# Improvements of AAPM Equipment Donation Workflow – a Case Study

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## Abstract

Medical physics often has complex workflows that require unique and customized solutions.  However, with knowhow and access to the latest generation of online software solutions, many challenges can be quickly overcome that were previously insurmountable or would take years to engineer.  The AAPM Equipment Subcommittee (AAPM ES) had a challenging workflow that was mostly manual to match donors and recipients.  Using off-the-shelf customizable modern software (Zoho forms, Zapier, Kintone), we were able to redesign and modernize their donor and recipient workflows.  This solution is scalable and easily applicable to a wide variety of challenges that face medical physics.

## Criteria

The following criteria were decided as requirements.  Solution must: 1) Be scalable and accessible globally, 2) Be able to implemented and modified quickly, 3) Be either free or very low cost, 4) Support user data entry, email on action, and modification of data by AAPM ES members.

## Design and implementation

We decided to use 3 off the shelf components.  Zoho Forms, Zapier Integrations, and Kintone.  Zoho Forms (Fig 1) is a simple form creation tool that allows the user to capture data via text box, multi-select (ie yes/no), or other control type, and can be published online. Zapier (Fig 2) is an integration engine, allowing very easy connection of endpoints to data requests. Kintone (Fig 3) is a custom database app, much like MS Access, except online.  It allows internal form creation, actionable workflow  checkpoints (ie when processed="done" then do Y), and complex programming via javascript.  The below workflow (Fig 4) is one of three created for AAPM ES.  Total time invested was less than one week.
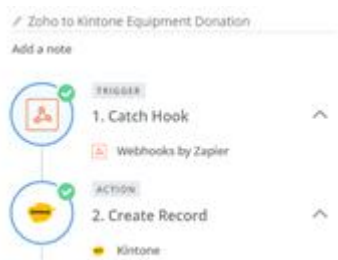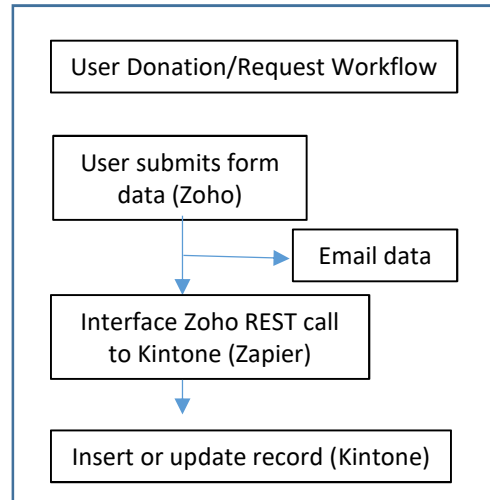


Fig 4 – Workflow for equipment donations

## Conclusion

In the last 10 years there has been an explosion of web enabled software-as-a-service solutions. This explosion means a great deal of technology that was previously either siloed or not available, is now available to the globe.  However, knowledge and ability to use much of the newer generation of programs is still limited to those steeped in the latest programming languages and software best practices, as most of the time some customization or integration is wanted to make the solution fit for purpose.  In this case an existing solution was found with Kintone, but it suffered limitations: 1) The data forms were not exposed to the web, and 2) Programming needed to be done to do actions such as email.  Fortunately the solution was straightforward and solved by leverage other existing free solutions (Zoho and Zapier).

## Acknowledgements

Fig 1 – Snippet of equipment donation form



Fig 2 –Zapier integration model



Fig 3 – Kintone assessment form