

Robert Lozier - Radio Collector & QR Code Proselytizer

Frequently we see old artifacts at ham fests, flea markets or museums and we really don't know what it is or, more importantly, don't know why anyone should take interest in the artifact. When we are in that condition, we often do not know even the *correct questions to ask* in order to zero-in on 'why anyone should care'. If there is not a knowledgeable person to question, or easy-to-read documentation immediately at hand we move on to something else; **BUT** we may have missed a fascinating insight into the hardware, the entity that created it or the reason for its very existence.



If there is space around the artifact, you might find some identification labels, photographs or other documentation. That's great, but you often find items where there is no space to devote to such information. And what happens if the artifact is moved, does the information automatically follow along? Possibly not.... This is not a new problem, museums have long needed to track artifacts to item documentation; so artifacts are assigned catalog numbers that are affixed to the item in some (hopefully) permanent way.

Since the introduction of the first bar code scanners 50 years ago, the task of locating relevant information has gotten progressively more easy and useful. The methods for machine reading of these codes have now advanced to the point that the camera in virtually every smart phone and tablet can read certain types of codes, called **QR codes**, using a free app. These codes are in the form of a typically 1" square matrix of light and dark squares. Common data formats can encode up to 180 characters (even more are possible). Enough characters to provide plain text for a brief artifact description or an interesting 'factoid' about the item but, **most importantly**; enough characters for a URL or some local Wi-Fi link that will automatically take you to potentially everything there is known about the artifact. All available to you by simply spending a few seconds to tap the app on your phone and pointing the camera at the QR code; then **Presto** you have it! If the information is more than you care to absorb at the moment, no problem, some apps keep a history of the codes you read for later reference. Or you can find them in your browser history.

In my own collecting, I am starting to attach these QR codes to my vintage artifacts every time I prepare them for exhibition. It is my practice to prepare some sort of documentation notebook to accompany the item while on exhibit. I put this information in a Word document that is output as a .PDF file for printing. I have a website; so I simply create a new web page for the artifact and embed this PDF file on the page. Next I create a QR label that is the URL of the Web page just created.

If I do not yet have documentation of my own but have found a good Web link to information, I create a QR label with that URL. An example would be to use URLs found on **radiomuseum.org** or you could also use the URL of a popular web forum such as those at **antiqueradios.com**.

I see this as a **POWERFUL 21st. CENTURY TOOL** for preservation and dissemination of knowledge. Within the hobby of collecting vintage radio equipment, you frequently find that only a very few people will have good information about an artifact; people you may **NEVER** learn about, much less ever meet to

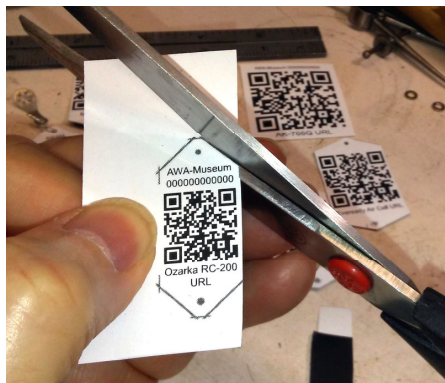
exchange information. And sometimes you discover that **you** may be the only holder of that information. This is your opportunity to see that the information is not lost.

Making QR Code labels.

The creation of QR codes is done by applications, some of which are free. Most of the commercial services are oriented towards business and professional use of QR codes providing extensive analytical services for a fee. However there are many applications such as artifact tagging that do not necessarily need such services. For my documentation needs, there is a simple way to generate the tags you need using free label making software from Avery Products Corp. The portal for this on-line tool is: http://www.avery.com/avery/en_us/Templates-%26-Software/Software/Avery-Design--Print-Online.htm As of this writing, you can still download a version of the software for off-line use that works just fine with Windows XP. The off-line version, however, is not compatible with Windows 10. I found I could run the on-line tool even on my six year old ASUS tablet (Android 4.1) with no problem. The good news is that **you do not have to be computer savvy** to begin tagging your artifacts in this way because you can make use of **templates already designed**. There is a free way to generate QR Codes within Google Docs but I have yet to find an alternative method that is nearly as easy to use and print labels as with the Avery software.

In fact, if you have younger people in your life of school age, this could be a great opportunity for joint learning which they may be able to parlay into school credits in learning how to locate research information or show in a science fair project how history can be preserved and passed to new persons ready to learn. And there is even the possibility that the student may develop a personal interest in perpetuating communications technology history. We certainly need ways to engage new generations or else artifacts and knowledge will wind up on the scrap heaps of time.

The hardware you will need to do the job is minimal. Just about any computer that you can surf the Web on will run Avery's older off-line tool. To print the tags, you should use a laser printer. The laser toner is known to have very long lifetime while some types of inkjet printer inks have been known to fade over time. Don't have a laser printer? No real problem... You can print them to a PDF file on your computer and copy to a USB thumb drive, take it to your local office supply print shop and receive a sheet with 10 pairs of QR tags printed for less than 20 cents on plain 24 lb. paper or have them print on various Avery print stock. You can also have them printed onto 7 or 10 mil thick synthetic waterproof paper such as made by **TeraSlate**; incredibly tough material...



The blank sheets to be printed can be purchased with permanent adhesive on polyester film or paper; or can be plain paper sheets attached with permanent spray adhesive such as 3M Super 77. Either can be applied to pre-painted aluminum flashing available at your local home center. It is usually a satin white coating on one side and brown or black on the other. It provides an excellent surface for adhesive bonding the laser print to the flashing. This flashing is easily cut with a heavy pair of scissors to

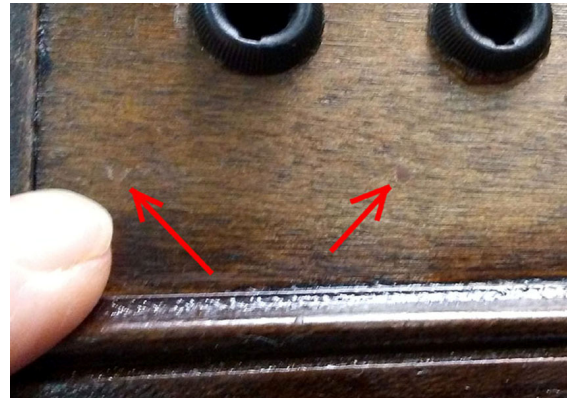
form a durable metal tag. You can even stick your labels to stock blank stainless steel dog tags.



Nominal 1"x2" military dog tags are often cheaper than other tags of similar size. They have rolled or rounded edges that will not scrape surfaces on your artifact.

Museums have traditionally nailed i.d. tags to unseen areas of even very valuable wood furniture. Two small brass tacks, nails or tiny screws are all it takes. I take the extra precaution of using my Dremel tool to drill very small pilot holes (#55) for my tacks. You can do the same... If for any reason the

tag has to come off, all that is necessary is to use a colored wax crayon to fill two tiny holes.



Holes this small virtually disappear when a wax crayon is applied.

The tags can be attached to metal and glass using high quality pressure sensitive adhesives. On rounded surfaces, as long as the tag is bent to conform to the surface **before applying the tag**, the tag will stay attached. Many artifacts, especially communications equipment, will present many opportunities to simply attach a stainless steel dog tag (less than 30 cents) with stainless steel wire to a solder lug; the lug being affixed by an existing screw. Frequently there are unused holes where the wire can pass through.



The reader does not care if the tag is mounted right-side-up.



Here are some examples of QR tags.

If you are able to scan within a few inches of the artifact, the tag including border and mounting holes need be only 3/4" x 1 1/2". This will be the common size of tags attached directly to the artifact in a location normally not seen on exhibit. When the artifact is on exhibit, you will want to have a larger duplicate tag mounted conveniently nearby for reading by the general public. These you might want to make 200% larger. If the items are in glass front display cases, the tags can be enlarged even more for readability from a distance. Should these larger tags be lost, it is a simple task to scan the tag on the artifact and quickly regenerate new labels. Here are some examples:



A little bit of text explains what the QR code is going to link you to or tell you about. It is also convenient when tagging a batch of items or setting up an item for exhibit.

This particular link brings you to a page where you may download the contents in PDF form of the notebook assembled for the exhibition.

You also have room to add something like an inventory number.

And finally you can include a cut and punch outline. Don't want that? No problem. The outline is just another element of the tag layout. Just click on the outline and delete.



Left: This tells you what the exhibit is and who prepared the exhibit. i.e. An introduction. It is about 1.5" square for reading at a greater distance.

Right: Contains a brief description of a device.

This example and the one just above use near the 180 character limit of the common code format.



I have chosen the Avery Product # 5523 blank template. This template has two columns of 5 labels. I place two QR images of different size on each label. This way I can attach the smaller one to the

aluminum flashing to make my artifact tag while the other label can be attached to a shelf tag, or any other display information that may be in an exhibit.

Take a half hour to explore the possibilities of the process....

I have prepared a PowerPoint presentation in PDF format to walk you through the creation of tags using the Avery on-line tool. You will also find a sample page of labels I generated, a sample .avery file you can use as a template for your introduction to the process and a simple Excel reference sheet for the information you will enter. You will soon see how easy it is to use this or a similar page as a template where all you will need to do is to update the existing fields. You can download this presentation as a .PDF document and the sample page in the Avery format at this website page: <http://kd4hsh.homestead.com/qr-tags-tutorial.html>

It really is a simple way to tag your items for posterity at very low cost.

Too many collectors have passed on before making specific plans for the dispersion of their artifacts, some of which may be of significant historical merit and have substantial market value. Families are often left clueless to such specific information and may discard the support documents or fail to take seriously the need to preserve the artifacts properly. Adding these tags can help to prevent that from happening.

This article is the first such I am aware of within the vintage radio community. I welcome comments on this process. E-mail: Robert Lozier at kd4hsh@carolina.rr.com

Thanks to Brian Harrison - KN4R, here is a list of links you can follow to some QR tagging articles.

<http://onlineqrcodegenerator.com/223/qr-codes-in-museums/>

https://www.nemanet.org/files/8813/8552/6686/Using_QR_Codes_in_Museum_Exhibits_to_engage.pdf

<http://blog.cuseum.com/post/152348330643/life-death-of-qr-codes-in-museums>

<https://www.museumnext.com/insight/qr-codes-and-museums/>

<https://www.brooklynmuseum.org/community/blogosphere/2011/10/20/qr-code-conundrum/>

<http://canada.pch.gc.ca/eng/1443184597449>

<https://aam-us.org/docs/research/mobilemuseums2012-%28aam%29.pdf>

Concerned about malicious QR codes?....

Someone can make up a malicious QR code and post it or paste it over an existing QR code in a public venue that will send you to a bogus site. I'm told that there is some malware that can infect just by the simple act of visiting the page. The safest way to scan QR codes at a public venue is to have phone data and Wi-Fi turned off. You will get an error message saying it cannot complete the path to the Web page

but you also get the opportunity to review the actual content of the characters encoded. It is likely that you will be able to determine if the actual URL is taking you to a legitimate site. **Norton Snap** is a QR reader that checks the link to see if it is legitimate (safe) but does not have a scan history. **Google Goggles** and **Free QR Scanner** let you examine content **before** proceeding. Some QR reader apps have a history function; handy if you want to access data at a more convenient time. If your scan app does not have a history function, your Web browser does have a history function if you enable it. All these Apps and a number of others are free to use, some are ad free.