

Application Note

[NOTE] Applications example of QR Codes in Rapid Test Kits

[AN] RTV-2023-0328-001



Application:

The application of QR codes in rapid test is usually used to track the batch number, production date, expiration date and other information of the kit. When users use rapid diagnostic tests for disease detection, they can scan the QR code on the package (or Cassette) to get the details of the test kit.



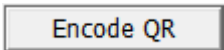
In addition, the settings of "Profile Wizard" and "Modify Lot" required to use PIE Rapid Test Readers will also be recorded in the QR code, so that end users do not need to perform too many settings and operations when performing Rapid Test , you can use PIE Rapid Test Readers to analyze a variety of lateral flow tests cassette (or strip), making it more convenient to use. End users can also reduce analysis failures caused by configuration errors.

This document will explain how to use Rapid Test View or Rapid Test View Ethernet(RTV&ERTV for short) Software to create a QR Code.

Product:

RapidScan Lateral Flow Readers Pro with Rapid Test View (RTV)or Rapid Test View_Ethernet Software (ERTV).

Introduction:

1. :

You can use this button to convert Profile to QR Code. This button is subdivided into 4 functions, as shown in the figure below:

- QR Code Only
- QR Code + DateCode

- Multi QR Code Only
- Multi QR Code + DateCode

A. QR Code Only:

The function of encoding a single Profile into QR Code.

→ **Group profile** we treat it as a **single profile**, although it have multiple sub-profiles. So if you want to encode a Group profile into a QR Code, please use the **QR Code Only** option.

B. Multi QR Code Only:

The function of encoding a single Profile into QR Code.

→ The function of encoding several different profiles (**Does not include Group profile**) into a set of QR Code.

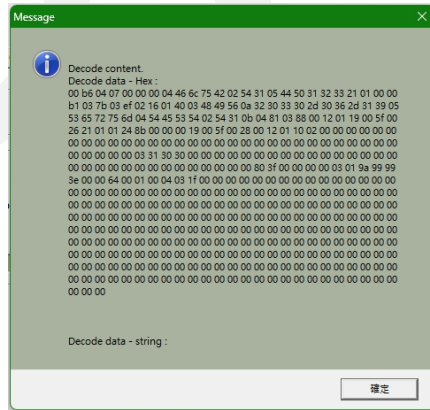
C.+ DateCode:

Please refer to the description of **SN to Profile** in **Extended Application**.

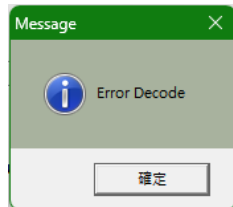
2. Test QRCode:

After converting and printing the QR Code, you can use this function to verify whether the printed QR Code can be recognized by RTV (or ERTV).

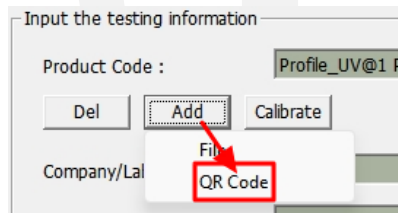
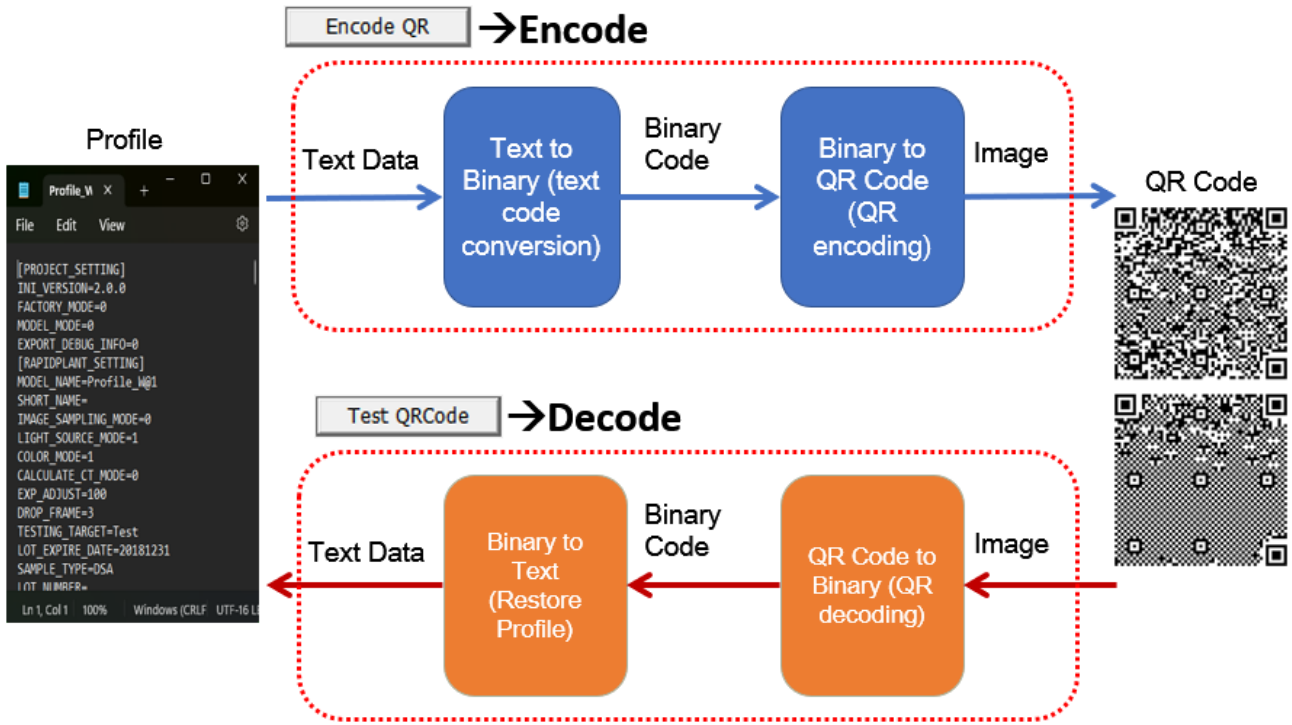
A. normal:



B. abnormal:



3. Supplementary instructions for Encode QR & Test QRCode:



→ It also belongs to **Decode**.

4. **qrcode** :

The **QRcode.xml** file can adjust the parameters about the QR Code format, as follows:

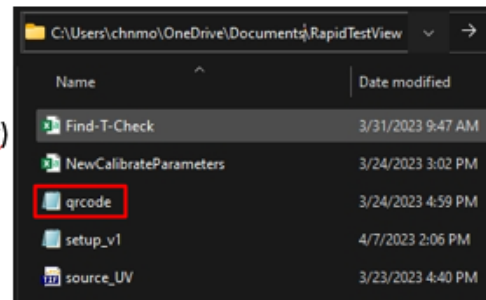
Where is **qrcode.xml** saved?

Win10:

C:\Users\xxx\Documents\RapidTestView (or RTV_Ethernet)

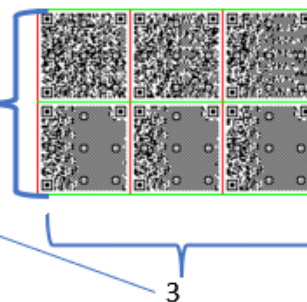
Win11:

C:\Users\ xxx\ OneDrive\ Documents\RapidTestView (or RTV_Ethernet)



Please use notepad to open it. Example below

```
<?xml version="1.0" ?>
<root>
  <PerChartCountH Value="2" /> Vertical QR Code number
  <PerChartCountW Value="3" /> Horizontal QR Code number
  <SplitLineH Value="16" />
  <SplitLineW Value="12" />
  <DataSize Value="200" /> This value represent 1 QR data space . (Unit:Byte)
  <LineColorH Value="1" />
  <LineColorW Value="0" />
  <Debug Value="True" />
</root>
```



It has 200 bytes per block. So it can afford 2x3x200 bytes sized profile

5. Photo Viewer:

A. Recommended -->IrfanView(Free)

[IrfanView 64-bit version](#)

B. The purpose is to print the QR Code image file into a physical image.

C. If you use other software (for example: Word), it may cause the QR Code image to be distorted, which will make the QR Code unrecognizable.



Due the WORD App does the edge smoothing at the edge of black & white, it cause the blur image and it is not good for QR code decoding



It can be seen that IrfanView has better print quality for QR code

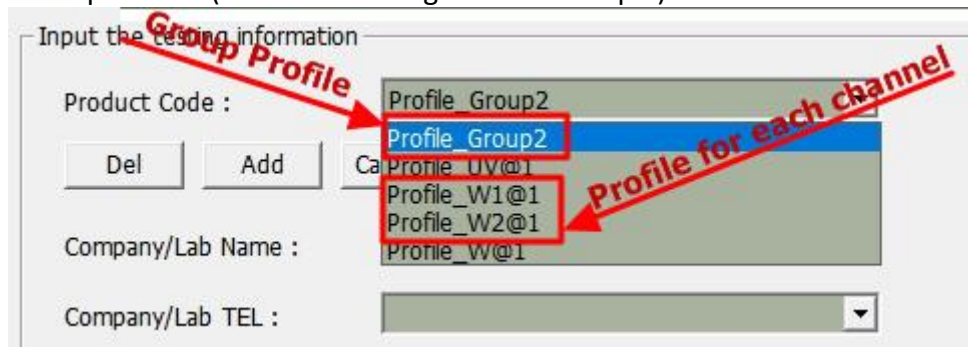
D. If you want to use your usual image editing software to print QR Code, you need to pay attention to the above problems.

Step → For all operation procedures, please refer to [QR Code](#) .

1. **Confirm whether the Profile file is complete**

→All Profiles should be **visible in the Product Code** menu

A. Group Profile (take 1LINE 2Target as an example):



B. Single Profile:

Input the testing information

Product Code : Profile_Group2

Del Add Ca

Company/Lab Name : Profile_W@1

Company/Lab TEL :

2. Confirm the data size of Profile:

A. Select Profile:

→ If Profile is Group Profile, just select Group Profile.

Input the testing information

Product Code : Profile_Group2

Del Add Ca

Company/Lab Name :

Company/Lab TEL :

B. Press

Encode QR

C. Software would save the file to assigned folder , and generate a **QR Code image file** and a **BIN (Binary code) file of QR code**.

D. Select **BIN file** to check its properties and confirm the **size of the BIN file**.

11.bin

Open with Enter

Add to Favorites

Compress to ZIP file

Copy as path Ctrl+Shift+C

Properties Alt+Enter

Type of file: BIN File (.bin)

Opens with: Pick an app

Location: A:\QR

Size: 166 bytes (166 bytes)

Stored on disk: 0 bytes

Created: Friday, March 24, 2023,

Modified: Friday, March 24, 2023,

Accessed: Today, March 27, 2023,

Attributes: Read-only Hidden

3. Adjust QRcode.xml file parameters:

```
qrcode
File Edit View
<?xml version="1.0f" ?>
<root>
  <PerChartCountH Value="1" />
  <PerChartCountW Value="1" />
  <SplitLineH Value="16" />
  <SplitLineW Value="12" />
  <DataSize Value="300" />
  <LineColorH Value="1" />
  <LineColorW Value="0" />
</root>
```

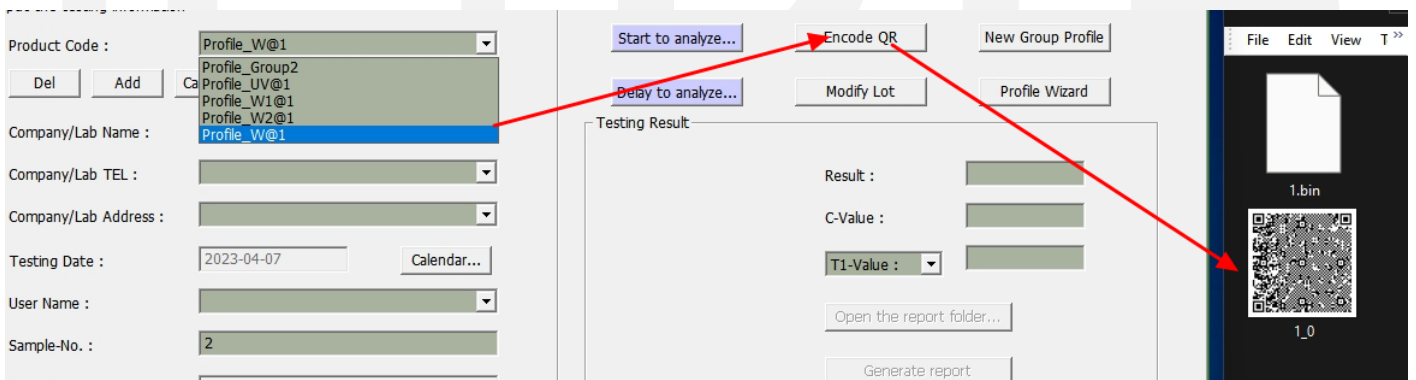
→ It is necessary to adjust according to the Size of the BIN file for reference. For other adjustment methods, please refer to Introduction.

***Data size Value : Represents the data limit of 1 QR Code. Maximum 500 bytes per QR code.**

4. Encode QR:

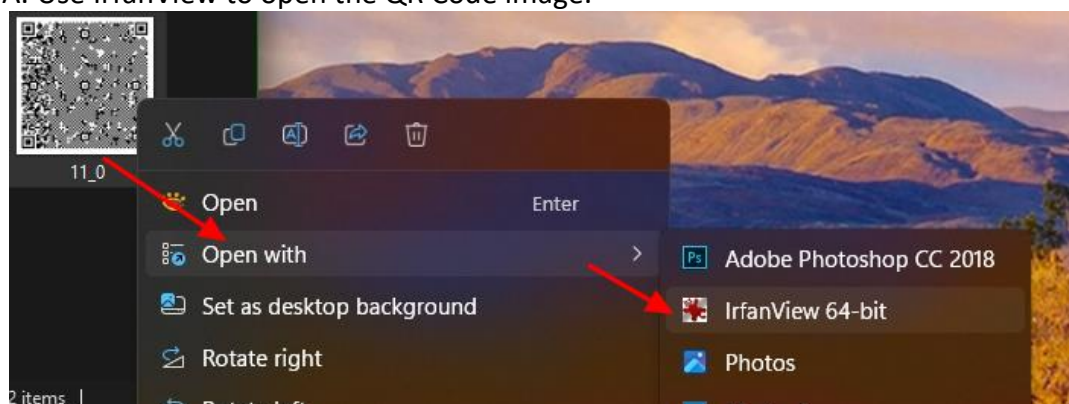
Use the **Encode QR** function to convert Profile into QR Code.

→ For function details, please refer to Introduction.

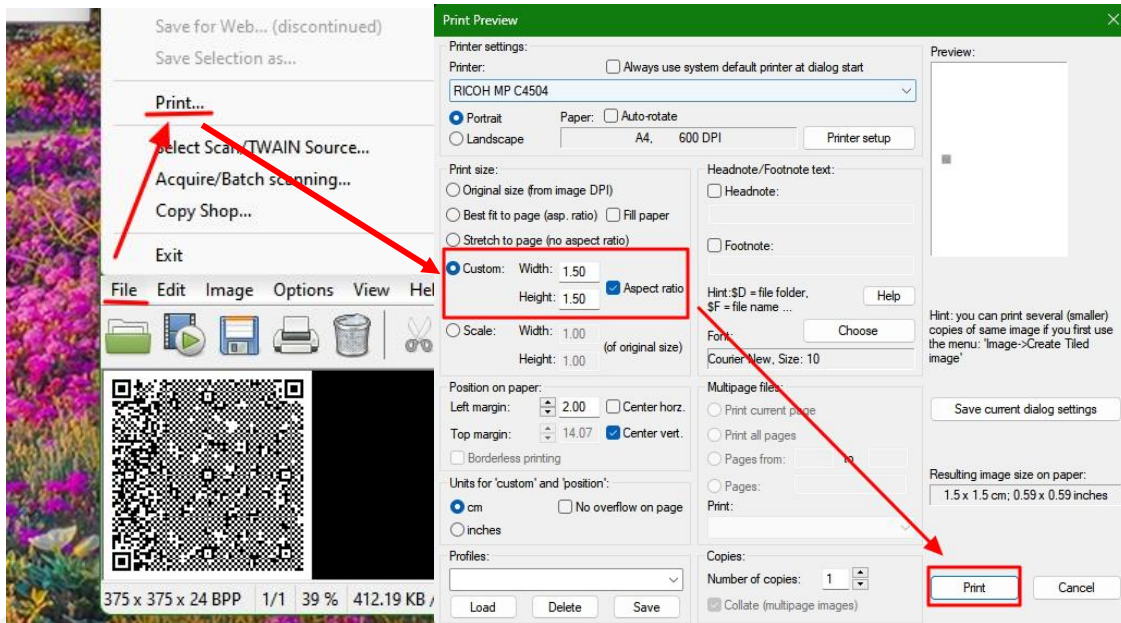


5. Print QR Code:

A. Use IrfanView to open the QR Code image.



B. Print QR Code



*The area not being smaller than 1.5x1.5cm is suggested.



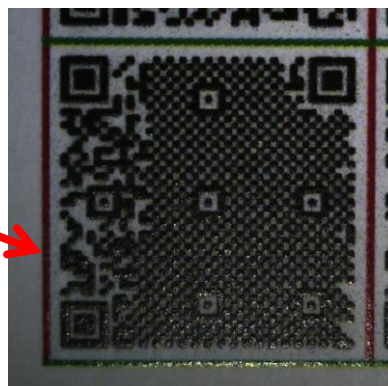
D. Printer software and hardware setting suggestions:

a. **Color Bubble Jet** is recommended:



Bubble Jet printer is better since it doesn't have the reflection at black spot

LASER printer has the problem of light reflection at the black spot. This is caused by the carbon dot.



b. **600 dpi** or higher

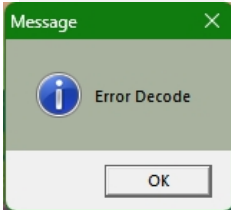
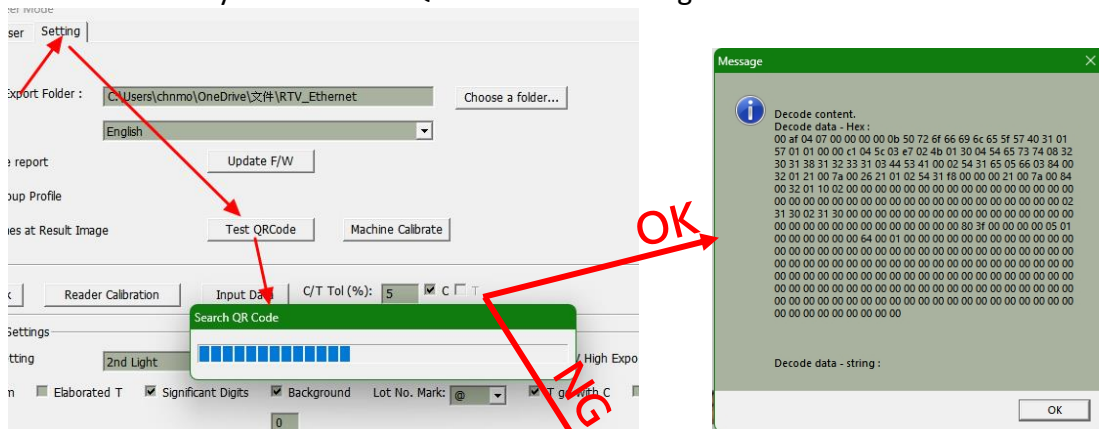
6. Verify QR Code

A. RTV&ERTV:

Put the Cassette with the QR Code into the Reader, and use the

Test QRCode

function to verify whether the QR Code can be recognized.



Extended Application:

1. Net Profile