirectIO - Scale Status	1-53
DirectIO - Scale Read ROM	1-54
DirectIO - Scale ROM Version.....	1-55
DirectIO - Scale Live Weight	1-56
DirectIO - Scale Direct Access	1-57
Method Updates.....	1-58
ReadWeight Method	1-58
Scale Configuration Entries	1-59
Scanner.....	1-61
DirectIO - Scanner NOT-ON-FILE	1-61
DirectIO - Scanner Tone Control	1-62
DirectIO - Scanner Reset	1-63
DirectIO - Scanner Status	1-64

DirectIO - Scanner Read ROM	1-65
DirectIO - Scanner ROM Version	1-66
DirectIO - Scanner Pacesetter Options.....	1-67
DirectIO - Scanner Direct Access	1-68
Scanner Configuration Entries	1-68
Data Capture	1-74
Data Capture Configuration Entries	1-74

Revision Record

Issue	Date	Remarks
A	Feb 2003	First issue
B	Sept 2003	Update Scanner and Scale Configuration

Retail Controls for Linux

The following table shows the devices that are supported for this version of the Retail Controls for Linux.

UPOS Control	NCR Support	Devices Supported	Component ID
Bump Bar	NO		
Cash Changer	NO		
Cash Drawer	YES	NCR 7167, NCR7197 Printers	NCR71xxPrinterCDMICR
CAT - Credit Authorization Term	NO		
Check Scanner	NO		
Coin Dispenser	NO		
Fiscal Printer	NO		
Hard Totals	YES	Disk Based Media	NCRHardTotals
Keylock	YES	NCR 5932 Wedge or USB Keyboard	NCRIOChannelKeylock
Line Display	YES	NCR 5972 VFD, NCR 5972 LCD, Occular LCD. Serial only for all models.	NCR597xlineDisp
MICR	YES	Connected to Printer	NCR71xxPrinterCDMICR
Motion Sensor	NO		
MSR	YES	NCR 5932 Wedge or USB Kybd	NCRIOChannelMSRModel
PIN Pad	NO		
Point Card Reader Writer	NO		
POS Keyboard	NO		
POS Power	NO		
POS Printer	YES	NCR 7167, NCR 7197	NCR71xxPrinterCDMICR
Remote Order Display	NO		
Scale	YES	NCR 7872, NCR 7875	NCR78xxScannerScale

		(Serial, USB)	
Scanner	YES	NCR 7872, NCR 7875 (Serial, USB), NCR 7837 (Serial, Wedge), NCR 7882, NCR 7883, NCR 7892 (Serial, USB)	NCR78xxScannerScale
Signature Capture	NO		
Tone Indicator	NO		

NCR uses standard JavaPOS 1.7 Device Controls as provided by the JavaPOS committee (they are open source). The OPOS and JavaPOS specifications have now been combined into one specification called UPOS (Unified Point of Service). The latest UPOS specification can be found at: <http://www.nrf-arts.org/> then select **UnifiedPOS** from the frame on the left.

Additional information on JavaPOS can be obtained from:

<http://www.javapos.com> and/or
<http://www.javapos.com/samplecode.html>

This document only describes the NCR specific differences from the UPOS specification and is to be used in conjunction with that specification.

The term Retail controls is defined as an overall term which includes both OPOS and JavaPOS for Linux or Windows. The following table shows the relationship of some of the terms between OPOS and JavaPOS.

Retail Controls	
JavaPOS	OPOS
Device Control	Control Object
Device Service	Service Object

Additional Software Requirements

The JavaPOS stack is not sufficient to operate the USB keyboard, Wedge Keyboard, or a USB configuration for the Scanner/Scale. Kernel patches and/or loadable modules are also needed. A description of the required modifications for each device is enumerated below.

NCR 5932 USB keyboard:

A kernel patch, is required. The patch (NCRHID_2_4_18.patch) is available on the *Retail Platform Software for Linux* LPIN D370-0549-0000.

NCR 5932 Wedge keyboard:

A kernel patch, is required. The patch (NCRKStream_2_4_18.patch) is available on the *Retail Platform Software for Linux* LPIN D370-0549-0000.

For Red Hat Linux 7.3 users, a bash script has been provided to ensure the wedge stack is installed correctly . This script is called NCRRetail and is also available on the *Retail Platform Software for Linux* LPIN D370-0549-0000.

NCR 788x and NCR 7892 Scanners, NCR 787x Scanner/Scales with USB connection

The following loadable modules must be available on the system:

- usbserial.o
- io_edgeport.o
- io_epic.o. See the Third Party LPIN for more information.
- Usbcore
- usb-uhci.

All but io_epic.o are freely available and downloadable from kernel.org.

These modules must be loaded. This can be performed dynamically from the command-line as follows:

```
insmod usbcore <Enter> (may need)
insmod usb-uhci <Enter> (may need)
insmod usbserial.o <Enter>
insmod io_edgeport.o <Enter>
insmod io_epic.o <Enter>
```

Refer to the NCR Scanner documentation for information on how to configure these scanners and scanner/scales to communicate with your platform via USB.

You will need to configure the Scanner/Scale into NCR USB/RS-232 for use with the JavaPOS services and the `io_epic.o` driver. This is mentioned because our Scanner/Scales also support IBM USB, neither of which are native USB

Using FitClient Manager LE for Linux

The FitClient Manager LE permits you to control power-up functionality and reports some of the system parameters.

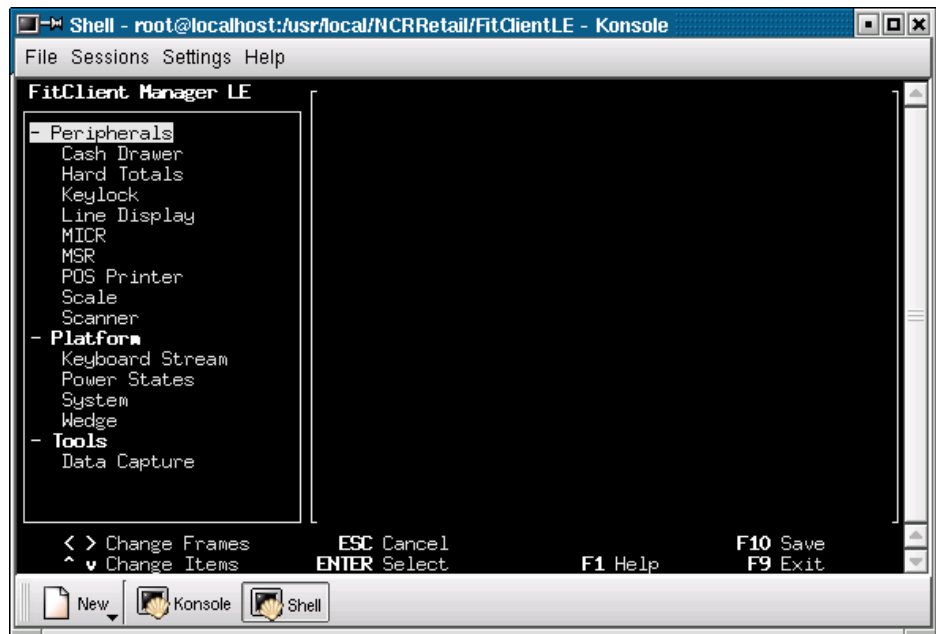
Before you can start the FitClient Manager LE for Linux, you must start the NCRLoader service as follows:

```
/usr/local/NCRRetail/bin    ./NCRLoader &
```

Run FitClient Manager in a terminal session or a terminal emulator window using the following if the FitClient Manager is installed in the default directory.

```
/usr/local/NCRRetail/FitClientLE ./NCRFitClientLE.sh
```

The initial screen appears as follows:



Refer to the NCR FitClient Software User's Guide (B005-0000-1235) for additional information on using FitClient Manager LE.

Using Serial Ports

In FitClient COMX is used to describe serial port X. In Linux, the serial port naming convention is /dev/ttySY, where Y is a variable whose value is equal to X-1. For example, COM6 is equivalent to /dev/ttyS5.

Default values in the Configuration Entries tables

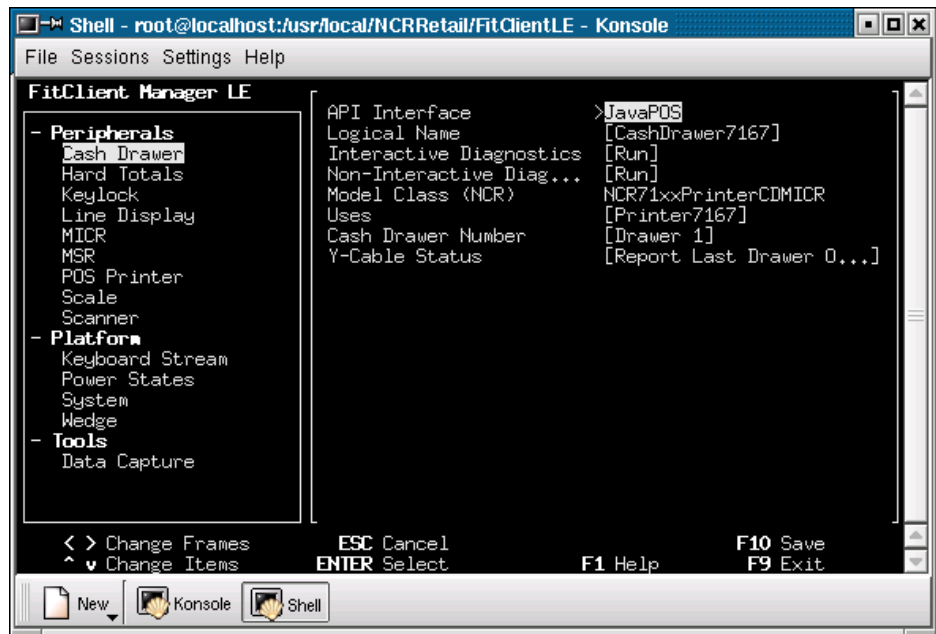
Configuration default values in the Configuration Entry tables only apply to new controls that you create. When the FitClient Manager LE Configuration screens are populated, they are set to default configurations for the particular device. The values of the parameters in these default configurations may not contain the default values for the specific parameter.

Cash Drawer

The CashDrawer supports 1 or 2 cash drawers connected to the following printers:

- NCR 7167 Printer.
- NCR 7197 Printer.

Cash Drawer Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface being used, Currently, JavaPOS is the only valid option.	JavaPOS
Logical Name	The name of a specific configuration.	A configuration name such as CashDrawer7167, CashDrawer7167_2 -2, or CashDrawer7197 -1
Model Class	The cash drawer(s) are connected to a printer. Therefore, the printer must also be available. This is the Device Service for the printer.	NCR71xxPrinterCDMICR
Uses	The printer profile that manages this drawer . It uses the configuration parameters of the Printer in addition to the parameters described here. Therefore, the Printer configuration entries must be set up first. If you delete the Printer service object, the cash drawer can not be used.	Printer7167 Printer7197
Cash Drawer Number	Number of the cash drawer to be controlled.	Drawer 1 or Drawer 2
YCableStatus	<p>This setting determines how the cash drawer status is reported back to the application. This is intended to permit applications to work around the hardware limitation caused by the use of a Y-Cable in order to support two cash drawers. Most of the settings only have an effect when used with printers that support dual cash drawers with a Y-Cable. The following are the values for this parameter:</p> <p>0 - Report Drawer 1 Only. Backwards Compatibility = Reports the cash drawer status as all previous releases of this OPOS Service Object. No matter which drawer is open, the status is always reported as drawer 1.</p> <p>1 - Report Last Drawer Opened = In this case when a drawer open is detected, the open status is reported for the last drawer which was sent an Open command. If the Open is sent to drawer 1 then drawer 1 shows open, if to drawer 2 then drawer 2 shows open. If drawer 1 or 2 is already open, and an Open is sent to the other drawer, then both drawers report open. Both</p>	<p>0 - Report Drawer 1 Only 1 - Report Last Drawer Opened 2 - Report Each Drawer 3 - Don't Report Statuses (Default is 1 - Report Last Drawer Opened</p>

Parameter	Description	Valid Values
-----------	-------------	--------------

drawers remain reporting open until both drawers are closed, because we cannot detect close until both are closed.

2 - Report Each Drawer = This basically reports exactly what the hardware tells us. If either drawer 1 or drawer 2 is open, then both drawers are reported open. If drawer 1 is open then both 1 and 2 report open. If drawer 2 is open then both 1 and 2 report open. Both are reported open until both drawers are closed.

3 - Don't Report Statuses = This affects all cash drawer types. In this mode the CapStatus capability reports FALSE, and both drawers always show closed regardless of the actual drawer status.

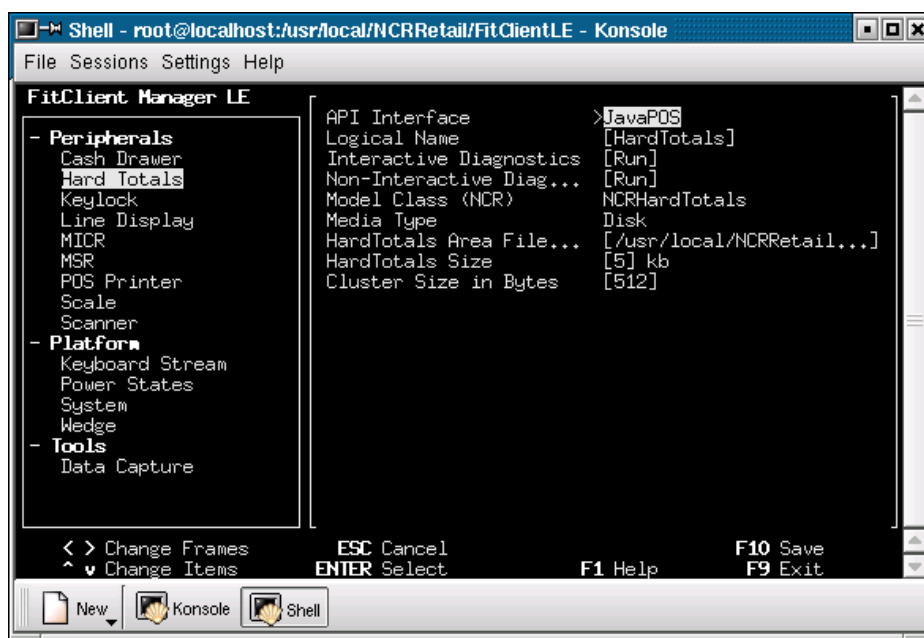
The following configurations have been predefined:

Default Configuration	Description
CashDrawer7167	1 CashDrawer connected to the NCR 7167 printer
CashDrawer7167_2	2 CashDrawers connected to the NCR 7167 printer
CashDrawer7197	CashDrawer connected to the NCR 7197 printer

Hard Totals

Hard Totals provide a method to store various totals information obtained from the retail application. These totals can be stored on Disk or any device that supports standard disk I/O such as the network or a Compact Flash card. The Hard Totals use the synchronous processing model.

Hard Totals Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is being used.	JavaPOS
Logical Name	The name of a specific configuration.	HardTotals
Model Class	This is the Device Service name for the Hard Totals	NCRHardTotals
Media Type	Indicates the media on which to store the Hard Totals data. This value may only be set to <i>Disk</i> . A media type of disk does not mean that the Hard Totals file must reside on a local hard drive; the Hard Totals file can reside on	"Disk"

any device that supports the standard disk I/O operations, including a network drive or compact flash.

HardTotals
Area File ...

The file name of the totals file. This key has a default value of /usr/local/NCRRetail/HardTotalsArea. If this file exists, then the Hard Totals service will check for a Hard Totals signature. If the signature is present, then the file has already been set up as a Hard Totals file. If the signature is not present, then the file is not initialized as a Hard Totals file and the Hard Totals service will fail to connect. If the file does not exist, then a file with the requested size is created in the desired directory. If the directory component of the file name is invalid, the service object will return an error at open time.

Example:
/usr/local/NCRRetail/HardTotalsArea

HardTotals
Size (FileSize)

The size of the totals file, in kilobytes. The default value is 16. This value is only used if the specified disk file does not exist. If a file size is specified, the size is rounded down to the nearest multiple of the cluster size (512 bytes for disk).

Example: 16

ClusterSize

The Hard Totals file must contain at least 3 clusters to be useful, 1 cluster for the header, 1 for the file table, and 1 cluster to hold file data. If the size is less than 3 clusters, the size will be set to 3 clusters

Cluster size in bytes
128
256
512 (Default)
1024

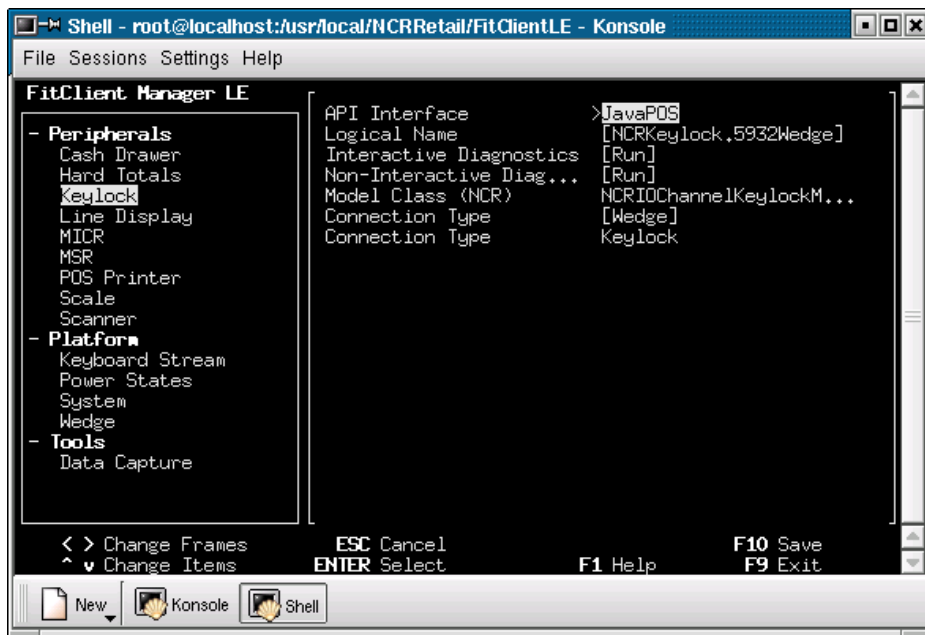
The following configuration has been predefined:

Default Configuration	Description
HardTotals	A 5kb Hard Totals file stored on the current drive, in the /usr/local/NCRRetail directory with the name HardTotalsArea. The file has a cluster size of 512 bytes.

Keylock

The Keylock Control Object supports the keylock on the NCR 5932 Wedge or USB keyboard or the USB Dynakey.

Keylock Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is using this control, Currently, JavaPOS is the only valid option.	JavaPOS
Logical Name	The name of a specific configuration.	NCRKeylock.5932Wedge NCRKeylock.5932USB
Model Class		NCRIChannelKeylockMode 1
Clear After Read	USB Only - Indicates whether the device memory should be cleared after a read.	False (Read-Only)
Connection Type	The interface used to connect the Keylock to the terminal.	USB Wedge (default)

Device Type	Wedge Only - The subcomponent on the Wedge bus to use.	Keylock (Read-Only)
Device Usage	USB Only - Indicates the usage for this Keylock device.	1 (Read-Only)
Device Usage Page	USB Only - Indicates the usage page for this Keylock device.	65423 (Read-Only)
Number of Reports	USB Only - Indicates the number of reports for the Keylock device.	2 (Read-Only)
Product	USB Only - The name of the device supported.	5932 USB Keyboard USB Dynakey
Vendor	USB Only - The manufacturer of the Keylock.	NCR (Read-Only)

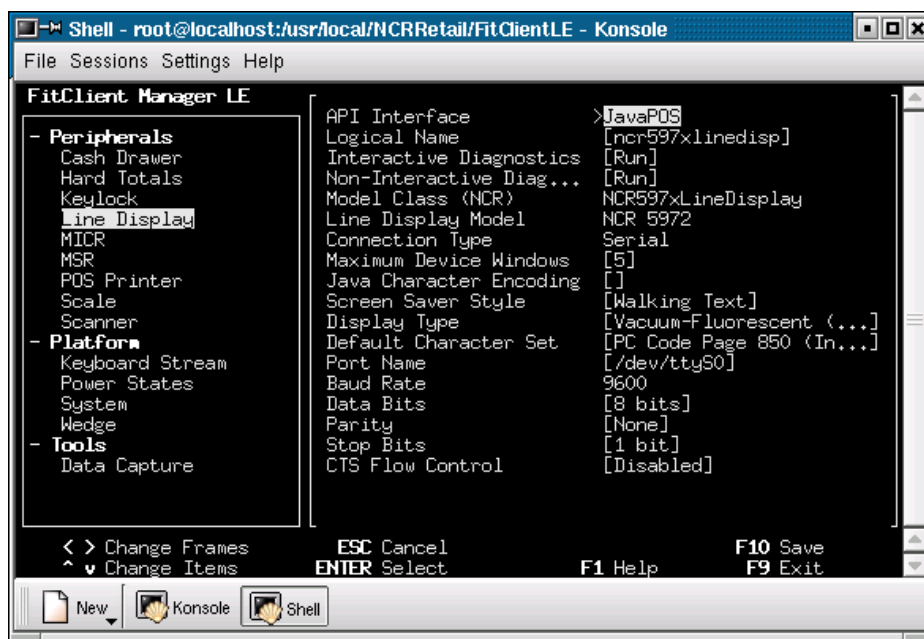
The following configuration has been predefined:

Default Configuration	Description
NCRKeylock.5932Wedge	Keylock Interface for the NCR 5932 Wedge Keyboard
NCRKeylock.5932USB	Keylock Interface for the NCR 5932 USB Keyboard

Line Display

The Line Display Control Object supports the NCR 5972 Serial, LCD, VFD, and VFD Occular Line Display.

Line Display Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is using being used.	JavaPOS
Logical Name	The name of a specific configuration.	Ncr597xlinedisp ncr597xlinedisp.lcd
Model Class		NCR597xLineDisplay
Line Display Model	The NCR 5972 is the only option currently available.	NCR5972
Connection Type	Serial is the only option currently available.	Serial
Maximum Device	The maximum number of logical windows that this	1 to 10

Windows	device can support at once.	5 (Default)
Java Character Encoding	The Line Display operates using character sets, not Unicode. As a convenience for the application, the Line Display supports this parameter to automatically map Unicode strings into a particular character set using the specified Java Character Encoding type string. It is still the responsibility of the application to select the correct character set programmatically. The valid values for this parameter can be found in the Sun Java online documentation at URL. http://java.sun.com/products/jdk/1.2/docs/guide/internet/encoding.doc.html . If this parameter is omitted, or its value is an empty string, the application is assumed to be providing strings with character values between 0000 and 00FF where each character is already the correct value for the currently selected character set.	
Screen Saver Style	The style of screen saver to enable after a predetermined interval of inactivity.	None (Default) Screen Blanking Walking Text
Display Type	Is the attached hardware a VFD or an LCD display.	Vacuum-Fluorescent (VFD) Other
Default Character Set	The character set to initialize during initial device enable.	850 - PC Code Page 850 (Default) 101 - Katakana 866 - Cyrillic 104 - 119, external ROM character sets
PortName	The COM Port where the line display is attached.	COM1 - COM10 COM1 (Default)
BaudRate	The speed for serial communications.	9600 (Read-Only)
DataBits	The number of data bits per byte.	5 - 8 Bits 8 Bits (Default)
Parity	Parity scheme for serial communications.	None (Default) Even Odd
StopBits	The number of stop bits per byte.	1 - 2 Bits 1 Bit (Default)
CTSFlowControl	Clear To Send flow control setting.	Enabled (Default) Disabled

The following configuration has been predefined.

Default Configuration	Description
Ncr597xlinedisp	NCR 597x Line Display with VFD
Ncr597xlinedisp.lcd	NCR 597x Line Display with LCD

MICR

The MICR reader Control Object supports the MICR connected to one of the supported NCR Printers.

DirectIO – MICR Parsing

The MICR_ADD_EXCEPTION method adds a special case MICR parsing template string to the service object's MICR parsing template list.

MICR data consists of digits, spaces, and four special MICR symbols: Transit, On-Us, Amount, Dash. In the following discussion, and in the DirectIO command NCRDIO_MICR_ADD_EXCEPTION, these characters are used to describe MICR format data. Using this DirectIO Command with NCRDIO_MICR_ADD_EXCEPTION has the effect of adding these special MICR template strings to the persistent storage in addition to adding them to the parsing template list temporarily stored in memory.

t o a - space	MICR substitution symbols for Transit, On-Us, Amount, Dash, and Space.
X	Digit, space, or dash.
E	EPC: Digit.
T	Transit number: Digit or dash. (For US checks, only digits are allowed.)
A	Account number: Digit, space, or dash. (Account number begins and ends with a digit.)
S	Serial/sequence number: Digit.
\$	Amount: Digit.
B	Series of blanks (spaces) and/or dashes. Optional unless a repeat count is given.
*	Trailer: Series of any digits, dashes, and spaces followed by an optional amount field. (= "X[0+]a\$[10]aB" if amount present and "X[0+]" if not).

An optional repeat count may follow any character except *:

[count] Specifies exactly "count" characters.

[min-max]	Specifies between "min" and "max" characters.
[min+]	Specifies at least "min" characters.

The general MICR data format is:

oX[1+]o EtT[9]t X[1+]oX[0+] a\$[10]a

The fields are:

oX[1+]o	Auxiliary on-us (optional). Bounded on left and right with On-Us characters. Often used for serial number, in which case 'X' are digits.
E	EPC character (optional). Immediately precedes leftmost Transit character.
tT[9]t	Transit number (required). Bounded on left and right with Transit characters.
X[1+]oX[0+]	On-us (optional). (More than one On-Us symbol can be included.
a\$[10]a	Amount (optional). Bounded on left and right with Amount characters.

The transit number and amount can always be found and properly parsed. The placement of the serial and account numbers, however, varies between banks. In addition, the Auxiliary On-Us and the On-Us fields may contain other bank-specific data.

To handle the majority of cases, the following default handling of serial and account numbers is performed:

Case (1): Serial number in Auxiliary On-Us field. Account number in On-Us field from first digit to the On-Us symbol, not including spaces and dashes before the On-Us.

"BoS[1+]oBEtT[9]tBA[1+]Bo*"

- Serial number is the number S[1+]
- Account number is the number A[1+].

Example:

"o9876o t123456789t 12-345-6789 o 6666 a0000054321a"

Transit:	"123456789"
Amount:	"0000054321"
Account:	"12-345-6789"
Serial:	"9876"
EPC:	""

** If the RemoveNonDigits string contains an 'A', then Account is "123456789".

Case (2): Account number in On-Us field from first digit to the On-Us symbol, not including spaces and dashes before the On-Us. Serial number in On-Us field after the On-Us symbol. Must be three or more digits.

"BEtT[9]tBo[0-1]A[1+]BoBS[3+]*"

- Account number is the number A[1+], if present.
- Serial number is the number S[3+]

Example:

"5t123456789t 12 345-67 o 6666"

Transit: "123456789"

Amount: ""

Account: "12 345-67"

Serial: "6666"

EPC: "5"

** If the RemoveNonDigits string contains an 'A',
then Account is "1234567".

Case (3): Serial number in On-Us field from first digit to next non-digit; must be between three and five digits. Account number in On-Us field from first digit after the serial number to the On-Us symbol, not including spaces and dashes before the On-Us.

"BEtT[9]tBS[3-5]B[1+]A[1+]Bo*"

- Serial number is the number S[3-5]
- Account number is the number A[1+].

Example:

"t12345-789t 555 12 345-67 o 66"

Transit: "12345-789"

Amount: ""

Account: "12 345-67"

Serial: "555"

EPC: ""

** If the RemoveNonDigits string contains a 'T',
then Transit is "12345789".

** If the RemoveNonDigits string contains an 'A',
then Account is "1234567".

Example:

"t123456789t 555 12 345-67 o 66 a0000054321a"

Transit: "123456789"

Amount: "0000054321"

Account: "12 345-67"

Serial: "555"

EPC: ""

** If the RemoveNonDigits string contains an 'A',
then Account is "1234567".

Case (4): Account number in On-Us field from first digit to the On-Us symbol, not including spaces and dashes before the On-Us.

"BEtT[9]tBA[1+]Bo*"

- No serial number.
- Account number is the number A[1+].

Example:

"t123456789t 55 12 345-67 o 66"

Transit: "123456789"

Amount: ""

Account: "55 12 345-67"

Serial: ""

EPC: ""

** If the RemoveNonDigits string contains an 'A', then Account is "551234567".

Case (5): Serial number in On-Us field from first digit to the On-Us symbol, must be three or more digits. Account number in second On-Us field from the first digit after the On-Us symbol that ended the serial number to the On-Us symbol, not including spaces and dashes before the On-Us.

"BtT[9]tBS[3+]BoBA[1+]o*",

- Serial number is the number S[3+].
- Account number is the number A[1+].

Example:

"t12345-789t 555 o 12 345-67 o 66"

Transit: "12345-789"

Amount: ""

Account: "12 345-67"

Serial: 555

EPC: ""

** If the RemoveNonDigits string contains a 'T', then Transit is "12345789".

** If the RemoveNonDigits string contains an 'A', then Account is "1234567".

If the default handling is not correct for some banks, then exception strings can be added for these cases. The exception strings shall be formatted as in these examples.

Example exception string "t061000052tBA[10-12]o*":

This string requires that the EPC and Serial Number be absent.

If Micr Data is: "t061000052t 123 456 789o"

Transit:	"061000052"
Amount:	""
Account:	"123 456 789"
Serial:	""
EPC:	""

** If the RemoveNonDigits string contains an 'A', then Account is "123456789".

(Without the exception, then default case (3) would have returned "123" as the serial number and "456 789" (** or 456789) as the account number.)

If MICR Data is: "t061000052t 123456789012o3333a0000054321a"

Transit:	"061000052"
Amount:	"0000054321"
Account:	"123456789012"
Serial:	""
EPC:	""

(Note that the "3333" between the On-Us and Amount symbols is ignored. Without the exception, then default case (2) would have returned "3333" as the serial number.)

Example exception string "t052000113tBS[3]BA[7-10]o*":

This string requires that the EPC be absent.

If Micr Data is: "t052000113t 123 456 789o"

Transit:	"052000113"
Amount:	""
Account:	"456 789"
Serial:	"123"
EPC:	""

** If the RemoveNonDigits string contains an 'A', then Account is "456789".

Example exception string "tTTT00011TtBS[2]A[10]S[3]o*":

This string requires that the EPC be absent.

If Micr Data is: "t99-000119t 123 456 7890987o a9876543210a"

Transit:	"99-000119"
Amount:	"9876543210"
Account:	"3 456 7890"
Serial:	"12987"
EPC:	""

** If the RemoveNonDigits string contains a 'T', then Transit is "99000119".

** If the RemoveNonDigits string contains an 'A',
then Account is "34567890".

Syntax

void directIO (int *command*, int[] *data*, Object *object*) throws JposException;

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_MICR_ADD_EXCEPTION
----------------	---------------------------

<i>data</i>	Not Used
-------------	----------

<i>object</i>	String to add to the exception list (See command description)
---------------	---

Errors

An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL - The string contains invalid characters.

DirectIO - Set Remove Non Digits

Sets space and dash removal from account and transit numbers. The following strings are valid:

- "A": Remove spaces and dashes from within **AccountNumber**. Some banks use these for readability.
- "T": Remove spaces and dashes from within **TransitNumber**. Some countries may use these.
- "AT": Remove spaces and dashes from within **AccountNumber** and **TransitNumber**.

"": Do not remove spaces and dashes from either **AccountNumber** or **TransitNumber**.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_MICR_SET_REMOVE_NON_DIGITS
----------------	-----------------------------------

<i>data</i>	Not Used
-------------	----------

<i>object</i>	List of characters to remove
---------------	------------------------------

"A"	Remove the account character
-----	------------------------------

"T"	Remove the transit character
-----	------------------------------

"AT"	Remove both characters
------	------------------------

""	Do not remove any characters
----	------------------------------

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL - The string contains invalid characters.

Clear Exception Table

Clears the MICR Exception Table in temporary system memory, the configuration data, or both.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_MICR_CLEAR_EXCEPTIONS
----------------	------------------------------

<i>data</i>	0 = Clear all exception strings 1 = Clear exception strings entered via DirectIO 2 = Clear exception strings entered via configuration data
-------------	---

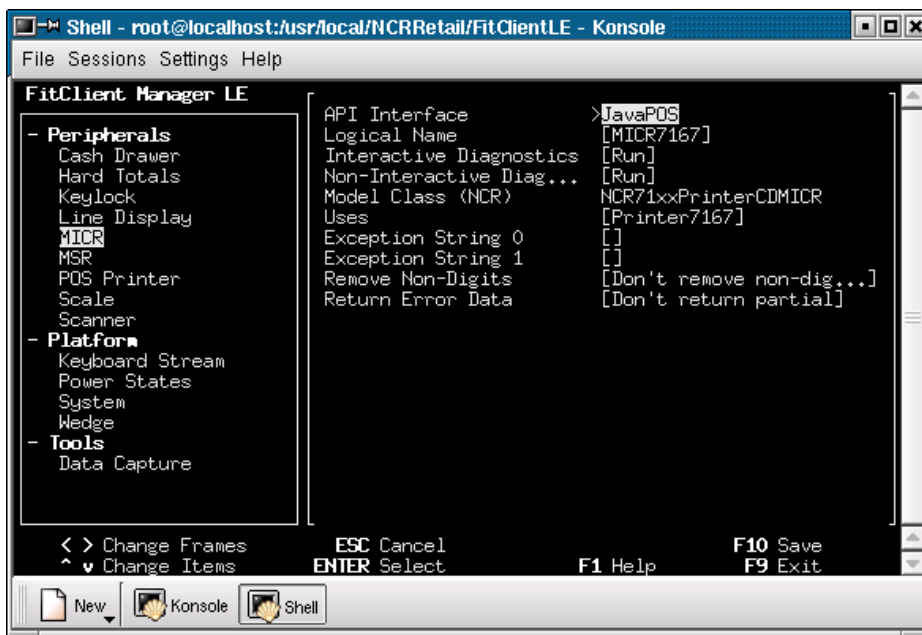
<i>object</i>	Not Used
---------------	----------

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL	Unsupported data value entered, the function failed.
----------------	--

MICR - Magnetic Ink Character Recognition Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is using this control, Currently, JavaPOS is the only valid option	JavaPOS
Logical Name	The name of a specific configuration	MICR7167
Model Class		NCR71xxPrinterCDMICR
Uses	The MICR reader is integrated in a retail printer. Enter the profile name of the associated POS Printer	Printer7167
Exception String 0*	The ExceptionString entries are used to add exception patterns for MICR check parsing to handle special formatted checks that are not covered by the default parsing rules.	Refer to the DirectIO "MICR Parsing" for valid strings
Exception String 1	The ExceptionString entries are used to add exception patterns for MICR check parsing to handle special formatted checks that are not covered by the default parsing rules.	Refer to the DirectIO "MICR Parsing" for valid strings

Remove Non-Digits	RemoveNonDigits is used to remove digits from parsed MICR data. Digits may be removed from transit numbers, account numbers, both, or neither.	Don't remove digits from MICR data Remove from transit numbers Remove from account numbers Remove from transit and account numbers
Return Error Data	In some cases, a failed MICR read may return some MICR data. ReturnErrorData determines if we should parse and return any data read as part of a failed MICR read. If enabled, the error data is returned in MICR error events.	Return partial data Don't return partial

* Exception String X - Additional exception strings may be added as long as they are in consecutive order. If you skip a number, the code thinks it's at the end of the exceptions.

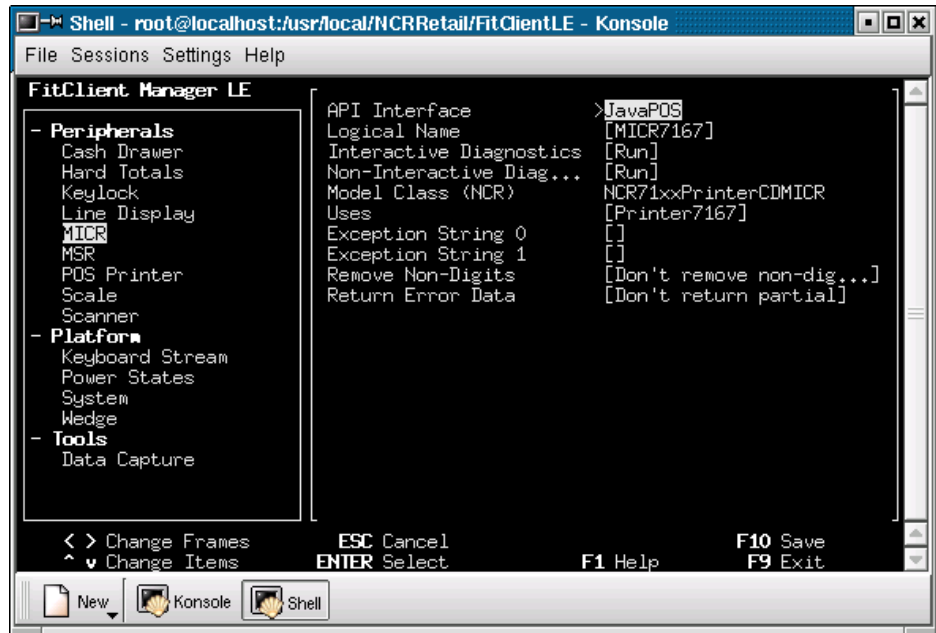
The following configuration has been predefined.

Default Configuration	Description
MICR7167	NCR 7167 Printer with a MICR reader

MSR

The MSR reader Control Object supports the MSR located on the NCR 5932 Wedge Keyboard, the NCR 5932 USB Keyboard or the NCR Dynakey.

MSR - Magnetic Stripe Reader Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is being used.	JavaPOS
Logical Name	The name of a specific configuration.	NCRMSR.5932Wedge NCRMSR.5932USB
Model Class		NCRIOChannelMSR
Read Head Type	Type of MSR Hardware Reader. Different hardware is required for each format. A type of "ISO" indicates that ISO and JIS Type I cards can be read. A type of "JIS" indicates	"ISO" (Default) "JIS"

	that JIS Types I and II cards can be read.	
ConnectionType	How the MSR is connected to the terminal.	Wedge (Default) USB
Device Usage Page	USB Only. Indicates the usage page for this MSR Device.	142 (Read-Only)
Device Usage	USB Only. Indicates the usage for this MSR Device.	1
Number of Reports	USB Only. Indicates the number of reports for this MSR Device.	1
Product	USB Only. The Product where the USB MSR device resides.	5932 USB Keyboard (Default) USB Dynakey
Vendor	USB Only. The manufacturer of the MSR device.	NCR
ClearAfterRead	USB Only. Should the device memory be cleared after a read.	True
DeviceType	Wedge Only. The subcomponent on the Wedge bus to use.	MSR

The following configurations have been predefined:

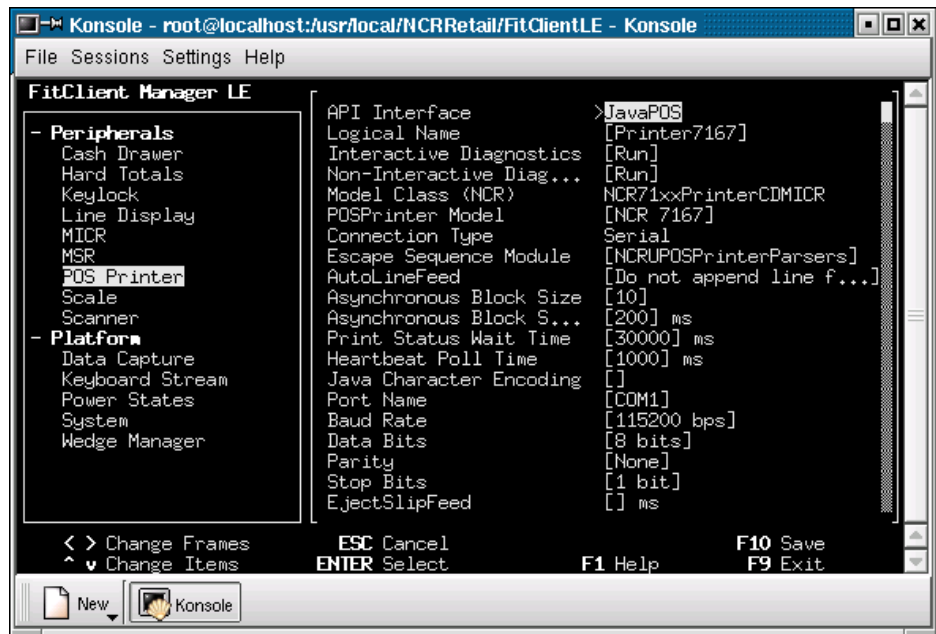
Default Configuration	Description
NCRMSR5932Wedge	MSR on the NCR 5932 Wedge Keyboard
NCRMSR.5932USB	MSR on the NCR 5932 USB Keyboard

POS Printer

The initial release of the Printer Model supports the following NCR printers.

- 7167
- 7197

The Printer Model currently interfaces to the printer over a serial port, and it will function on any terminal with a standard serial port. (Future releases may also include support for USB or other interfaces.)



DirectIO - Raw Output

This function is used to send data directly to the printer without having the Control manipulate that data in any way. This command can be used to access printer specific functions that are not provided by the Control.

Note: Do not use this function to alter any of the printer's physical printing characteristics (such as character pitch, lines per inch, margins or other such metric). The Control knows nothing about the information that has been sent to the printer. If this command is used to alter any of the printer's physical printing characteristics, the Control may not be able to perform further requests correctly.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_PTR_RAW_OUTPUT
----------------	-----------------------

<i>data[0]</i>	Printer Station identifier
----------------	----------------------------

<i>object</i>	Data being sent to the printer. The data must be of type java.lang.String.
---------------	--

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL - The printer station is invalid.

DirectIO - Set Barcode Width

Sets a new width for printing barcodes. The legal values for this option vary by printer model and should be determined from the printer's manual. This function returns the barcode width in the Data field and can therefore be used to determine what the current value is by sending in an illegal value and ignoring the error returned.

The only valid width values for the NCR 7158 Slip station are 2 and 4. A value of 3 gives you the same output as 2.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>Command</i>	NCRDIO_PTR_SET_BARCODE_WIDTH
----------------	------------------------------

<i>data</i>	Horizontal size of the barcode
-------------	--------------------------------

<i>object</i>	Not Used
---------------	----------

DirectIO - Set Bitmap Type

Sets a new type for bitmap print processing. This function returns the previous bitmap type in the Data field and can therefore be used to determine what the current value is by sending in an illegal value and ignoring the error returned.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_PTR_SET_BITMAP_TYPE
----------------	----------------------------

<i>data</i> [0]	bitmap type NCRDIO_BITMAP_TYPE_DEFAULT NCRDIO_BITMAP_TYPE_HIGHQ NCRDIO_BITMAP_TYPE_LOWQ NCRDIO_BITMAP_TYPE_HIGHQ_DL NCRDIO_BITMAP_TYPE_LOWQ_DL
-----------------	---

<i>object</i>	Not Used
---------------	----------

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL - The bitmap type constant was invalid.

DirectIO - Sound Audible Tone

Sounds a tone from the printer a specified number of times. The repeat count value can only range between 1 and 20. If a repeat count value less than one is sent, OPOS_E_ILLEGAL is returned.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_PTR_SOUND_AUDIBLE_TONE
----------------	-------------------------------

<i>data</i> [0]	Repeat count
-----------------	--------------

<i>object</i>	Not Used
---------------	----------

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL - The printer cannot sound an audible tone or a repeat count of less than 1 or greater than 20 was selected.

DirectIO - Set Minimum Number of Characters Per Line

Sets the minimum number of characters per line that is used when choosing a station's print mode. The mode (generally either standard or compressed printing) that is selected will be sufficient to print a line whose width is the greater of this value and the most recently set XxxLineChars property.

For example, the application needs to print on the 7156 slip in compressed mode, so that 40 characters of print data can fit on a small form. If SlpLineChars is set to 40, the service object normally selects standard mode, since up to 66 characters can be printed on a slip line in standard mode. By calling this DirectIO with Data set to (PTR_S_SLIP + 80), the service object selects compressed mode for any SlpLineChars value, since compressed mode is required to print 80 characters on a line.

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_PTR_SET_MIN_LINE_CHARS_MODE
----------------	------------------------------------

<i>data</i> [0]	Upper word (<i>data</i> [0] & 0xFFFF0000); Station
-----------------	---

	Lower word (<i>data</i> [0] & 0x0000FFFF); Minimum number of characters
--	--

	Upon return, <i>data</i> [0] contains the previous minimum number of characters per line.
--	---

<i>object</i>	Not Used
---------------	----------

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

JPOS_E_ILLEGAL if the printer station cannot support the request number of characters or the station is invalid (in this case the extended result code is set to (NCR_EPTR_STATION)).

DirectIO - Get the Current Printer Status

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	NCRDIO_PTR_GET_PRINTER_STATUS
<i>data</i> [0]	The status is stored in <i>data</i> [0].
<i>object</i>	Not Used

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

If successful, the following table provides a detailed description of the data returned. It is described in Bit Mask form. The variable internal to the printer service object that is made visible is **m_nPrinterStatus**.

NCR-specific statuses are returned in the “*ResultCodeExtended*” property. Except for those cases where the upper bit is not 0x80000000. In those cases, see the specific error values that can be returned.

Defined Constant	Description
PTRSTAT_FLAG	Always On
PTRSTAT_ALL	All statuses
PTRSTAT_STATE	All state flags
PTRSTAT_PRINTER	All printer statuses
PTRSTAT_PRINTER_FAULT	All printer faults/failures
PTRSTAT_DRAWER	All drawer statuses
Printer States	
PTRSTAT_OFF_STATE	Printer is off
PTRSTAT_ERROR_STATE	Printer is in error: Not accepting requests

Defined Constant	Description
OPOS Printer Sensor values.	
PTRSTAT_COVER_OPEN	Cover or door open
PTRSTAT_JRN_EMPTY	Journal out
PTRSTAT_JRN_NEAREND	Journal low
PTRSTAT_REC_EMPTY	Receipt out
PTRSTAT_REC_LOW	Receipt low
PTRSTAT_SLP_EMPTY	Slip leading edge sensor: no paper
PTRSTAT_SLP_LOW	Slip trailing edge sensor: Low on paper
Printer Slip sensor values.	
PTRSTAT_SLP_TOF	Slip top of form sensor on
PTRSTAT_SLP_BOF	Slip bottom of form sensor on
Printer states only available when real-time commands are supported.	
PTRSTAT_SLP_SELECTED	Slip selected
PTRSTAT_SLP_WAITING	Printer waiting for insertion
Printer failure conditions. Support varies by printer.	
PTRSTAT_AUTORECOVER_FAULT	Auto-recoverable fault, such as temperature fault
PTRSTAT_MOTOR_FAULT	Motor fault
PTRSTAT_KNIFE_FAULT	Knife fault
PTRSTAT_FAILURE	Unrecoverable error
Drawer states.	
PTRSTAT_DWR1_OPEN	Drawer 1 open
PTRSTAT_DWR2_OPEN	Drawer 2 open

Updated Methods

CutPaper Method

Additional return values have been added to the CutPaper method.

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_BUSY	Cannot perform while output is in progress. (Can only be returned if AsyncMode is FALSE.)
	ResultCodeExtended = NCR_EPTR_RPM_NOT_READY: The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if AsyncMode is FALSE.)
JPOS_E_FAILURE	Cannot communicate with the device even though it is powered up and online (Can only be returned if AsyncMode is FALSE.)
	ResultCodeExtended = NCR_EPTR_CDS_DOOR_OPEN: The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if AsyncMode is FALSE.)
	NCR_EPTR_MECH_ERROR Presenter mechanism failure (Potential paper jam)
	NCR_EPTR_RPM_PAPER_JAM Paper jam encountered during printing

NCR_EPTR_RPM_BLACK_MARK
Black mark detection failure. (Not
Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE
Printer head failure (Not Currently
Implemented)

PrintBarCode Method

Additional information for the Alignment parameter

Alignment Placement of the bar code. (See Values below) For the NCR 7158 printer, the default alignment uses the full width of the carriage to determine the Left, Center, and Right positions. The 7158 alignment can be adjusted to the width of a particular slip by using the printer's native "Set Absolute Starting Position" command to set the Left margin. This command is sent to the printer using the Direct I/O method NCRDIO_PTR_RAW_OUTPUT. See **Set Absolute Starting Position** below for additional information.

Set Absolute Starting Position

Sets the print starting position to the specified number of dots (up to the right margin) from the beginning of the line. The print starting position is reset to the first column after each line.

ASCII: ESC \$ n1 n2

Hexadecimal: 1B 24 n1 n2

Decimal: 27 36 n1 n2

Value of n: Number of dots to be moved from the beginning of the line

Value of n1: Remainder after dividing n by 256.

Value of n2: Integer after dividing n by 256.

The values for n1 and n2 are two bytes in low byte, high byte word orientation.

Formulas:

Determine the value of n by multiplying the column for the absolute starting position by 10. The example shows how to calculate column 29 (10 dots per column) as the absolute starting position.

$28 \times 10 = 280$ dots (beginning of column 29)

$280 / 256 = 1$, remainder of 24

n1 = 24

n2 = 1

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_BUSY	Cannot perform while output is in progress. (Can only be returned if AsyncMode is FALSE.)
ResultCodeExtended = NCR_EPTR_RPM_NOT_READY:	

The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation..
(Can only be returned if **AsyncMode** is FALSE.)

JPOS_E_FAILURE

Cannot communicate with the device even though it is powered up and online (Can only be returned if **AsyncMode** is FALSE.)

ResultCodeExtended =

NCR_EPTR_CDS_DOOR_OPEN:

The cabinet door on the K580 printer is open. Output not allowed.
(Can only be returned if **AsyncMode** is FALSE.)

NCR_EPTR_MECH_ERROR

Presenter mechanism failure (Potential paper jam)

NCR_EPTR_RPM_PAPER_JAM

Paper jam encountered during printing

NCR_EPTR_RPM_BLACK_MARK

Black mark detection failure. (Not Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE

Printer head failure (Not Currently Implemented)

PrintBitmap Method

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value

Meaning

JPOS_E_BUSY

Cannot perform while output is in progress. (Can only be returned if **AsyncMode** is FALSE.)

ResultCodeExtended =

NCR_EPTR_RPM_NOT_READY:

The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if **AsyncMode** is FALSE.)

JPOS_E_FAILURE

Cannot communicate with the device even though it is powered up and online (Can only be returned if **AsyncMode** is FALSE.)

ResultCodeExtended =

NCR_EPTR_CDS_DOOR_OPEN:

The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if **AsyncMode** is FALSE.)

NCR_EPTR_MECH_ERROR

Presenter mechanism failure (Potential paper jam)

NCR_EPTR_RPM_PAPER_JAM

Paper jam encountered during printing

NCR_EPTR_RPM_BLACK_MARK

Black mark detection failure. (Not Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE

Printer head failure (Not Currently Implemented)

PrintImmediate Method

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_BUSY	Cannot perform while output is in progress. (Can only be returned if AsyncMode is FALSE.) ResultCodeExtended = NCR_EPTR_RPM_NOT_READY: The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if AsyncMode is FALSE.)
JPOS_E_FAILURE	Cannot communicate with the device even though it is powered up and online (Can only be returned if AsyncMode is FALSE.) ResultCodeExtended = NCR_EPTR_CDS_DOOR_OPEN: The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if AsyncMode is FALSE.) NCR_EPTR_MECH_ERROR Presenter mechanism failure (Potential paper jam) NCR_EPTR_RPM_PAPER_JAM Paper jam encountered during printing

NCR_EPTR_RPM_BLACK_MARK

Black mark detection failure. (Not
Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE

Printer head failure (Not Currently
Implemented)

PrintNormal Method

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
ResultCodeExtended = NCR_EPTR_RPM_NOT_READY:	The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if AsyncMode is FALSE.)
JPOS_E_FAILURE	Cannot communicate with the device even though it is powered up and online (Can only be returned if AsyncMode is FALSE.)
	ResultCodeExtended = NCR_EPTR_CDS_DOOR_OPEN: The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if AsyncMode is FALSE.)
	NCR_EPTR_MECH_ERROR Presenter mechanism failure (Potential paper jam)
	NCR_EPTR_RPM_PAPER_JAM Paper jam encountered during printing
	NCR_EPTR_RPM_BLACK_MARK Black mark detection failure. (Not Currently Implemented)
	NCR_EPTR_PRINT_HEAD_FAILURE Printer head failure (Not Currently Implemented)

PrintTwoNormal Method

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_BUSY	Cannot perform while output is in progress. (Can only be returned if AsyncMode is FALSE.) ResultCodeExtended = NCR_EPTR_RPM_NOT_READY: The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if AsyncMode is FALSE.)
JPOS_E_FAILURE	Cannot communicate with the device even though it is powered up and online (Can only be returned if AsyncMode is FALSE.) ResultCodeExtended = NCR_EPTR_CDS_DOOR_OPEN: The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if AsyncMode is FALSE.) NCR_EPTR_MECH_ERROR Presenter mechanism failure (Potential paper jam) NCR_EPTR_RPM_PAPER_JAM Paper jam encountered during printing NCR_EPTR_RPM_BLACK_MARK Black mark detection failure. (Not Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE
Printer head failure (Not Currently
Implemented)

RotatePrint Method

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_BUSY	Cannot perform while output is in progress. (Can only be returned if AsyncMode is FALSE.)
	ResultCodeExtended = NCR_EPTR_RPM_NOT_READY: The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if AsyncMode is FALSE.)
JPOS_E_FAILURE	Cannot communicate with the device even though it is powered up and online (Can only be returned if AsyncMode is FALSE.)
	ResultCodeExtended = NCR_EPTR_CDS_DOOR_OPEN: The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if AsyncMode is FALSE.)
	NCR_EPTR_MECH_ERROR Presenter mechanism failure (Potential paper jam)
	NCR_EPTR_RPM_PAPER_JAM Paper jam encountered during printing
	NCR_EPTR_RPM_BLACK_MARK Black mark detection failure. (Not Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE
Printer head failure (Not Currently
Implemented)

TransactionPrint Method

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

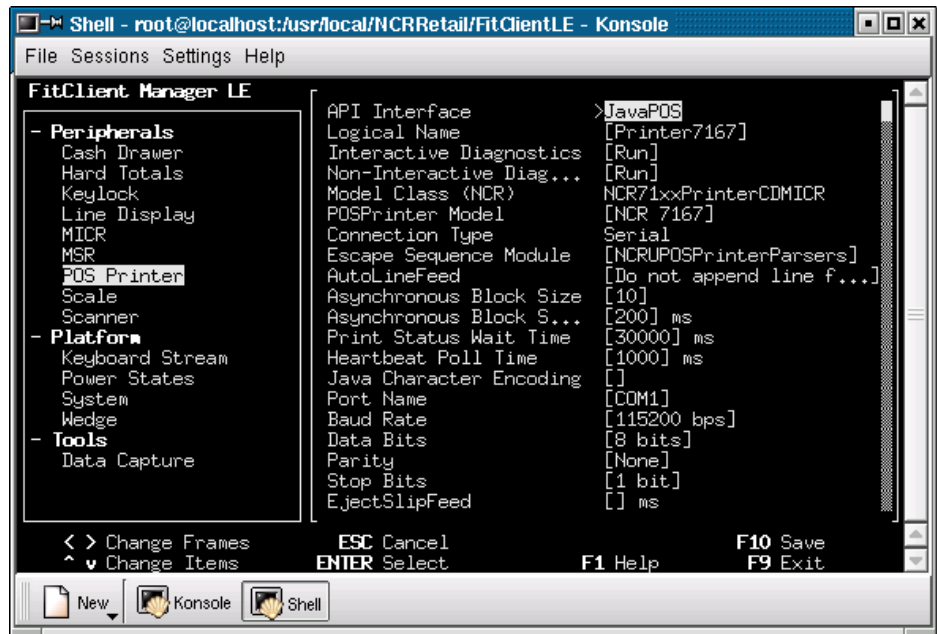
Value	Meaning
JPOS_E_BUSY	Cannot perform while output is in progress. (Can only be returned if AsyncMode is FALSE and <i>Control</i> is PTR_TP_NORMAL.) ResultCodeExtended = NCR_EPTR_RPM_NOT_READY: The receipt Presenter Mechanism on the K580 printer still has paper in it from the previous operation, and is not ready to accept a new operation.. (Can only be returned if AsyncMode is FALSE.)
JPOS_E_FAILURE	Cannot communicate with the device even though it is powered up and online (Can only be returned if AsyncMode is FALSE.) ResultCodeExtended = NCR_EPTR_CDS_DOOR_OPEN: The cabinet door on the K580 printer is open. Output not allowed. (Can only be returned if AsyncMode is FALSE.) NCR_EPTR_MECH_ERROR Presenter mechanism failure (Potential paper jam)

NCR_EPTR_RPM_PAPER_JAM
Paper jam encountered during printing

NCR_EPTR_RPM_BLACK_MARK
Black mark detection failure. (Not
Currently Implemented)

NCR_EPTR_PRINT_HEAD_FAILURE
Printer head failure (Not Currently
Implemented)

POS Printer Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is using this control, Currently, JavaPOS is the only valid option	JavaPOS
Logical Name	The name of a specific configuration	Printer7167 Printer7197

Parameter	Description	Valid Values
Model Class		NCR71xxPrinterCDMICR
[Default]	Programmatic ID - Do Not Change	"NCRPrinter.POSPrinter"
POSPrinter Model	The model number of the attached printer	NCR 7167 NCR 7197 (Default)
Connection Type	Defines how the printer is connected to the terminal.	Serial (Read-Only)
Escape Sequence Module	The POS printer makes use of an escape sequence module to translate from API specific escape sequences to printer specific sequences. The default parser module, UPOSParsers, supports the OPOS/JavaPOS escape sequences.	NCRUPOSPrinterParsers
AutoLineFeed	AutoLineFeed determines if the printer should append a line feed to the last line of a print request, if a line feed is not already present.	Append a line feed if not already present Do Not append line feeds (Default)
Asynchronous Block Size	Asynchronous print requests are grouped into logical units called asynchronous blocks. The Asynchronous Block Size determines the number of requests in each block. The status of the printer is checked at the end of each asynchronous block, rather than after each request. Thus, larger block sizes will reduce the number of status requests issued, and thereby improve performance. However, if a printer failure occurs, we will not know which (if any) requests in the block were printed successfully, and which were not. In this regard, a smaller block size may allow more precise error handling on the part of the application. .	10
Asynchronous Block Status Timeout	The Asynchronous Block Status Timeout value is the maximum time (in milliseconds) to wait before terminating an asynchronous block. This is useful if the application stops sending print requests before an asynchronous block is full; the block will eventually time out, and the status of the requests in the block will be determined and reported to the application. The timeout value must be between 50 and 10000 milliseconds. A higher timeout value will usually allow more requests to be combined into each asynchronous block, thereby improving	200 ms

Parameter	Description	Valid Values
	performance. If the timeout value is too large, and the application is not printing lines frequently, then there will be longer delays before the status of each request is determined.	
Print Status Wait Time	This is the maximum time to wait for a buffered status response.	5000 - 30000 ms 30000 (Default)
Heart Beat Poll Time	The Heartbeat Poll Time determines how often heartbeat requests are sent to the printer. Heartbeat requests are used to verify that the printer is still responsive. A smaller poll time results in faster detection when the printer goes offline or becomes unresponsive. This comes at the cost of performance, as time spent processing heartbeat requests is time that could have been spent on other print requests.	500 - 10000 ms 1000 (Default)
Java Character Encoding	The POS Printer operates using character sets, not Unicode. As a convenience for the application, the POS Printer supports this parameter to automatically map Unicode strings into a particular character set using the specified Java Character Encoding type string. It is still the responsibility of the application to select the correct character set programmatically. The valid values for this parameter can be found in the Sun Java online documentation at URL: http://java.sun.com/products/jdk/1.2/docs/guide/internet/encoding.doc.html . If this parameter is omitted, or its value is an empty string, the application is assumed to be providing strings with character values between 0000 and 00FF where each character is already the correct value for the currently selected character set.	
Port Name	Serial Only. The serial port that is connected to the printer.	COM1 - COM10 COM1 (Default)
Baud Rate	Serial Only. Specifies the speed for serial communications	9600 bbs 19200 bbs 38400 bbs 57600 bbs 115200 bbs 115200 (Default)
Data Bits	Serial Only. The number of bits in the bytes transmitted and received	5 bits 6 bits

Parameter	Description	Valid Values
		7 bits 8 bits (Default)
Parity	Serial Only. Specifies the parity scheme for serial communications	None (Default) Even Odd
Stop Bits	Serial Only. The number of stop bits to use for serial communications.	1 bit (Default) 2 bits
EjectSlipFeed	EjectSlipFeed determines the number of lines to feed the slip as part of slip removal processing. Negative values indicate a reverse feed, and positive values indicate a forward feed. If this value is left blank, a printer specific default value is used.	-100 - 100 "" (Default)
SlipInSettleTime	Slip insertion will not succeed until we have a slip inserted status that is stable for this many milliseconds. If this value is left blank, a printer specific default value is used.	0 - 10000 ms "" (Default)
SlipOutSettleTime	Slip removal will not succeed until we have a slip out status that is stable for this many milliseconds. If this value is left blank, a printer specific default value is used.	0 - 10000 ms "" (Default)
SlipToTopOfForm	Indicates if the printer should reposition the slip to the top of form after a slip is inserted	Reposition the slip after insertion (Default) Do not reposition the slip after insertion
ColorPaper	For the 7167 and the 7197 printers, this determines the type of Thermal Color paper being used. It defines the number of colors supported by the paper.	Thermal station contains monochrome paper (Default) Thermal station contains two color paper.

The following configuration has been predefined.

Default Configuration	Description
Printer7167	NCR 7167 Printer
Printer7197	NCR 7197 Printer

Scale

The Scale Control Object defines the NCR 7872, NCR 7875, or NCR 7883 Scanner/Scale with a serial Connection.

DirectIO - Scale Status

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	NCRDIO_SCAL_STATUS (601).
<i>data</i>	Not Used.
<i>object</i>	Returns the status string direct from the scale. You must know the scale interface to decode the string.

DirectIO - Scale Read ROM

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAL_READROM (602).
----------------	----------------------------

<i>data</i>	Address to read from.
-------------	-----------------------

<i>object</i>	Returns 30 bytes of ROM data.
---------------	-------------------------------

DirectIO - Scale ROM Version

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAL_ROM_VERSION (603).
----------------	--------------------------------

<i>data</i>	Not Used.
-------------	-----------

<i>object</i>	Returns the ROM version number.
---------------	---------------------------------

DirectIO - Scale Live Weight

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	NCRDIO_SCAL_LIVE_WEIGHT (604).
<i>data</i>	Returns the weight provided by the low level "monitor" scale firmware command.
<i>object</i>	Not Used.

Errors An exception may be thrown when this method is invoked.
Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_FAILURE	The device cannot perform the requested procedure, even though the device is connected to the system, powered on, and on-line.
JPOS_E_TIMEOUT	A stable non-zero weight was not available before <i>Timeout</i> milliseconds elapsed.
JPOS_E_EXTENDED	ResultCodeExtended = JPOS_ESCAL_OVERWEIGHT: The weight was over MaximumWeight . NCR_ESCAL_UNSTABLE: The scale reading is not stable. NCR_ESCAL_ZEROWEIGHT: The scale is not registering a weight. NCR_ESCAL_UNDERZERO: The scale is reading less than zero weight.

DirectIO - Scale Direct Access

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	NCRDIO_SCAL_DIRECT (605).
<i>data</i>	False (0), no data is returned.
<i>object</i>	String to send to the scale, including the suffix and BCC character (if needed) or the string data returned from the scale.

Method Updates

ReadWeight Method

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	ReadWeight
<i>data</i>	If AsyncMode is FALSE, Points to the number where the weight is returned; else must be zero..
<i>object</i>	The number of milliseconds to wait for a settled weight before failing the method. If zero, the method attempts to read the scale weight, then returns the appropriate status immediately. If JPOS_FOREVER (-1), the method waits as long as needed until a weight is successfully read or an error occurs.

Remarks Call to read a weight from the scale.

Release 1.0 – 1.2

The weighing process is performed synchronously and the method will return after finishing the weighing process. The weight is returned at *pWeightData*,

Release 1.3 and later

If **AsyncMode** is FALSE, then **ReadWeight** operates synchronously, as with earlier releases.

If **AsyncMode** is TRUE, the weighing process is performed asynchronously. The method will initiate a read, then return immediately. If the method returns a success status, the weighing process is started and a **DataEvent** containing the weight in its *Status* parameter indicates its completion.

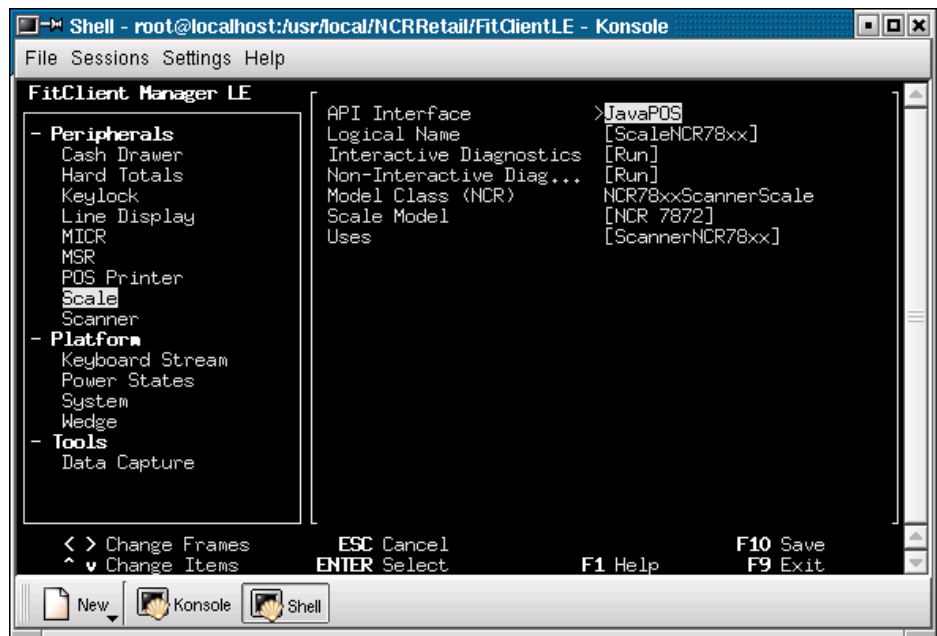
The weight has an assumed decimal place located after the “thousands” digit position. For example, an actual value of 12345 represents 12.345, and an actual value of 5 represents 0.005.

Errors An exception may be thrown when this method is invoked.

Some possible values of the exception's *ErrorCode* property are:

Value	Meaning
JPOS_E_EXTENDED	ResultCodeExtended = OPOS_ESCAL_OVERWEIGHT: The weight was over MaximumWeight .

Scale Configuration Entries



Parameter	Description	Valid Values
API Interface	The interface that is using this control, Currently, JavaPOS is the only valid option	JavaPOS

Logical Name	The name of a specific configuration	ScaleNCR78xx
Model Class		NCR78xxScannerScale
ScaleModel	Model number of the device	NCR 7872 NCR 7875 (Default) NCR 7883
MonitorEnable	Enables the ReadWeight method to return a continuous weight.	Disabled (Default) Enabled
Uses	The Scale uses the parameters of the Scanner service object in addition to the parameters described here. Therefore, the Scanner parameter entries must be set up first. If you delete the Scanner service object, this device can not be used.	ScannerNCR7882 ScannerNCR7837 ScannerNCR7832 ScannerNCR78xx Scanner.5932Wedge ScannerNCR7892 ScannerOther

The following configuration has been predefined.

Default Configuration	Description
ScaleNCR78xx	A scale on the NCR 7872

Scanner

The Scanner Control Object defines the following Scanners with a serial connection.

NCR 7832

NCR 7837

NCR 7872

NCR 7875

NCR 7882

NCR 7883

NCR7892

DirectIO - Scanner NOT-ON-FILE

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAN_NOT_ON_FILE (508)
----------------	-------------------------------

<i>data</i>	Not Used.
-------------	-----------

<i>object</i>	Not Used.
---------------	-----------

DirectIO - Scanner Tone Control

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAN_TONE (501)
----------------	------------------------

<i>data</i>	SCAN_TONE_BEEP (1001) SCAN_TONE_ENABLE (1002) SCAN_TONE_DISABLE (1003)
-------------	--

<i>object</i>	Not Used.
---------------	-----------

DirectIO - Scanner Reset

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAN_RESET (502)
----------------	-------------------------

<i>data</i>	Not Used.
-------------	-----------

<i>object</i>	Not Used.
---------------	-----------

DirectIO - Scanner Status

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	NCRDIO_SCAN_STATUS (503)
<i>data</i>	Not Used.
<i>object</i>	Status string (direct from scanner). You must know the scanner interface to decode the string.

DirectIO - Scanner Read ROM

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAN_READROM (504)
----------------	---------------------------

<i>data</i>	Address to read from.
-------------	-----------------------

<i>object</i>	Returns 30 bytes of ROM data.
---------------	-------------------------------

DirectIO - Scanner ROM Version

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAN_ROM_VERSION (505)
----------------	-------------------------------

<i>data</i>	Not Used.
-------------	-----------

<i>object</i>	Returns the ROM version ID.
---------------	-----------------------------

DirectIO - Scanner Pacesetter Options

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

Parameter	Description
<i>command</i>	NCRDIO_SCAN_PACESETTER (506)
<i>data</i>	Requested sub-command PACESETTER_READ_GOOD (1101) PACESETTER_READ_NO_READS (1102) PACESETTER_READ_OVERPRINT (1103) PACESETTER_READ_UNDERPRINT (1104) PACESETTER_READ_MISS_MARGIN (1105) PACESETTER_RESET (1106) PACESETTER_ENABLE_MODE_3 (1107) PACESETTER_DISABLE_MODE_3 (1108)
<i>object</i>	Not Used.

If the *command* is successful, and a READ sub-command (1101-1105) was issued, the tally value is placed in *data*.

NOTE: The Pacesetter command is only supported on the NCR 7875, scanner.

DirectIO - Scanner Direct Access

Syntax **void directIO (int *command*, int[] *data*, Object *object*) throws JposException;**

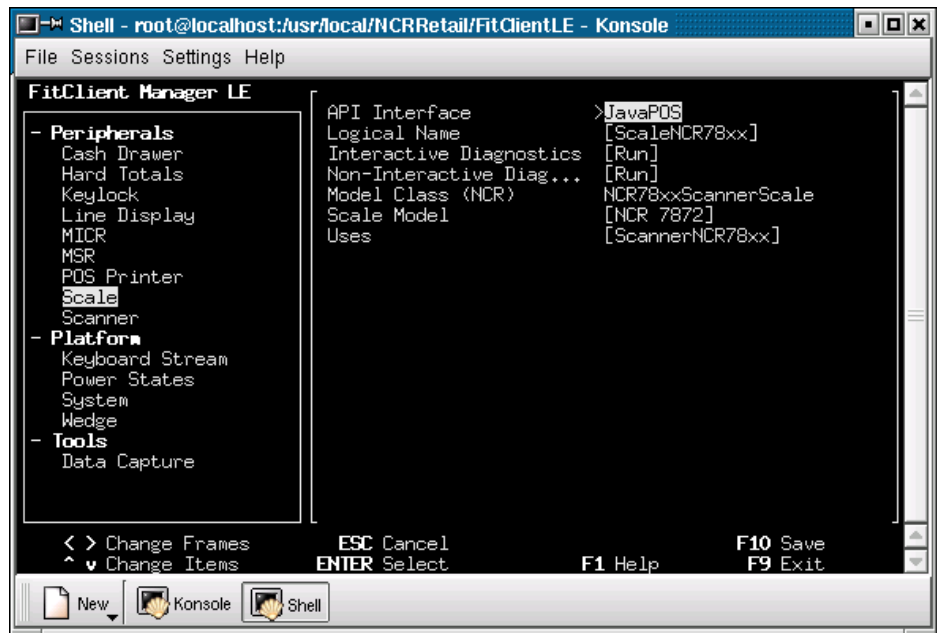
Parameter	Description
-----------	-------------

<i>command</i>	NCRDIO_SCAN_DIRECT (507)
----------------	--------------------------

<i>data</i>	False (0), no data is returned.
-------------	---------------------------------

<i>object</i>	String to send to the scanner, including the suffix and BCC character (if needed) or the string data returned from the scanner.
---------------	---

Scanner Configuration Entries



Note: COM1 through COM10 correspond to “/dev/ttyS0” through “/dev/ttyS9”. COM is used as a generic name. /dev/ttyS40 and ttyS50 were added specifically for IONetworks USB support. They were left as ttySx because you must lookup the link in Linux for what port ION selected for use with their USB driver

Parameters	Description	Valid Values
API Interface	The interface that is using this control, Currently, JavaPOS is the only valid option	JavaPOS
Logical Name	The name of a specific configuration	You can name your own configuration names. The following names are supplied with the install. ScannerNCR7882 ScannerNCR7837 ScannerNCR7832 ScannerNCR78xx Scanner.5932Wedge ScannerNCR7892 ScannerOther
Model Class		NCR78xxScannerScale
Scanner Model	Model number of the Scanner connected to the terminal	NCR 7832 NCR 7837 NCR 7872 NCR 7875 NCR 7882 NCR 7883 NCR 7892 (Default)
Connection Type	Describes how the scanner is connected to the terminal	Serial (Default) NCR Wedge NCR USB
EnableIfOff	EnableIfOff value of 1 causes the model to succeed DeviceEnable when the device is powered off. This is for models that support power reporting and automatically initialize and enable the device when power is applied.	Fail Enable (Default) Succeed Enable
Prefix	Must match the device setting. .Prefix, prepends a byte or 2 to the device message. Prefix is not included in BCC calculation.	None (Default)
Suffix	Must match the device setting. Suffix	None

Parameters	Description	Valid Values
	prepends a byte or 2 to the device message. Suffix is included in the BCC calculation.	0x03 (Default)
NCR 7872, 7875, 7883 Common Properties		
ScannerScaleFormat	ScannerScaleFormat applies to scanner/scale devices only.. ScannerScale devices default to a message format of ScannerScale. Re-programming a scannerscale device to scanner-only mode will default to a message format of Scanner Only.	Scanner Only ScannerScale (Default)
Bcc	Block Check Characters(BCC) - Exclusive OR of all bytes in a message except the prefix byte. Default is Enabled for scanner/scale devices. Default is Disabled for scanner/scale devices re-programmed to Scanner Only.	Disabled Enabled (Default)
RemoveSpaces	Applicable only when “CheckDigit” is “Enabled”. Enables removal of spaces within a barcode. “Remove” sets “RemoveSpaces” config file parmater to 1.	Do not remove (Default) Remove
CheckDigit	Applicable only to barcodes that support a check digit. Enables calculation of a check digit for barcodes received from the scanner without a check digit. “Enabled” sets “AutoCD” config file parameter to 1.	Disabled (Default) Enabled
Serial Port Parameters for NCR 7872, 7875, 7883 and Scanner-Only NCR Scanners, NCR 7882, NCR 7892		
Port Name	Serial port name connected to the device. USB devices using IO Network drivers must assign the port used by the driver	COM1 - COM10, /dev/ttyS49, /dev/ttyS50 COM1 (Default)
Baud Rate	The communication speed for the Scanner. The setting must match the device setting	9600 bps (Default) 4800 bps
Data Bits	The number of bits in the bytes transmitted and received	5 bits 6 bits 7 bits (Default) 8 bits
Parity	Serial Only. Specifies the parity scheme for serial communications	None Even

Parameters	Description	Valid Values
		Odd (Default)
Stop Bits	Serial Only. The number of stop bits to use for serial communications.	1 bit (Default) 2 bits
CTS Flow Control	Permit serial flow control through the Clear to Send (CTS) signal.	Disabled Enabled (Default)
DSR Flow Control	Permit serial flow control through the Data Set Ready (DSR) signal.	Disabled Enabled (Default)
NCR 7882 and NCR 7892 Common Properties		
Bcc	Block Check Characters(BCC) - Exclusive OR of all bytes in a message except the prefix byte.	Disabled (Disabled) Enabled
Proqramming Sequence	For models that support programming sequences. The string is sent to the device verbatim during initialization.	
NCR 7832 and NCR 7837 Common Properties		
Port Name	Serial port name connected to the device. USB devices using IO Network drivers must assign the port used by the driver	COM1 - COM10, COM1 (Default)
Serial Port Properties for Input-Only (7837, Other) Scanners		
NCR Version	NCR Release File Version of the Service Object.	ASCII Text
Baud Rate	The communication speed for the Scanner. The setting must match the device setting	9600 bps (Default) 4800 bps
Data Bits	The number of bits in the bytes transmitted and received	5 bits 6 bits 7 bits (Default) 8 bits
Parity	Serial Only. Specifies the parity scheme for serial communications	None Even Odd (Default)
Stop Bits	Serial Only. The number of stop bits to use for serial communications.	1 bit (Default) 2 bits
CTS Flow Control	Permit serial flow control through the Clear to Send (CTS) signal.	Disabled (Default) Enabled
DSR Flow Control	Permit serial flow control through the Data Set Ready (DSR) signal.	Disabled (Default) Enabled
Serial Port Properties for NCR 7832 Scanners		

Parameters	Description	Valid Values
Baud Rate	The communication speed for the Scanner. The setting must match the device setting	9600 bps 4800 bps (Default)
Data Bits	The number of bits in the bytes transmitted and received	5 bits 6 bits 7 bits 8 bits (Default)
Parity	Serial Only. Specifies the parity scheme for serial communications	None (Default) Even Odd)
Stop Bits	Serial Only. The number of stop bits to use for serial communications.	1 bit 2 bits (Default)
Wedge Properties		
Connection Type	Indicates the subcomponent on the Wedge bus to use.	Serial (Default)

Default values based on Model setting:

Model	Baud	Parity	Byte Size	Stop Bits	Prefix	Suffix	CTS *	DSR *	DTR *	RTS *
7832	9600	None	8	2	None	0x0D	--	--	--	--
7837	9600	Even	7	1	None	0x0D	--	--	--	--
7872	9600	Odd	7	1	None	0x03	--	--	--	--
7875	9600	Odd	7	1	None	0x03	--	--	--	--
7882	9600	Odd	7	1	None	0x03	--	--	--	--
7892	9600	Odd	7	1	None	0x03	--	--	--	--
Other	9600	None	8	1	None	None	Off	Off	On	On

- *Signifies that these parameter are not configurable. These settings are provided for informational purposes only, and this information is targeted for those individuals using the "other" model setting. For the NCR family of scanners, these settings are known by the Scanner / Scale Service

The following configuration has been predefined.

Default Configuration	Description
ScannerNCR7882	NCR 7882 Scanner
ScannerNCR7837	NCR 7837 Scanner
ScannerNCR7832	NCR 7832 Scanner
ScannerNCR78xx	NCR 78xx Scanner
Scanner.5932Wedge	Scanner in NCR 5932
ScannerNCR7892	NCR 7892 Scanner
ScannerOther	Other Scanners

Data Capture

Data Capture Configuration Entries

Parameter	Description	Valid Values
Control	Indicates which type of data capture is desired. Delayed Data Capture is more efficient and will lead to less performance impact while running. However, the Data Capture log is not updated in real time. Conversely, Immediate Data Capture allows for real time updates but at a larger performance impact.	Delayed Data Capture (Default) Immediate Data Capture
TraceMask	Specifies which events should be captured (32-bit value in hexadecimal format). Specify '0xFFFFFFFF' to capture all events.	0x00000000(Default) - 0xFFFFFFFF
LevelMask	Specifies which event levels should be captured (32-bit value in hexadecimal format). Specify '0xFFFFFFFF' to capture all events.	0x00000000(Default) - 0xFFFFFFFF
FileName	This value specifies the file location and file name (absolute pathname - e.g. /var/log/NCRRetail/NCRDataCap.log).	/var/log/NCRRetail/HardTotalsArea (Default)
DataCapSize	The maximum size of the data capture file, in kilobytes. The default value is -1, which signifies that the file size is unlimited.	-1 through 2,147,483,648 10,000 (Default)
Truncate	In some situations, it is desired that each new data capture log begin with a new, blank file. If this is the case, then selecting "Truncate File" will result in an empty file creation before each new log is generated. Conversely, choosing "Do Not Truncate File" will simply allow existing data cap log files to be appended to each time a new log is generated.	Do Not Truncate File (Default) Truncate File

