

# Configuring NFC Tags and QR Codes for Q-sys Actions

## What is NFC?

NFC (Near Field Communication) is a short-range wireless technology that enables communication between devices when brought within approximately 4cm of each other. Unlike Bluetooth or Wi-Fi, NFC requires minimal setup and works almost instantaneously.

### General Info:

- Operates at a short range 13.56MHz radio frequency
- No pairing required - just tap or bring devices close together
- Evolved from RFID (Radio Frequency Identification) technology
- Requires an active device (transmitter) and either another active device or a passive tag (receiver)

## NFC Tags Explained

NFC tags are passive smart chips that don't require their own power source. They draw power from the electromagnetic field generated by an active NFC device (typically a smartphone) when it comes near them.

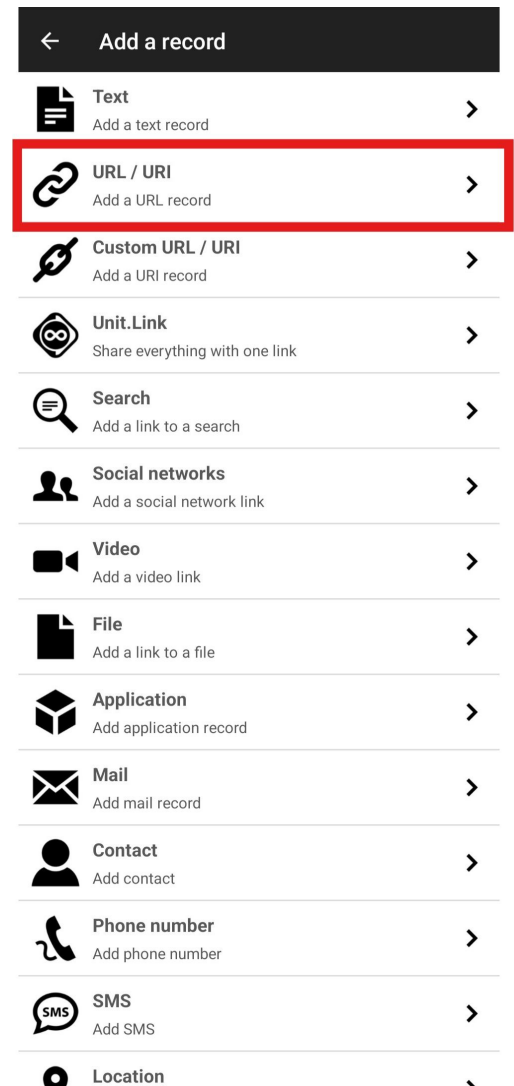
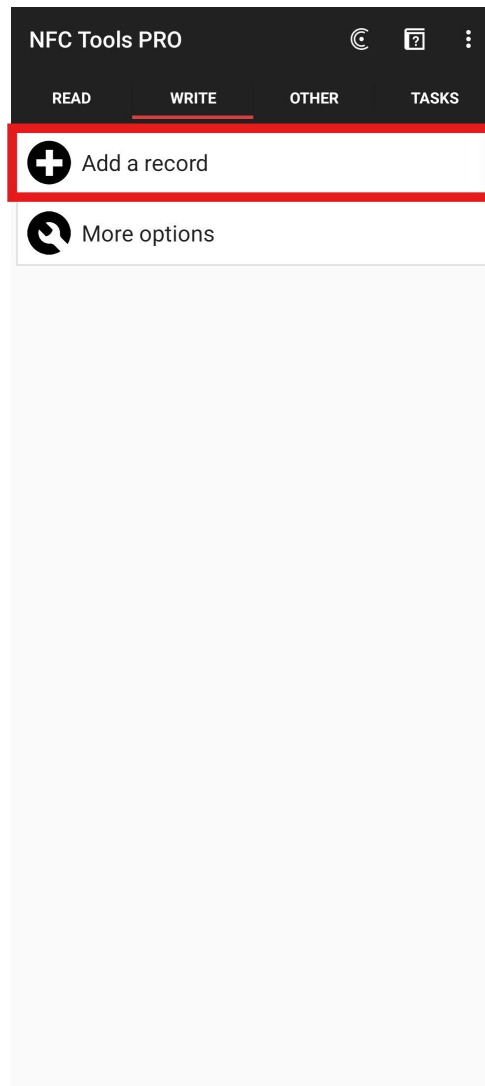
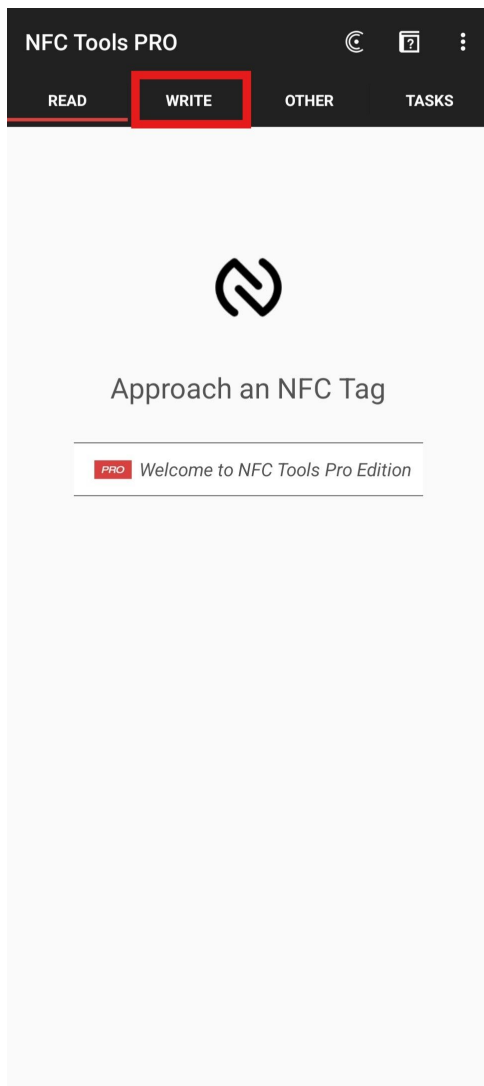
### Physical Characteristics:

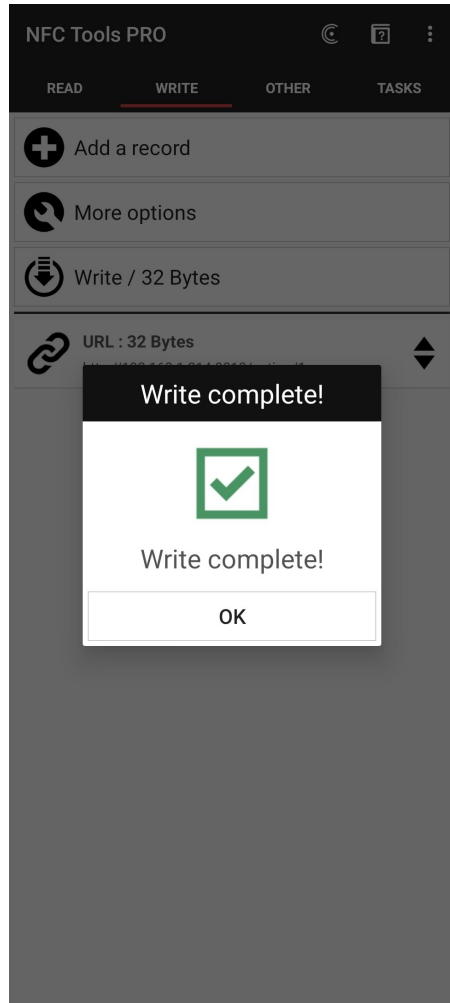
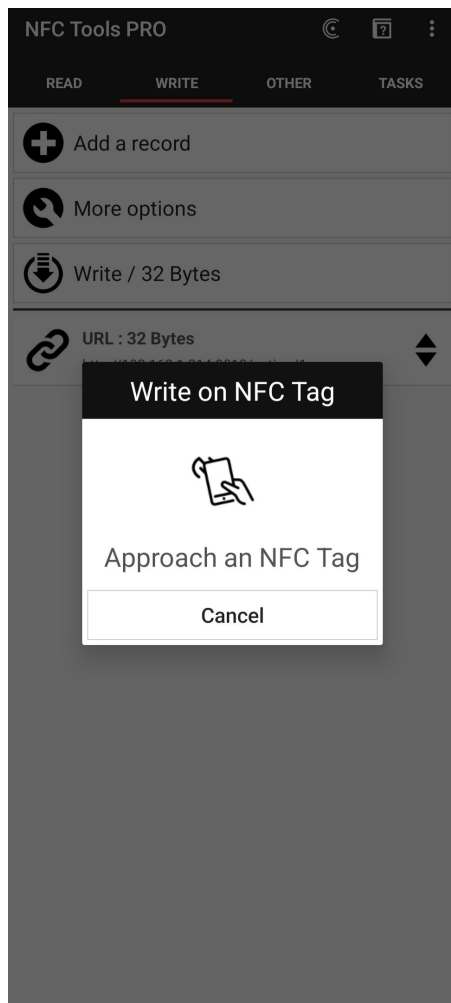
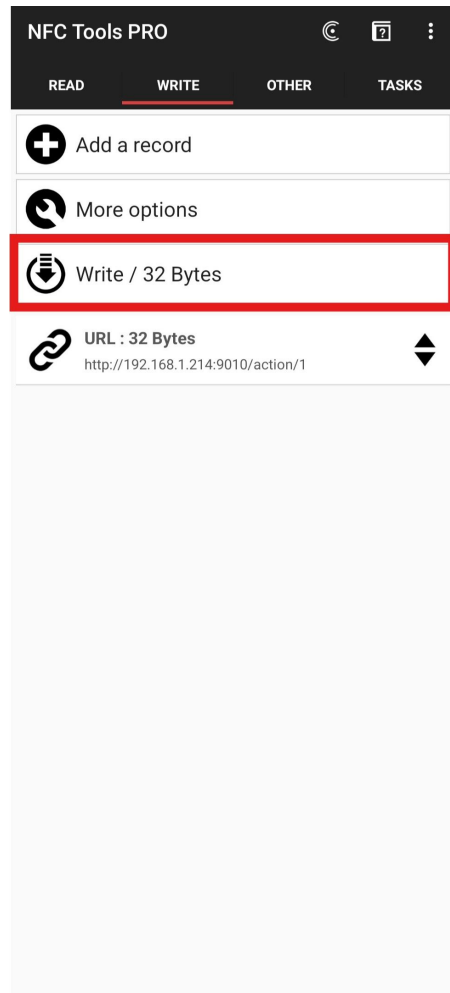
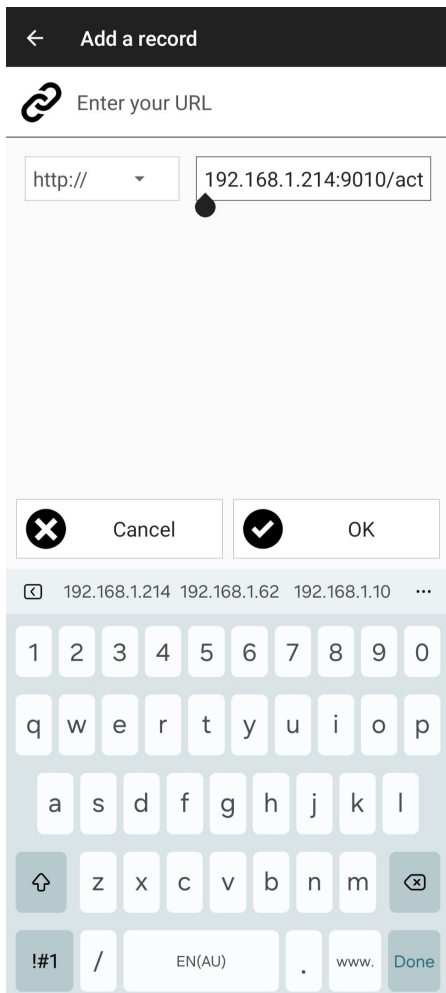
- Super low cost and easy to source
- Available in various form factors: stickers, cards, keychains, wristbands, etc.
- Can be hidden behind objects, such as light switch cover plates.
- Will not work through metal
- Water resistant and can withstand harsh environments
- Average lifespan exceeding 10 years
- Can be read thousands of times without degradation
- Some versions are rewritable while others are read-only or one-time programmable

# How to program an NFC Tag for Q-sys Actions

This section will cover how to program NFC tags for use with the Q-sys Actions plugin using the free NFC Tools app available on Android or iOS mobile phones. This app turns your phone into a simple NFC writer.

1. Download the free NFC Tools app from the Google Play Store or Apple App Store.
2. Open the app and select the "Write" option.
3. Add a record
4. Select URL/URI
5. Enter the API call you wish to make. Example: <http://192.168.1.214:9010/action/1>
6. Press "Write"
7. Tap the NFC tag to write the data.
8. Optional - Go to "Other" tab and select "Lock tag" to prevent the tag from being written to again.





# What are QR Codes?

QR (Quick Response) codes are barcodes that can be scanned using a smartphone camera to quickly access information or perform actions. Unlike NFC, QR codes work from a distance and only require a camera to scan.

## General Info:

- Can be scanned from various distances depending on size and camera quality
- No special hardware needed beyond a smartphone camera
- Works across all smartphone platforms

## QR Code Types Explained

QR codes come in different formats depending on the type of data they contain and their intended use.

## Types and Characteristics:

- Static QR codes contain fixed information that cannot be changed
- Dynamic QR codes allow changing the destination without reprinting the code
- Can include customization and branding while maintaining scanability
- Different formats include URL, text, contact information, Wi-Fi credentials, etc.
- Visual appearance can be customized with colors and logos while maintaining functionality
- Can be printed with as sticker with label makers
- Weather-resistant when printed properly and can last for years

# How to create QR Codes for Q-sys Actions

This section covers how to create QR codes for use with the Q-sys Actions plugin using free online QR code generators or my preferred method of a label maker.

## Method 1: Free Online QR Code Generator

1. Visit a free QR code generator website like QR Code Generator ([qr-code-generator.com](http://qr-code-generator.com)) or QRCode Monkey ([qrcode-monkey.com](http://qrcode-monkey.com)).
2. Select "URL" as the QR code type.
3. Enter the API call you wish to print to the QR code. Example: <http://192.168.1.214:9010/action/1>
4. Customize the design if desired (colors, logo, shape, text).
5. Generate the QR code and test it using your phone's camera app.
6. Download the QR code as a high-resolution image (PNG or SVG format recommended).
7. For best results, print at a minimum size of 5x5 cm and test from expected scanning distances.

## Method 2: Label Maker (In this case we will use the Brother P-Touch label maker)

1. Download the Brother Pro Label Tool app from the Apple App Store or Google Play Store.
2. connect to the printer with "direct mode" and set phone to the printers generated wifi network.
3. Create a new label project and select > Others > QR Code.
4. Enter the API call you wish to print to the QR code. Example: <http://192.168.1.214:9010/action/1>
5. Customize the design if desired (colors, shape, add text to the side).
6. Print the label and apply it to a flat surface.
7. Test the QR code using your phone's camera app.

