Tech 4 Tracing Annotation Guide

This guide describes the functionalities and steps for annotating a headstamp using the annotation interfaces in the Tech 4 Tracing (T4T) Ammunition Identification and Tracing tool. These interfaces enable curation of training and validation data to facilitate automated detection.

Getting oriented in a collection

First, select the ammunition collection you have been given access to by clicking on its name. You will then see a grid of thumbnail images of the ammunition sample images in that collection. Images that are slightly shaded have already been annotated. Those that are not shaded still require annotation.
The numbers in the upper right-hand corner of each thumbnail image show the number of headstamps detected in that image (some pictures contain more than one headstamp) and the total number of annotations that have already been performed on the image. So, for example, in the following image, there is one (1) headstamp in the picture and three (3) annotations already made, corresponding to the three segments of data that have been separately annotated (“9x19”, “325”, and “95”).

To start annotating, click on any image in the collection.

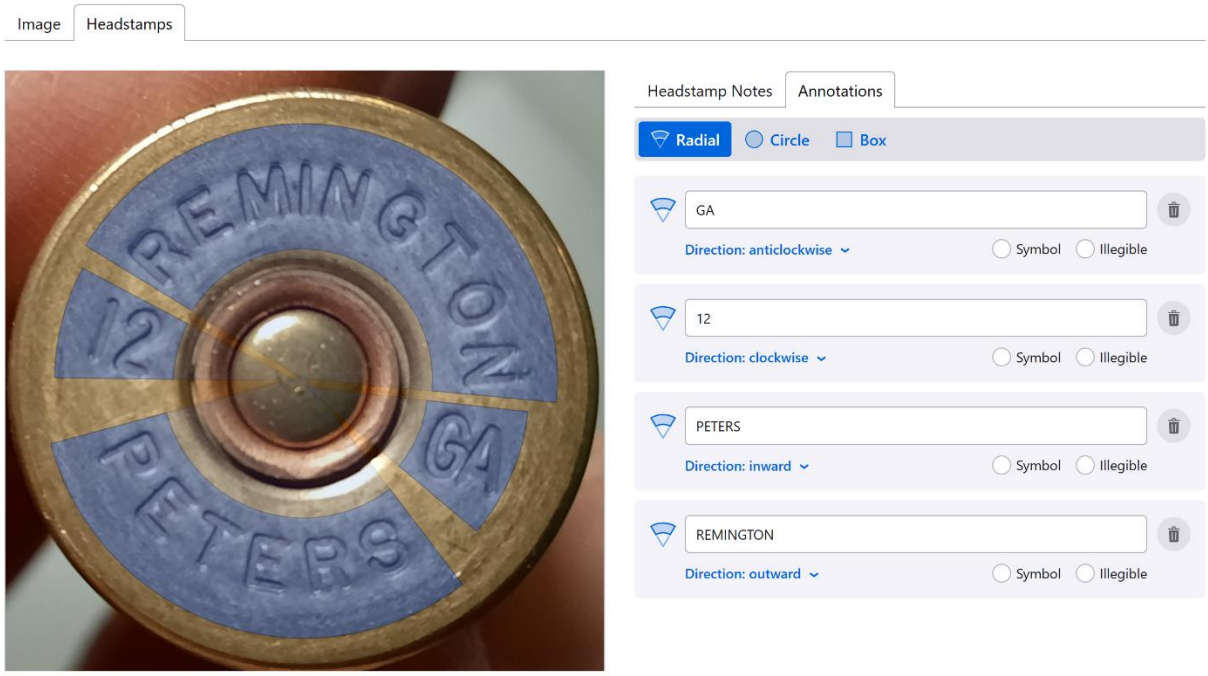
There are two page/window tabs for each headstamp: “Image” and “Headstamp”. The “Image” tab shows the whole or most relevant part of the uploaded photograph. The “Headstamp” tab shows the portion of the element in which the system has detected a headstamp. It is in this latter page/window that annotation will be conducted.

But first begin with the “Image” tab. Before you can start annotating, it is important to make sure the detector has accurately detected one or more headstamps in the image. A red circle should appear on the headstamp, closely bounding the area and not overlapping or missing any of the headstamp. If there is any misalignment of the red circle and the headstamp in the image, press the blue “Re-predict” button and wait 5-7 seconds for the detector to realign. Once this happens, refresh the page in your browser.

Then you can switch over to the “Headstamp” tab and begin annotation.

Annotation basics

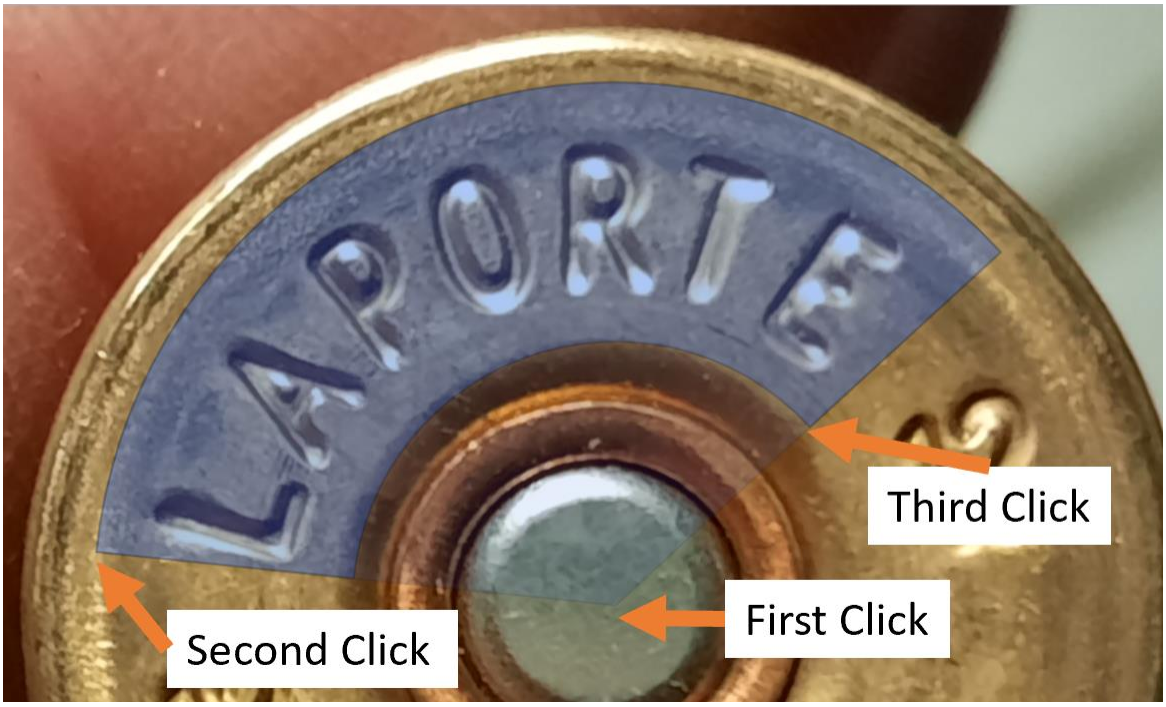
Annotations require highlighting alpha-numeric information on the headstamp and transcribing those elements one segment at a time.Depicted below is a sample annotated headstamp. ach distinct marked region on the headstamp. If the text is illegible or the marking is one or more non-Latin symbols, choose the appropriate “Symbol” or “Illegible” radio button. (You may describe a symbol in the text field, e.g., “star” or ‘*’). Each annotation will have a polygon and appropriate direction description. The rest of this guide explains how to draw polygons and set the descriptions.



Drawing Polygons

Regions may be marked using a radial polygon or rectangular bounding box. In this example, since the headstamp is rotated slightly, the “12” and “GA” are best marked with a radial polygon – if the headstamp had been aligned to be upright, a rectangular box would have been the better choice.

To draw a radial polygon, click (and release) at the center of the headstamp, move the mouse to just beyond the left-most outer edge of the text and click again, then move the mouse to just inside the right-most edge of the text and click a third time. *Ensure that the entire area of text is completely contained inside the polygon*. Note: if the text spans more than 180 degrees of the casing, you may need to either a) split the text into multiple polygons or b) adjust the center point slightly away from the text so that the arcs of the polygons span less than 180 degrees.



Rectangular boxes are drawn using simple click-and-drag between opposite corners.

Text Directions

Text direction is defined based on two considerations:

1. Consider a line or curve tracing along the bottom of the text (i.e., the text's baseline). Is the baseline parallel to the outside edge of the cartridge, or does it run at right angles to the edge (i.e. roughly parallel to the radius)? In the image below, "REMINGTON" and "PETERS" have baselines running parallel to the edge, while "12" and "GA" run at right angles to the edge, parallel to the cartridge radius.
2. Next imagine an arrow at right angles to the baseline pointing "up" in relation to the text (i.e. from the baseline to the top of the text if the cartridge is rotated so the text is oriented upright). Consider the direction of the arrow.

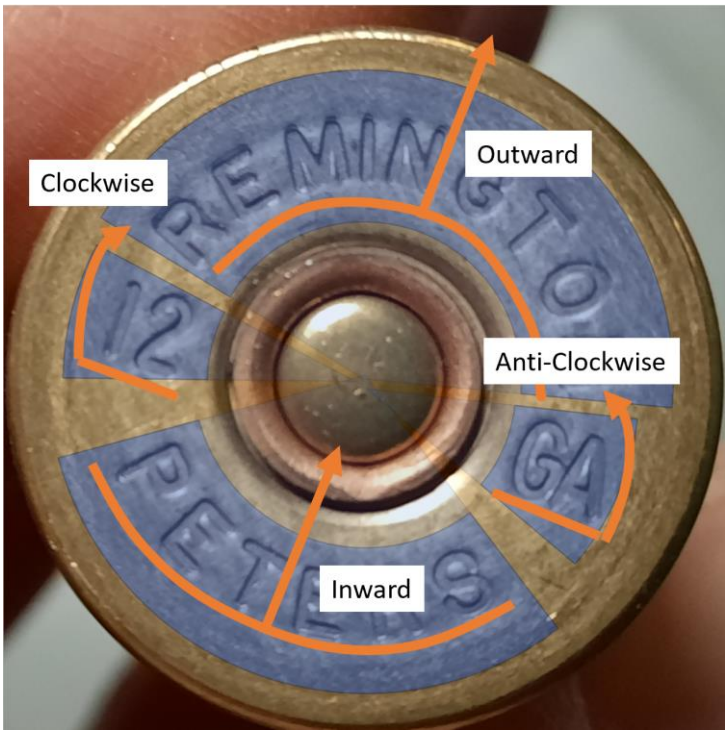
"REMINGTON": Edge-parallel baseline, the arrow points *away from* the cartridge center. Label the annotation as **"outward".**

"PETERS": Edge-parallel baseline, the arrow points *towards* the cartridge center**.** Label the annotation as **"inward".**

"12": Radius-parallel baseline, the arrow points in a clockwise direction tangential to the cartridge edge. Label the annotation as **"clockwise".**

"GA": Radius-parallel baseline, the arrow points in an anti-clockwise direction tangential to the cartridge edge. Label the annotation as "**anti-clockwise**".

Note that these labeling rules are consistent no matter how the cartridge is rotated around its central axis.



Be sure to click “**SAVE”** once all markings on the cartridge are annotated. Click the trash button to discard any mistakes or duplicate annotations.

CHANGELOG

V0.1: Initial documentation

V0.2: collection orientation

TODO

Collection management – removing images, collections, granting permissions etc

Bulk annotation