# Generate QR Codes from IBM i

## Overview

IBM i supports multiple formats of barcodes. To name a few, we have UPCA, UPCE, UPC2, EAN(8/13/2/5), CODEABAR, etc. Please see <https://www.ibm.com/support/knowledgecenter/ssw_ibm_i_73/rzakd/rzakdmstptbarco.htm>

Among the barcode IDs, we have three 2D barcodes supported till OS version 7.1. Those are PDF417, MAXICODE, DATAMATRIX. The Designs relating to these Barcode Ids are unique on their own.

The most popular 2D Barcode has been introduced from OS version 7.2. We know it by the Name QR Code.

IBM i supports bar code printing through printer files by allowing usage of keyword BARCODE.

Given below is the syntax to use the keyword in PRTF:

BARCODE(bar-code-ID [height] [[\*HRZ | \*VRT]

[\*HRI | \*HRITOP | \*NOHRI] [\*AST | \*NOAST]

[modifier] [unit-width] [symbol-width]

[wide/narrow-ratio]

[PDF417 data]

[Data Matrix data]

[Maxicode data]

[QR Code data]])

For few of the attributes, there exists user defaults. For Example: if you are not mentioning horizontal(\*HRZ) or vertical(\*VRT), the default is horizontal printing[\*HRZ].

Restricting the objective of this blog, We will focus on how to generate a QR code which resembles the content data that user passes.

We have the specs for QRCODE from IBM’s Knowledge center

|  |  |  |  |
| --- | --- | --- | --- |
| **BARCODE ID** | **Digits per code** | **Range of characters allowed** | **Valid bar code modifier** |
| QRCODE or QR Code | Up to 7089 characters | Any 1 byte character | 02 |

The printer file BARCDPRT content is:

A R @@HDR

A BAR01 50A O 10 5BARCODE(QRCODE 3 \*HRZ +

A X'02' (\*WIDTH .05) (\*SWIDTH 1.5) +

A (\*QRCODE 0 0 \*CONVERT(1) +

A \*TRIM))

From the aforementioned syntax, we have used the given attributes here:

BARCODE(bar-code-ID [height] [\*HRZ | \*VRT]

[modifier] [unit-width] [symbol-width]

[QR Code data]

Valid bar code Modifier is to be formatted in hex form, so , X’02’ is used in code.

Here, the [QR CODE Data] can have the below attributes to be used:

(\*QRCODE version error-correction [alternate-data-type]

[escape-indicator] [sequence-indicator]

[convert-indicator] [trim-indicator])

For the QR code to get scanned easily, We have used version : 0 and error-correction : 0

You can relate to **Version** as the number of square dots per inch on a scale of 0-40 where 0 being the least number of dots. It helps in readability of the scanner/QR reader.

**Error-correction** can have four values: 0/1/2/3

It basically adds more code into the QRCode graphic data for recovery of symbol code words. You can relate it to adding impurity into your content data you want to publish in QR code.

We have used [**convert indicator]** 1 in our code. Since we will generate our PRTF as DEVICE TYPE – AFPDS containing data in EBCDIC form, [convert-indicator] converts from EBCDIC code page 500 to ASCII

We have also used **[trim indicator] - \*TRIM.** It helps to remove all blanks which follow the last non-blank character.

Thereby, lowering the memory size of QRCode being generated.

While compiling the PRTF, using option 14 in pdm or by using command CRTPRTF, make sure you set the attribute DEVTYPE(\*AFPDS) and set UOM-*unit of measure* as per your choice.

The rple program – BARCDR, we have used here, has the below mentioned content:

hdftactgrp(\*no) option(\*srcstmt:\*nodebugio)

fbarcdprt o e printer

/free

bar01='https://programmers.io/';

write @@hdr;

\*inlr = \*on;

/end-free

Upon compiling the rpgle program by taking 14 in pdm or by using command CRTBNDRPG, the program object is created.

When we call the program, it creates a spool file.

Browse to the spool files list using WRKSPLF command and note the details of the spool file by taking option 8 against the spool file.

Then Run CPYSPLF command with the spool file details and some specific attributes as mentioned below:

TOFILE - \*TOSTMF

WSCST - \*PDF

In the TOSTMF attribute, specify the directory and file name where you want the QRCODE file to be placed with .PDF extension. For Example:

TOSTMF – ‘/home/reports/qrcode.pdf’

Now, you can download the IFS file using system I navigator or similar tool, or you can mail yourself the file using native IBM I command SNDDST or any similar 3rd party tools installed.

The QR Code will be something like this -

