Migration Guide

Virtual COM Port Discontinuation

Release 1.0

BCC5-0000-5601
Issue A

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Preface

Audience

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

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Revision Record

Issue	Date	Remarks
A	Nov 2022	First Issue

Virtual COM Port Discontinuation Migration Guide

Introduction

The information provided in this publication is a summary of important points to consider when transitioning from the Virtual COM Port Interface to NCR HID Printer Interface (NHPI).

The Virtual COM Port (Serial Interface) over USB may refer to the following:

- **USB Type Interface**—the term used in the printer firware for Virtual COM Port. It can be called EPiC or ION. EPiC refers to the product program of embedding the protocol into OEM products such as NCR printers and scanners. ION refers to I/O Networks, which was the original company that developed the driver and Virtual COM Port protocol.
- **Edgeport**—the name of the driver for Virtual COM Port. It is also the original I/O Networks USB to multiple physical serial port box for which the driver was originally developed
- **NCR USB**—the term used in some documentations, especially when used with NCR barcode scanners.

The USB Virtual COM Port driver (Virtual Serial Port) is a configuration option for many NCR Software packages. Some customers may be using the Virtual Serial Port Interface without any NCR Software, which can be done by using the O/S Serial Interface APIs.

The Virtual COM Port Interface in NCR 7199 and NCR 7169 printers will be discontinued for all shipments after October 27, 2023. With this change, a different interface is required to communicate with the printer. Depending on the current configuration, the changes required might be one of the following:

- Change the software configuration to use a different interface such as the USB NHPI Interface.
- Update the software if it does not support the USB NHPI Interface.
- Rewrite the printer API Interface to use USB HID (NHPI) if an application or software component is current using Serial API Interface. HID is the Windows Human Interface Device type, while NHPI is the NCR HID Printer Interface.
- Switch to a physical Serial Cable and hardware interface at the device if it is not possible to rewrite the Serial API Interface to use the USB HID Interface.

- Choose and code to a different software API Interface if the driver currently used does not have an option for supporting the USB HID (NHPI) Interface.

The Virtual COM Port Interface is supported in NCR 7199, 7169, 7125/7346-F307, and 7346-F309 POS printers. However, this interface is only being discontinued from NCR 7199 and NCR 7169 printers.

Note: New NCR 7199 and NCR 7169 printers shipped after October 27, 2023 will not support the Virtual COM Port Interface. Printers shipped before October 27, 2023 can be installed in the field and can continue to operate with the Virtual COM Port Interface after that date.

Recommended Replacement Interface

To maintain the benefits of USB, it is recommended, when possible, to replace the Virtual Serial Interface with the USB HID Interface. In the printer firmware, the USB Type Interface that sets this configuration option is the NCR HID Printer Interface (NHPI). The NHPI Interface is a set of HID Usage Page and Report definitions for using HID protocol to Interface to the NCR printer.

In most cases, replacing the Virtual Serial Interface may only require upgrading the NCR Software. If the application or other software issued direct native printer escape sequences and data directly to the printer using the O/S Serial API Interface, that code will need to be rewritten to use the O/S HID API Interface.

NCR UnifiedPOS (OPOS/JavaPOS) Implementations

NCR has released several different software stacks over the years that implement the UnifiedPOS standard for OPOS and JavaPOS. The migration steps for each of these will be explained in the following pages. To become familiar with the terminology, refer to the following brief descriptions.

Platform Software	Description
NCR Retail Platform Software for Windows (RPSW)	This package contains the following OPOS and JavaPOS implementations: • **OPOS 2.x**—first OPOS architecture initially released by NCR around 1996. • **OPOS Retail Controls 3.x**—later architecture released by NCR around 2003. • **JavaPOS**—main version of NCR JavaPOS used by customers is based on NCR Retail Controls 3.x architecture.
NCR Retail Platform Software for Linux (RPSL)	JavaPOS is the only software supported under Linux. This implementation is based on NCR Retail Controls 3.x architecture.
NCR Platform Software for Windows (NCRPSW) NCR Platform Software for Linux (NCRPSL)	These are the newest UnifiedPOS architecture released by NCR to support both OPOS and JavaPOS. **Note:** These software architecture support USB devices using a USB protocol such as HID. These do not support physical or virtual serial devices. No migration information is required.

Migration Procedures

Procedures for migrating from the Virtual Serial Interface to the USB HID Interface are dependent on the software used for the NCR printer. For more information, refer to the following:

NCR OPOS 2.x

If customers are using NCR OPOS 2.x to interface to an NCR 7199 or NCR 7169 printer, the OPOS Profile, they must have their OPOS Profile configured for some model of NCR 7197 or NCR 7167 printer. The NCR OPOS 2.x software does not natively support NCR 7199 and NCR 7169 printers.

Note: For OPOS 2.x, the OPOS Profile has a (Default) entry of *NCRPrinter.POSPrinter*.

The NCR OPOS 2.x Interface does not support the NCR NHPI USB protocol. Customers using NCR OPOS 2.x need to upgrade the printer software before they can use the NCR OPOS Retail Controls 3.x implementation.

By default, the RPSW package installs both OPOS 2.x and OPOS Retail Controls 3.x. Unless customers performed a custom installation and installed only NCR OPOS 2.x, they can switch to NCR OPOS Retail Controls 3.x by creating new OPOS Profiles.

Note: For OPOS Retail Controls 3.x, the OPOS Profile has a (Default) entry of *NCROposSO.POSPrinter*.

If the NCR OPOS Retail Controls 3.x is not installed, install the latest RPSW package and do either of the following:

- Select default installation, which installs both OPOS 2.x and OPOS Retail Controls 3.x
- Select custom installation and select OPOS Retail Controls 3.x

For more information on profile configuration, refer to NCR OPOS Retail Controls 3.x and NCR JavaPOS.

NCR OPOS Retail Controls 3.x and NCR JavaPOS

NCR OPOS Retail Controls 3.x and NCR JavaPOS support both the Virtual COM Port Interface and the USB HID NHPI Interface.

Most of the time, switching from Virtual COM Port to USB HID NHPI for NCR OPOS Retail Controls 3.x or NCR JavaPOS implementation only requires a profile configuration change.

If the NCR RPSW or RPSL installed is an old version (installed before the implementation of the USB HID NHPI Interface), upgrade to the latest version to have the profile configuration options for USB HID NHPI Interface available.

The following are example profiles for OPOS Retail Controls 3.x and JavaPOS.

OPOS Profiles with Virtual COM Port Entries

OPOS Profiles with Virtual COM Port Entries

```
[OLEforRetail\ServiceOPOS\POSPrinter\7169_COM]
        ConnectionType      REG_SZ      S  --- Stands for Serial or NCR USB in RSM LE
[OLEforRetail\ServiceOPOS\POSPrinter\7169_COM\IO]
        portName            REG_SZ      COM3 --- COM Port Number (Physical or Virtual)

[OLEforRetail\ServiceOPOS\POSPrinter\7169_Virtual]
        ConnectionType      REG_SZ      S  --- Stands for Serial or NCR USB in RSM LE
[OLEforRetail\ServiceOPOS\POSPrinter\7169_Virtual\IO]
        portName            REG_SZ      USBVirtual_COM --- Retail Controls identifies COM
```

OPOS Profiles with USB NHPI Entries

Note: The values shown below are in Hex.

OPOS Profiles with USB NHPI Entries

```
[OLEforRetail\ServiceOPOS\POSPrinter\7169_NHPI_Any]
        ConnectionType      REG_SZ      U  --- Stands for USB NHPI
[OLEforRetail\ServiceOPOS\POSPrinter\7169_NHPI_Any\IO]
        VendorID            REG_DWORD  0x00000404 --- NCR
        ProductID           REG_DWORD  0x00000000 --- Any NCR NHPI Printer
        DevUsagePage        REG_DWORD  0x0000FF8B
        DevUsage            REG_DWORD  0x00000005
        Reports             REG_DWORD  0x00000005
[OLEforRetail\ServiceOPOS\POSPrinter\7169_NHPI]
        ConnectionType      REG_SZ      U  --- Stands for USB NHPI
[OLEforRetail\ServiceOPOS\POSPrinter\7169_NHPI\IO]
        VendorID            REG_DWORD  0x00000404 --- NCR
        ProductID           REG_DWORD  0x00000386 --- 7169 PID all other printers ignored
        DevUsagePage        REG_DWORD  0x0000FF8B
        DevUsage            REG_DWORD  0x00000005
        Reports             REG_DWORD  0x00000005
```

JavaPOS Profiles with Virtual COM Port Entries

JavaPOS Profiles with Virtual COM Port Entries

```
  <JposEntry logicalName="7169_COM">
    <prop name="ConnectionType" type="String" value="S"/>
    <prop name="IO.portName" type="String" value="COM3"/> --- Physical or Virtual Serial
</JposEntry>
  <JposEntry logicalName="7169_Virtual">
    <prop name="ConnectionType" type="String" value="S"/>
    <prop name="IO.portName" type="String" value="USBVirtual_COM"/>
</JposEntry>
```

JavaPOS Profiles with USB NHPI Entries

Note: The values shown below are in Decimal.

JavaPOS Profiles with USB NHPI Entries

```
<JposEntry logicalName="7169_NHPI_Any">
    <prop name="ConnectionType" type="String" value="U"/>
    <prop name="IO.VendorID" type="String" value="1028"/>
    <prop name="IO.ProductID" type="String" value="0"/> --- Any NCR HID Printer
    <prop name="IO.DevUsagePage" type="String" value="65419"/>
    <prop name="IO.DevUsage" type="String" value="5"/>
    <prop name="IO.Reports" type="String" value="5"/>
</JposEntry>

<JposEntry logicalName="7169_NHPI">
    <prop name="ConnectionType" type="String" value="U"/>
    <prop name="IO.VendorID" type="String" value="1028"/>
    <prop name="IO.ProductID" type="String" value="902"/> --- NCR 7169 Printer
    <prop name="IO.DevUsagePage" type="String" value="65419"/>
    <prop name="IO.DevUsage" type="String" value="5"/>
    <prop name="IO.Reports" type="String" value="5"/>
</JposEntry>
```

NCR CUPS Driver for Linux

Currently, the NCR CUPS driver for Linux only supports either a Physical Serial Port or a Virtual Serial Port. There is no migration path to NHPI for CUPS API interface, and the only option is to switch to a different API under Linux such as JavaPOS or Direct Write.

O/S Serial Interface API

If customers are using the Operating System APIs to send print data and escape sequence to the printer over the Virtual COM Port Interface, in either Windows or Linux (typically discussed as Direct Write), their code need to be rewritten.

To download the `PrinterDemoTool.zip` sample demo program for NHPI (Windows), go to the NCR 7169 and NCR 7199 support pages at *https://www5.ncr.com//support/support_drivers_patches.asp?Class=External/Printers\display*.

The archive files `PrinterDemoTool.zip` contains both source and executable for Windows. The files demonstrate using NHPI with direct O/S API calls to do the following:

1. Validate the printer VID and PID.
2. Send Buffered Status command to printer and receive response.
3. Send “Hello World” text to the printer.
4. Send Real-Time Status command to printer and receive response.

Note: This program is simply to demonstrate the interface and how the three typical types of communication to the printer are handled. The code is not intended as an example for coding best practices.

Using the NHPI Interface on Other Printers

To have a consistent interface across the customer's installed base, it is recommended to switch customer's existing printers to NHPI mode This is done by configuring the **USB Type** setting of the printer to **NHPI**, but may depend on printer model.

Series II printers of 7167, 7197, and 7168 can be configured to use the NHPI Interface. These can be identified through the Model portion of the NCR PID.

Example: The following are examples of NCR PID for Series II printers.

- 7167-5xxx/6xxx/7xxx
- 7197-5xxx/6xxx/7xxx
- 7168-5xxx/6xxx/7xxx

Older Release 1 versions of the printer cannot be configured for NHPI. These include the 7198, 7197, and 7167 printers.

Example: The following are examples of NCR PID for Release 1 printers.

- 7167-1xxx/2xxx
- 7197-1xxx/2xxx
- 7198

The printer can be configured using the feed button lead thread configuration menu, which is entered by powering up with the appropriate DIP switch set. For more information, refer to the User Guide for specific printer.

Another way to configure the printer is by sending it a native command sequence to the printer over the Virtual COM Port. This can be done by creating a binary file containing the command and creating a utility, such as `TRCOMW.exe`, that can transmit the file to the printer.

The following command (hex values) sets the printer configuration to NHPI:

Command	`1F 11 68 01 FF 1D FF`
Description	• 1F 11 — configuration command • 68 01 — designates USB Type NHPI • FF — terminates the command • 1D FF — reboots the printer for the configuration to take effect

`TRCOMW.exe` can be downloaded from the following NCR Support page:

https://www5.ncr.com//support/support_drivers_patches.asp?Class=External/Peripherals\NCRPrintAssistant\display

The following are examples of command line for NCR 7199 for sending both bin files to the printer:

- `TRCOMW.EXE 1 SetNHPI.bin 115200 5` (where, 5 is COM5)
- `TRCOMW.EXE 3 SetEPiC.bin 36D 404` (where, 36D is the USB PID for the 7199)

Printer	USB PID (Hex)
7167	318
7168	352
7197	31B
7199	36D
7169	386

To download the `SetNHPI7199.zip` file, go to the NCR 7169 and NCR 7199 support pages at *https://www5.ncr.com//support/support_drivers_patches.asp?Class=External/Printers\display*.

The following table provides the list and description of files included in `SetNHPI7199.zip`.

File	Description
`TRCOMW.EXE`	An executable file
`Set_7199_EPiC.cmd`	Issues above down command line to switch NHPI 7199 back to EPiC
`Set_7199_NHPI.cmd`	Takes parameter of COM Port to switch 7199 to NHPI **Example:** Set_7199_NHPI 5
`SetEPiC.bin`	Binary command file to switch to EPiC mode
`SetNHPI.bin`	Binary command file to switch to NHPI mode

Deployment of Changes

A frequently asked question is if the changes needed to migrate from EPiC Virtual COM Port to NHPI can be deployed remotely.

The answer to that question is more complicated than a yes or no. It is possible to remotely deploy the changes to the printer and the OPOS/JavaPOS Profile, but how easy is dependent on the infrastructure of the solution.

The printer team provides tools such as the Flash Utility and the TRCOMW binary transmit utility (which can be scripted). However, because each solution provider, both internal and external to NCR, has its own infrastructure, NCR does not provide a turnkey solution that does the deployment for customers.

The solution integrator that provides the end customer solution must have built into its infrastructure the ability to deploy files remotely to the target system, and then remotely execute those files either through scripting or a manned GUI interface.

For example, when changing the OPOS Profile, the Solution Integrator needs to create a new Profile for the printer that switch the interface from Virtual COM Port to NHPI. One way to remotely deploy the changes is to do the following:

1. Create a `.reg` export of the OPOS Profile registry hive.
2. Sent that `.reg` file to the target systems.
3. On the target systems, run **Windows Regedit** with a script to import the file.

Note: For SCO, the method of updating a registry setting for device profile is through the CADD utility, which is part of the SCO Platform.

The section *Using the NHPI Interface on Other Printers* on page 11