Purpose: Researchers write many computer programs with unique implementations, usually requiring a great amount of effort for other researchers to learn how to install, configure, and use. Some programs require specialized hardware platforms such as GPU workstation or CPU cluster, which may not readily available for many researchers. This work develops a general web platform to 'wrap' radiotherapy software tools into a user friendly, browser-based interface.

Methods: We developed a web wrapper based on existing technologies (e.g. HTML5, JavaScript, PHP, Python, XML) to interface with command line-based research tools. This wrapper enables users to easily perform various tasks in any modern web browser, while underlying tools are launched remotely. Visitors can upload data, configure settings, process data remotely, then view, share, and download results with minimal effort. This web wrapper is developer friendly; new tools are easily integrated by editing XML configuration files.

Results: As a test case, we have successfully wrapped a set of command line tools, developed by our group, into a single web app, providing fluence map generation, CT image processing, and GPU-based Monte Carlo (MC) dose calculation. The result is a web-based quality assurance tool. With this tool, users can upload compressed DICOM-RT files, recompute dose using the MC method, and evaluate the results by viewing dose distribution, 3D gamma index distribution and DVH curves. The entire work-flow can be completed within 2 minutes provided users have a reasonable Internet connection speed.

Conclusions: We have developed an web wrapper to increase the accessibility of radiotherapy tools and reduce users' learning curve through a friendly web-based interface. This work also allows quick and easy deployment and distribution of software tools developed by researchers to the whole community.