

Static QR Code Generation & Design API

Documentation

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1. About Software

1a. QR Code Basics & Definitions

(i) What is a QR Code?

A Quick Response Code (or QR Code) is a popular type of a two-dimensional barcode. QR Codes encode alphanumeric information. To decode this, you can use a QR Code scanner or a QR Code scanning application on a smartphone.



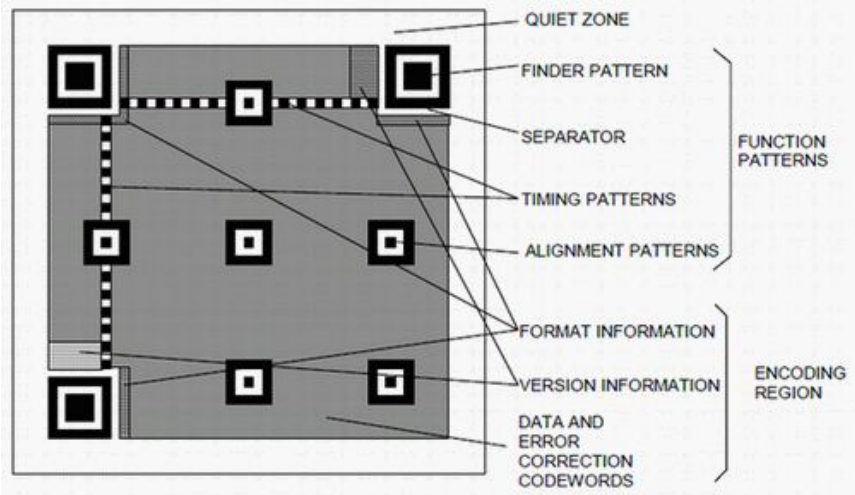
1D Barcode



QR Code

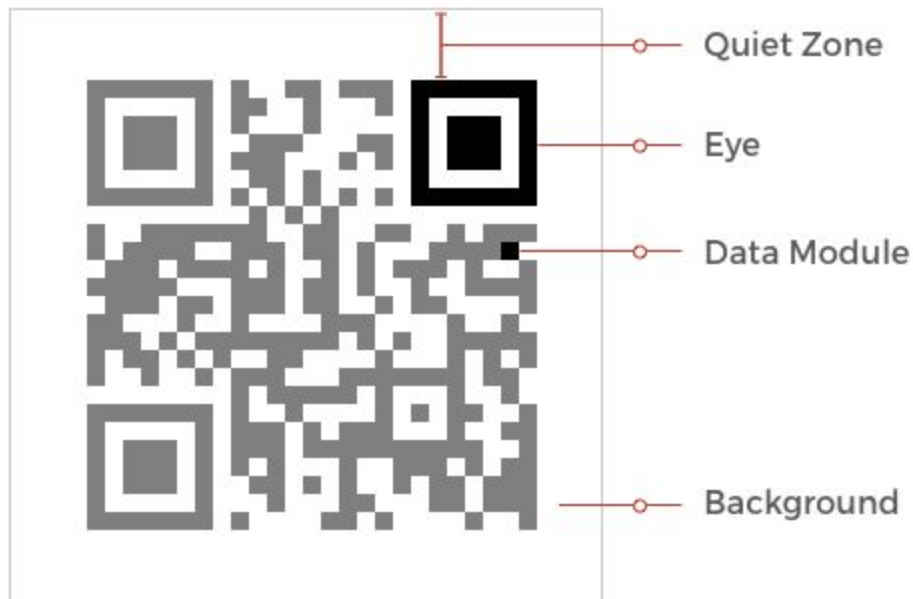
(ii) How does a QR Code work?

The illustration below depicts the basic structure of a QR Code and its elements:



(iii) What are the basic design elements of a QR Code?

In terms of design, a QR Code is made up of Eyes, Data Modules, Background, and Quiet Zone.



(iv) Important Definitions and Concepts

a. Eyes

The *Eyes* (or technically called as *Finder Patterns*) are placed on the three corners of the QR Code. These patterns allow the scanner camera to identify the existence and orientation of the QR Code.

b. Data Modules

The collection of *Data Modules* in a QR Code are the patterns that encode the information and other specifications of the QR Code.

c. Quiet Zone

The Quiet Zone is white space of thickness equivalent to at least four data modules around the QR Code. This ensures that the scanner camera can easily pick up the location of Eyes when scanning a QR Code.

d. Error Correction

A QR Code contains error correction capabilities that allow a QR Code to remain scannable even if it is damaged by 30% due to wear-and-tear.

e. Static QR Codes

If the target information (the direct information a user sees when a QR Code is decoded) is directly encoded into the data modules of the code, then it is a Static QR Code.

If the information is shared with the user via a URL, typically owned by a QR Code service provider, and this URL is encoded into the data modules of a QR Code, then it is a Dynamic QR Code.

1b. Product Capabilities

Static QR Code Generation & Design API is an online software that can be integrated directly into other information systems and applications to:

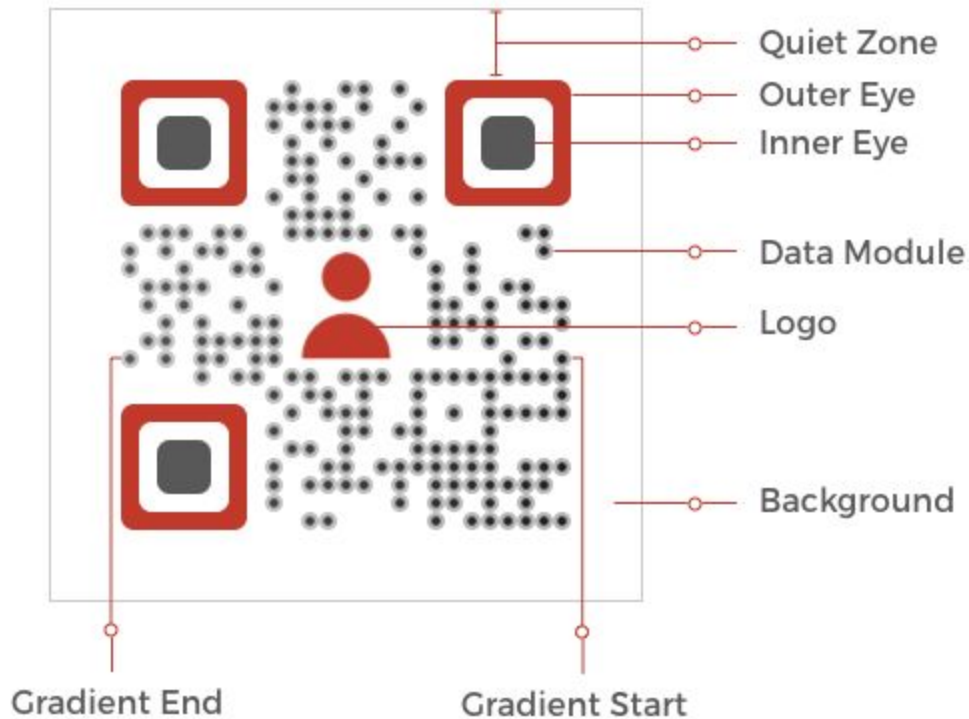
(i) Generate static QR Codes that can be encoded with the following information categories:

- a. URL
- b. Text
- c. Facebook URL (modification of URL)
- d. LinkedIn URL (modification of URL)
- e. VCard (Contact Information)
- f. Wifi Network Credentials
- g. Google Maps Location
- h. Youtube URL (modification of URL)
- i. Phone Number
- j. Tweet
- k. Email Address
- l. Pre-loaded Text Message with Recipient Phone Number

(ii) Add design to QR Code in the following two ways:

- a. **Custom with logo:** In this design type, the QR Code is designed with colors, patterns, and images. The possibilities are:
 - i. Edit eye and data pattern from a list of presets
 - ii. Edit eye color (inner or outer or both; solid color only)
 - iii. Edit data color (solid, gradient)
 - iv. Edit background color (solid) or remove background

- v. Add logo in the centre of the QR Code
- vi. Edit size of the logo
- vii. Rotate logo from the its centre
- viii. Remove data modules around the logo
- ix. Adjust error correction



- b. **Custom with background:** In this design type, the QR Code is designed by placing a semi-transparent QR Code on top of an image specified by the user. The possibilities are:
 - i. Edit eye and data pattern from a list of presets (A white-colored *Quiet Zone* is also added around the eyes to ensure scannability)
 - ii. Add image in the background of the QR Code (PNG only)
 - iii. Edit size of the QR Code placed on top of image
 - iv. Edit position of QR Code placed on top of image
 - v. Adjust error correction



Quiet Zone
Eye

Data Module

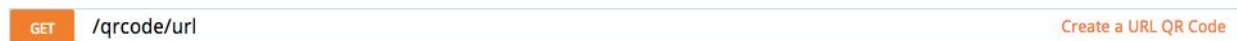
Scan to watch video

2b. Generating API Requests

To create a valid API Request sample, you can either use the API Playground (available at <https://api.scanova.io/static-docs/?url=/static-api-docs#!/qrcode/>) or use this documentation.

Given below is an example on how to create an API Request to generate a URL QR Code:

- a. Procure a valid API Key either by starting a 14-day free trial account or a [subscription plan](#). If you do not have an API key, contact the support team at eric.vu@scanova.io
- b. Go to <https://api.scanova.io/static-docs/?url=/static-api-docs#!/qrcode/> and enter the API key on the field on the top-right corner and click on *Explore*
- c. Click on the row GET /qrcode/url



- d. A list of form fields will open, each form field specifying a parameter. For an exhaustive list of parameters (content & design), see Section 3 of this document
- e. Fill values of each field (as per requirements and reference from Section 3 of this document)
- f. Click on the button *Try it out!*

Try it out!

- g. On clicking the button, the API Playground will give the following response:

Request URL

```
https://api.scanova.io/v2/qrcode/url?url=https%3A%2F%2Fscanova.io&size=m&error_correction=M&data_pattern=LIGHT_CIRCLE&
```

Response Body



Response Code

```
200
```

Response Headers

```
{
  "date": "Thu, 21 Dec 2017 09:08:16 GMT",
  "server": "Apache/2.4.7 (Ubuntu)",
  "x-powered-by": "Express",
  "transfer-encoding": "chunked",
  "access-control-allow-methods": "GET,PUT,POST,DELETE",
  "content-type": "image/png",
  "access-control-allow-origin": "*",
  "connection": "Keep-Alive",
  "access-control-allow-headers": "X-Requested-With, Accept, Origin, Referer, User-Agent, Content-Type, Authorization",
  "keep-alive": "timeout=5, max=100"
}
```

This response will contain the following:

Request URL:

```
https://api.scanova.io/v2/qrcode/url?url=https%3A%2F%2Fscanova.io&size=m&error_correction=M&data_pattern=LIGHT_CIRCLE&eye_pattern=ROUND_RECT&data_gradient_style=None&data_gradient_start_color=%23000000&data_gradient_end_color=%23000000&eye_color_inner=%23c0392b&eye_color_outer=%23c0392b&background_color=%23FFFFFF&apikey=<ValidAPIKey>
```

This is the sample API Request to generate a custom-designed QR Code using Scanova's Static QR Code Generation & Design API.

Response Body:

The preview of the QR Code image in PNG format and specified size.

Response Code:

See Section 4 of this document for details on response codes and their reasoning.

Response Header:

```
{
  "date": "Thu, 21 Dec 2017 09:08:16 GMT",
  "server": "Apache/2.4.7 (Ubuntu)",
  "x-powered-by": "Express",
  "transfer-encoding": "chunked",
  "access-control-allow-methods": "GET, PUT, POST, DELETE",
  "content-type": "image/png",
  "access-control-allow-origin": "*",
  "connection": "Keep-Alive",
  "access-control-allow-headers": "X-Requested-With, Accept, Origin,
Referer, User-Agent, Content-Type, Authorization,
X-Mindflash-SessionID",
  "keep-alive": "timeout=5, max=100"
}
```

- h. You can use the API Playground to test QR Code designs and finalize parameters and values for generating final API Requests

3. API Request Parameters

The parameters of an API Request can be divided into two parts:

- a. **Content:** These parameters and their values will determine what information will be encoded into a QR Code
- b. **Design:** These parameters and their values will determine the final design of the QR Code and specifications on the image returned

3a. Content Parameters

Each content type can have multiple parameters:

(i) URL (/qrcode/url)

Description: Returns an image of a QR Code that is encoded with a URL

Parameter	Description	Parameter Type	Data Type
url	URL to be encoded into the QR Code (required)	Query	String

(ii) Text (/qrcode/text)

Description: Returns an image of a QR Code that is encoded with text

Parameter	Description	Parameter Type	Data Type
data	Text to be encoded into the QR Code (required)	Query	String

(iii) Facebook URL (/qrcode/facebook)

Description: Returns an image of a QR Code that is encoded with a Facebook URL

Parameter	Description	Parameter Type	Data Type
url	Facebook URL to be encoded into the QR Code (required)	Query	String

(iv) **LinkedIn URL (/qrcode/linkedin)**

Description: Returns an image of a QR Code that is encoded with a LinkedIn URL

Parameter	Description	Parameter Type	Data Type
url	LinkedIn URL to be encoded into the QR Code (required)	Query	String

(v) **Vcard (/qrcode/vcard)**

Description: Returns an image of a QR Code that is encoded with a Vcard i.e. detailed contact information

Parameter	Description	Parameter Type	Data Type
uname	Name (required)	Query	String
company	Company Name	Query	String
email	Email Address	Query	String
phone	Phone Number	Query	String
website	Website Address	Query	String
street	Street Address	Query	String
city	City	Query	String
postal_code	Postal/Zip Code	Query	String
country	Country Name	Query	String
title	Title/Designation	Query	String

(vi) **Wifi (/qrcode/wifi)**

Description: Returns an image of a QR Code that is encoded with a Wifi Network's access credentials

Parameter/ Parameter Value	Description	Parameter Type	Data Type
---------------------------------------	--------------------	-----------------------	------------------

ssid	Wifi Network Name or SSID (required)	Query	String
authentication	Type of Network Security Protocol	Query	String
<i>unencrypted</i>	No Network Security Protocol Used	-	-
<i>WPA</i>	WPA Network Security Protocol	-	-
<i>WEP</i>	WEP Network Security Protocol	-	-
psk	Wifi Network Password	Query	String

(vii) **Google Maps Location (/qrcode/googlemaps)**

Description: Returns an image of a QR Code that is encoded with Google Maps Location (coordinates)

Parameter	Description	Parameter Type	Data Type
latitude	Latitude Value of Location Coordinates (required)	Query	Float
longitude	Longitude Value of Location Coordinates (required)	Query	Float

(viii) **Youtube (/qrcode/youtube)**

Description: Returns an image of a QR Code that is encoded with a Youtube URL

Parameter	Description	Parameter Type	Data Type
url	Youtube URL to be encoded into the QR Code (required)	Query	String

(ix) **Phone Number (/qrcode/phonecall)**

Description: Returns an image of a QR Code that is encoded with a phone number

Parameter	Description	Parameter Type	Data Type
number	Phone Number with ISD and Area Code to be encoded into the QR Code (required)	Query	String

(x) Tweet (/qrcode/tweet)

Description: Returns an image of a QR Code that is encoded with a URL that opens the Tweet window with a pre-loaded Tweet text including hashtags and mentions

Parameter	Description	Parameter Type	Data Type
data	Tweet Text (less than 140 characters) including hashtags and mentions (required)	Query	String

(xi) Email Address (/qrcode/email)

Description: Returns an image of a QR Code that is encoded with an email address

Parameter	Description	Parameter Type	Data Type
address	Email Address to be encoded into the QR Code (required)	Query	String

(xii) Pre-loaded Text Message—SMS (/qrcode/SMS)

Description: Returns an image of a QR Code that is encoded with a pre-loaded text message and the recipient's phone number

Parameter	Description	Parameter Type	Data Type
phone_no	Phone Number of the	Query	String

	Recipient (required)		
message	Text Message	Query	String

3b. Design Parameters



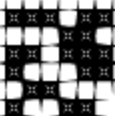
The design parameters and values are common to every QR Code, irrespective of the type of content (URL, Text, etc.).








(i) **Design Specification Parameters:** These parameters will determine the size of the output QR Code image and level of error correction encoded






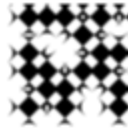

Parameter/ Parameter Value	Description	Parameter Type	Data Type
size	Size Presets of QR Code image in Pixels (px)	Query	String
<i>s</i>	Small Size i.e. 300 x 300 px	-	-
<i>m</i>	Medium Size i.e. 450 x 450 px (default)	-	-
<i>l</i>	Large Size i.e. 600 x 600 px	-	-
<i>xl</i>	Extra Large Size i.e. 900 x 900 px	-	-
<i>xxl</i>	Double Extra Large Size i.e. 1,200 x 1,200 px	-	-
<i>xxxl</i>	Triple Extra Large Size i.e. 1,500 x 1,500 px	-	-
error_correction	Level of Error Correction encoded into the QR Code (See	Query	String








	Recommendations)		
<i>L</i>	Error Correction Level L (~7%)	-	-
<i>M</i>	Error Correction Level M (~15%) (default)	-	-
<i>Q</i>	Error Correction Level Q (~25%)	-	-
<i>H</i>	Error Correction Level H (~30%)	-	-








(i) **Custom with Logo Design Parameters:** These parameters will determine the design of the QR Code when design type is *Custom with Logo*.







Parameter/Parameter Value	Description	Parameter Type	Data Type
data_pattern	Parameter to set a pattern to data modules	Query	String
<i>RECT</i>	Data Pattern Design 1 (default) 	-	-
<i>ROUND</i>	Data Pattern Design 2 	-	-
<i>MINI_LEAF</i>	Data Pattern Design 3 	-	-
<i>CHIPS</i>	Data Pattern Design 4	-	-








			
<i>FIREFLY</i>	Data Pattern Design 5 	-	-
<i>ROUNDED_CORNERS</i>	Data Pattern Design 6 	-	-
<i>VERTICAL_PIPES</i>	Data Pattern Design 7 	-	-
<i>HORIZONTAL_PIPES</i>	Data Pattern Design 8 	-	-
<i>VERTICAL_NIGHT_LIFE</i>	Data Pattern Design 9 	-	-
<i>HORIZONTAL_NIGHT_LIFE</i>	Data Pattern Design 10 	-	-
<i>PANCARDS</i>	Data Pattern Design 11	-	-








			
<i>CURVED_RECTS</i>	Data Pattern Design 12 	-	-
<i>NAWABI_DARWAZA</i>	Data Pattern Design 13 	-	-
<i>ROTATED_SQUARES</i>	Data Pattern Design 14 	-	-
<i>ROTATED_RECTS</i>	Data Pattern Design 15 	-	-
<i>HAND_IN_HANDS</i>	Data Pattern Design 16 	-	-
<i>RANDOM_ROTATE</i>	Data Pattern Design 17 	-	-
<i>ALTERNATE_DIAGONAL</i>	Data Pattern Design 18	-	-








			
<i>CIRCLE_ON_CORNERS</i>	Data Pattern Design 19 	-	-
<i>CONNECTED_HAMMERS</i>	Data Pattern Design 20 	-	-
<i>CONNECTED_CIRCLES</i>	Data Pattern Design 21 	-	-
<i>POINTED_BEAKS</i>	Data Pattern Design 22 	-	-
<i>MAZE</i>	Data Pattern Design 23 	-	-
<i>CURVED_MAZE</i>	Data Pattern Design 24 	-	-
<i>TRIANGLES</i>	Data Pattern Design 25	-	-






			
<i>VERTICAL_TRIANGLES</i>	Data Pattern Design 26 	-	-
<i>HORIZONTAL_TRIANGLES</i>	Data Pattern Design 27 	-	-
<i>HUT</i>	Data Pattern Design 28 	-	-
<i>CIRCULAR_DIAGONAL</i>	Data Pattern Design 29 	-	-
<i>LIGHT_CIRCLE</i>	Data Pattern Design 30 	-	-
<i>LIGHT_SQUARE</i>	Data Pattern Design 31 	-	-
<i>LIGHT_ROUNDED_CORNERS</i>	Data Pattern Design 32	-	-




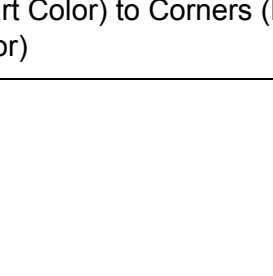
			
<i>LIGHT_CIRCLE_SQUARE</i>	Data Pattern Design 33 	-	-
eye_pattern	Parameter to set a pattern to all three Eyes on the three corners of the QR Code	Query	String
<i>RECT_RECT</i>	Eye Pattern Design 1 	-	-
<i>ROUND_RECT</i>	Eye Pattern Design 2 (default) 	-	-
<i>RECT_CIRC</i>	Eye Pattern Design 3 	-	-
<i>ROUNDRECT_CIRC</i>	Eye Pattern Design 4 	-	-
<i>CIRC_CIRC</i>	Eye Pattern Design 5	-	-

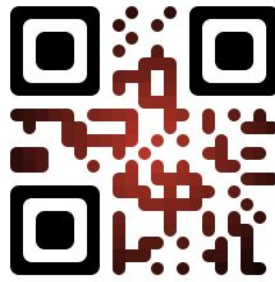
			
<i>BR_LEAF</i>	Eye Pattern Design 6 	-	-
<i>TR_LEAF</i>	Eye Pattern Design 7 	-	-
<i>BL_LEAF</i>	Eye Pattern Design 8 	-	-
<i>TL_LEAF</i>	Eye Pattern Design 9 	-	-
<i>TLBR_LEAF</i>	Eye Pattern Design 10 	-	-
<i>TRBL_LEAF</i>	Eye Pattern Design 11 	-	-
<i>TRBL_LEAF_CIRC</i>	Eye Pattern Design 12	-	-

			
<i>TLBR_LEAF_CIRC</i>	Eye Pattern Design 13 	-	-
<i>TRBL_LEAF_DIAD</i>	Eye Pattern Design 14 	-	-
<i>RECT_DIAD</i>	Eye Pattern Design 15 	-	-
<i>UNI_LEAF</i>	Eye Pattern Design 16 	-	-
<i>BLOAT_RECT</i>	Eye Pattern Design 17 	-	-
<i>WARP_RECT0</i>	Eye Pattern Design 18 	-	-
<i>CURVE_RECT</i>	Eye Pattern Design 19	-	-

			
<i>DIST_RECT</i>	Eye Pattern Design 20 	-	-
<i>ZIGZAG</i>	Eye Pattern Design 21 	-	-
<i>WARP_RECT1</i>	Eye Pattern Design 22 	-	-
<i>BLACK_HOLE</i>	Eye Pattern Design 23 	-	-
<i>STAR</i>	Eye Pattern Design 24 	-	-
<i>GRID</i>	Eye Pattern Design 25 	-	-
<i>SCION</i>	Eye Pattern Design 26	-	-

			
<i>OCTAGON</i>	Eye Pattern Design 27 	-	-
<i>FLOWER</i>	Eye Pattern Design 28 	-	-
<i>HUT</i>	Eye Pattern Design 29 	-	-
<i>DARK_HUT</i>	Eye Pattern Design 30 	-	-
<i>data_gradient_style</i>	Parameter to set the direction of the gradient start color and gradient end color	Query	String
<i>None</i>	No gradient set. Data modules color will be solid (default)	-	-
<i>Horizontal</i>	Gradient Style 1: Left (Start Color) to Right (End Color)	-	-

			
<i>Vertical</i>	<p>Gradient Style 2: Top (Start Color) to Bottom (End Color)</p> 	-	-
<i>Diagonal</i>	<p>Gradient Style 3: Top-left (Start Color) to Bottom-right (End Color)</p> 	-	-
<i>Radial</i>	<p>Gradient Style 4: Centre (Start Color) to Corners (End Color)</p> 	-	-

















data_gradient_start_color	Parameter to set Data Gradient Start Color in Hexcode (e.g., #000000)	Query	String
data_gradient_end_color	Parameter to set Data Gradient End Color in Hexcode (e.g., #C0392B)	Query	String
eye_color_inner	Parameter to set Inner Eye Color in Hexcode (e.g., #000000)	Query	String
eye_color_outer	Parameter to set Outer Eye Color in Hexcode (e.g., #C0392B)	Query	String
background_color	Parameter to set Background Color in Hexcode (e.g., #C0392B) (See Recommendations)	Query	String
<i>#FFFFFF</i>	Example Hexcode for White Color	-	-
<i>false</i>	Value to remove background from QR Code	-	-
logo.url	Local or Web Address where Logo Image File (PNG only) is Saved	Query	String
logo.size	Parameter to set size of the logo as a percentage of the size of the QR Code image (Value Range: 1-100; whole numbers only; See	Query	Double








	Recommendations)		
logo.excavated	Parameter to set if data modules around the logo should be removed or not	Query	Boolean
<i>true</i>	Data modules around the logo will be removed (default)	-	-
<i>false</i>	Data modules around the logo will not be removed	-	-
logo.angle	Parameter to rotate the logo image around its centre (Value Range: 1-359)	Query	Double








(ii) **Custom with Background Design Parameters:** These parameters will determine the design of the QR Code when design type is *Custom with Background*.







Parameter/Parameter Value	Description	Parameter Type	Data Type
poster.url	Local or Web Address where Background Image File (PNG only) is Saved	Query	String
poster.left	Position of QR Code (centre) from the leftmost point of the image in percentage (For example value 50 will place the QR Code in the centre of the horizontal axis)	Query	Double
poster.top	Position of QR Code (centre) from the topmost point of the image in percentage (For example value 50 will place the QR Code in the centre of the vertical axis)	Query	Double
poster.eyeshape	Parameter to set a pattern to all three Eyes on the three corners of the QR Code	Query	String
<i>RECT_RECT</i>	Eye Pattern Design 1	-	-

			
<i>ROUND_RECT</i>	Eye Pattern Design 2 (default) 	-	-
<i>RECT_CIRC</i>	Eye Pattern Design 3 	-	-
<i>ROUNDRECT_CIRC</i>	Eye Pattern Design 4 	-	-
<i>CIRC_CIRC</i>	Eye Pattern Design 5 	-	-
<i>BR_LEAF</i>	Eye Pattern Design 6 	-	-
<i>TR_LEAF</i>	Eye Pattern Design 7 	-	-
<i>BL_LEAF</i>	Eye Pattern Design 8	-	-

			
<i>TL_LEAF</i>	Eye Pattern Design 9 	-	-
<i>TLBR_LEAF</i>	Eye Pattern Design 10 	-	-
<i>TRBL_LEAF</i>	Eye Pattern Design 11 	-	-
<i>TRBL_LEAF_CIRC</i>	Eye Pattern Design 12 	-	-
<i>TLBR_LEAF_CIRC</i>	Eye Pattern Design 13 	-	-
<i>TRBL_LEAF_DIAD</i>	Eye Pattern Design 14 	-	-
<i>RECT_DIAD</i>	Eye Pattern Design 15	-	-

			
<i>UNI_LEAF</i>	Eye Pattern Design 16 	-	-
<i>BLOAT_RECT</i>	Eye Pattern Design 17 	-	-
<i>WARP_RECT0</i>	Eye Pattern Design 18 	-	-
<i>CURVE_RECT</i>	Eye Pattern Design 19 	-	-
<i>DIST_RECT</i>	Eye Pattern Design 20 	-	-
<i>ZIGZAG</i>	Eye Pattern Design 21 	-	-
<i>WARP_RECT1</i>	Eye Pattern Design 22	-	-

			
<i>BLACK_HOLE</i>	Eye Pattern Design 23 	-	-
<i>STAR</i>	Eye Pattern Design 24 	-	-
<i>GRID</i>	Eye Pattern Design 25 	-	-
<i>SCION</i>	Eye Pattern Design 26 	-	-
<i>OCTAGON</i>	Eye Pattern Design 27 	-	-
<i>FLOWER</i>	Eye Pattern Design 28 	-	-
<i>HUT</i>	Eye Pattern Design 29	-	-

			
<i>DARK_HUT</i>	Eye Pattern Design 30 	-	-
data_pattern	Parameter to set a pattern to data modules	Query	String
<i>ROUND</i>	Data Pattern Design 1 	-	-
<i>SQUARE</i>	Data Pattern Design 2 	-	-
<i>DIAMONDS</i>	Data Pattern Design 3 	-	-
<i>OVAL</i>	Data Pattern Design 4 	-	-

4. API Response Messages

The API can return the following response messages:

HTTP Status Code	Reason
200	Valid Image
400	Bad Request
401	Authentication Failed
503	Service Unavailable

5. Recommendations for High Scannability

As mentioned in Section 1a-(iv)-d, a QR Code has error correction capabilities that allows it to be scannable even if the QR Code is damaged by upto 30%. When a QR Code is designed with a logo image in the centre, the designer takes advantage of error correction and deliberately introduces error by replacing data modules with a logo image.

To ensure high scannability of a custom-designed QR Code, the designer must diligently follow these recommendations:

5a. Logo Size & Error Correction

As mentioned above, logo size and error correction go hand-in-hand. Larger the size of the logo, higher the error, hence, higher should be the error correction.

The optimum value of the parameter `logo.size` depends on a number of factors such as the size of the linked logo image in pixels, shape of the logo image (square, rectangle, etc.), data encoded in the QR Code (number of characters), and level of error correction.

Here is a sample test conducted to find the permissible value of logo size:

Test Settings	Error Correction Level (error_correction)	Permissible Value of Logo Size (logo.size)
This test was run with the following settings: <ul style="list-style-type: none">- QR Code Type: URL- Data: scanova.io- Image format: PNG- Image size: 300 x 300 px	L	1-2
	M	1-3
	Q	1-4
	H	1-8

Recommendations:

- In case of *Custom with Logo* design, always choose the value of **error_correction** as **H** to get highest level of error correction if adding a logo image to the QR Code design
 - Once the logo image size in pixels and data are finalized, determine the permissible range of logo by using API Playground via hit-and-trial
 - From this permissible range, choose the **logo.size** value that is visually-appealing and satisfies that requirements of the designer

- In case of Custom with Background design, choose the value of **error_correction** as **M**, **Q**, or **H**
- Once the logo size has been finalized, always test the QR Code by using multiple scanning apps and multiple handsets

5b. Background & Foreground Colors

Another design element that can affect scannability is **low contrast ratio** between the background color (**background_color**) and foreground colors (**data_gradient_start_color**, **data_gradient_end_color**, **eye_color_inner**, **eye_color_outer**).

(i) Custom with Logo QR Code Design

In this type of design, if the background is of a dark shade and the QR Code is also dark, then the scanner camera will not be able to detect the data modules from the empty spaces. This will render the QR Code unscannable. Same is the case with a light background shade and light foreground shade. See examples given below:

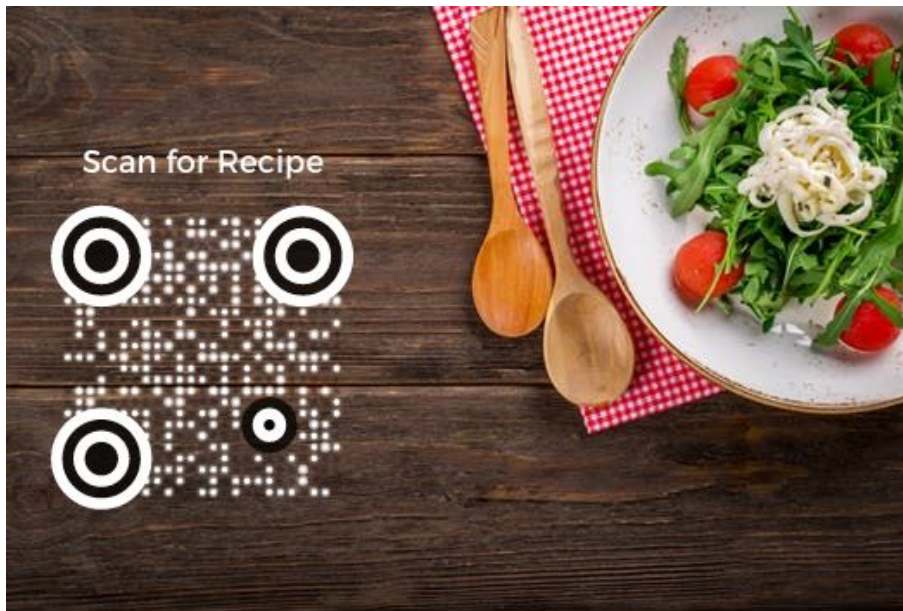


(ii) Custom with Background QR Code Design

In this type of design, the foreground colors are restricted to black-and-white data modules and black eyes with a white *Quiet Zone*. Due to this arrangement, the contrast ratio is always high. Therefore, there are no restrictions on the colors of the background image that you can choose. See examples given below:



(light background—scannable)



(dark background—scannable)

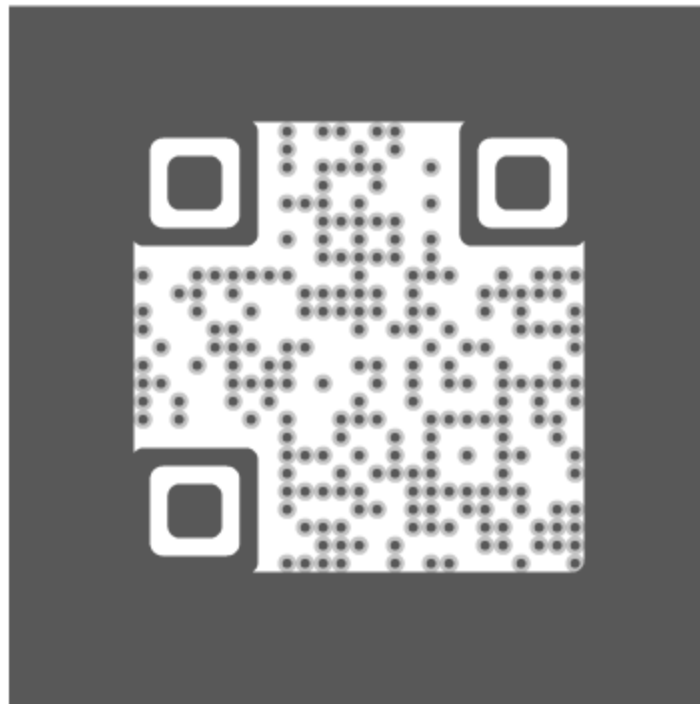
Recommendations:

- In case of *Custom with Logo* design, always choose the background color of a light shade and the foreground colors of a darker shade
- Once the colors have been finalized, always test the QR Code by using multiple scanning apps and multiple handsets

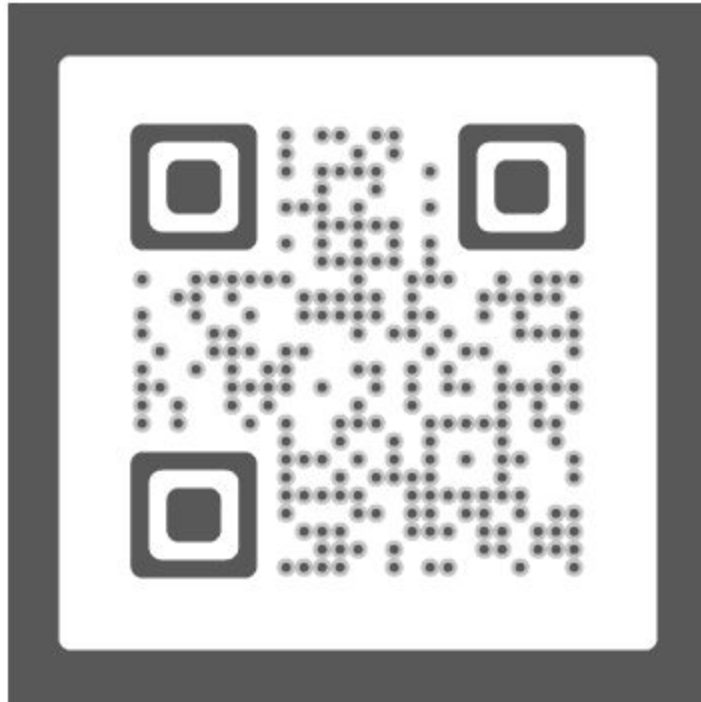
5c. Quiet Zone

As mentioned in Section 1a-(iv)-a, the *Eyes* of a QR Code are *Finder Patterns* that allow scanners to detect the existence and orientation of a QR Code. For a scanner to be able to clearly detect the *Eyes*, a *Quiet Zone* is required around the QR Code or atleast around the *Eyes*.

In any type of design, the Quiet Zone is white (or light-colored) space of thickness equal to at least four data modules. See example below:



(QR Code with no Quiet Zone—not scannable)



(QR Code with adequate *Quiet Zone*—scannable)

If there is inadequate *Quiet Zone* in the QR Code design, the QR Code might become unscannable (depending upon the capabilities of the scanning app).

Recommendations:

- In case of *Custom with Logo* design, always add a Quiet Zone of thickness equal to at least four data modules
- In case of *Custom with Background* design, a Quiet Zone is added by default. No further action is required

For further information, contact the Scanova team at eric.vu@scanova.io or visit Scanova's [API Playground](#), [Website](#) or [Blog](#). This document is copyright of Trycon Technologies Private Limited.

About Scanova

Scanova helps marketers create, design, manage, and track QR Code campaigns. Founded in 2013, Scanova has helped over 40,000 businesses and marketers across 114 countries in generating QR Codes.



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