Technical Note: DICOM Attribute Manipulation Tool: Easily Change Frame of Reference, Series Instance, and Study Instance UID

Running Title: Simple Unlink DICOM Tool

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# Abstract

Background: In radiation oncology, the integration and registration of multiple imaging modalities is often a crucial aspect of the diagnosis and treatment planning process. Often, these images are inherently registered, a useful feature in most cases, but possibly a hindrance when manual adjustments and registration modifications are required. To break this registration requires expert knowledge of file structure or specialized software, posing challenges and potential errors in changing other attributes in the process accidentally. Often clinics have to make do with these imprecise registrations which add uncertainty when creating target contours.

Purpose: To address these issues, we present a novel tool designed to simplify the task of changing three often edited attributes: the frame of reference, the series instance unique identifier, and the study instance unique identifier. The tool features an intuitive user interface that empowers practitioners, regardless of their expertise, to effortlessly modify these three key attributes. By focusing on the most frequently edited parameters, our tool minimizes the risk of unintended alterations to other attributes, contributing to increased accuracy and reliability.

Methods: The program is written in C#, easily distributed via GitHub or Google drive and compatible with any Windows computer with .NET 4.8 (the standard as of 2023).

Results: Our tool provides a simple interface for changing the DICOM attributes commonly manipulated in Radiation Oncology.

Conclusions: This innovation holds promise for improving the overall workflow efficiency and safety within radiation oncology and radiology, where breaking the frame of refence or changing the series/study unique identifiers is a regular occurrence.