ACSPRI
Australian Consortium for Social & Political Research Inc.

WAPOR Workshop: Web and multimode surveys using free/open source tools

Adam Zammit
Director of Operations
WAPOR Conference 2024
27 July 2024

Quick intro

- Adam Zammit
  - Computer programming background, worked with social science researchers for over 15 years
  - Developed open source CATI, paper form processing and text response classification software
  - Current Director of Operations for...
- ACSPRI
  - Australian not-for-profit organisation
  - Runs the equivalent of the ICPSR summer program
  - Small survey research centre running ISSP module in Australia in PAPI mode (along with others)

About you

- Please introduce yourself
- What modes of data collection does your organisation use?
- What software tools are currently in use?
- Will you have your own device for this workshop, or just watch my demonstration?

About this workshop

- What is free/open source software (FOSS), and why does it matter?
- Obtaining and using FOSS multi mode survey software
- Setting up our “base” questionnaire using LimeSurvey
- Producing and delivering the questionnaire in multiple modes
- Limitations of the tools

What is free/open source software, and why does it matter?

FOSS

- “Free” as in “Freedom”, but usually free of cost as well (sometimes not)
- The 4 freedoms
  - Use
  - Share
  - Study
  - Improve

FOSS Advantages

- Collaboration across institutions
- Software re-use
- No vendor lock in
- No artificial licensing barriers to adoption

FOSS (potential) Disadvantages

- Potential lack of vendor support (depending on product)
- May require more technical expertise to setup (this is less and less an issue these days)

Why does FOSS matter in survey research?

- Potential cost savings
- Collaboration/teaching benefits
- No vendor lock in
- Replication
- Sovereignty

What software will we use and how do we obtain it?

Software to be demonstrated

- LimeSurvey
  - Web based questionnaire authoring and web survey tool
  - Includes queXML for producing paper scannable questionnaires
- queXS
  - Web based CATI
- queXF
  - Web based system for processing scanned paper forms
- OfflineSurveys App (not FOSS, but Freeware with premium option)
  - For offline CAPI, Android App

Web based software

- Web based software
  - Need to install software on a web accessible computer
  - Data is stored on that computer/server
  - The user interface to the software is using your web browser (not installing an “app”)
- OfflineSurveys app is the exception
  - An android app
  - Stores data on local device until uploaded

Obtaining the software

- Manual installations
  - Downloading published releases
  - Using Git/Github to obtain the latest release and make it easier to develop / contribute / modify the software
- Docker based installation
  - Works on a server/cloud or local computer for testing
- Demonstration servers
  - Running on server not under your control
  - OK for a quick test but you don’t have control over data
- Hosting provider
  - Most providers than can host “Wordpress” can also host this software
  - Some specialist providers may have better support

Git and Docker

- Install Git for your computer
  - Git (also FOSS) allows you to download and collaborate on software development
  - https://git-scm.com/downloads
- Install Docker Desktop
  - Docker (also FOSS) allows you to run software in “containers” separate to your operating system
  - Won’t interfere with other software but will allow you to rapidly test and develop
  - https://www.docker.com/get-started

WAPOR demonstration WiFi

- Please connect to the wapordemo network
- Password is: wapordemo
- This will allow you to access the files required faster or connect to my demonstration server if you have not installed the software

Installing LimeSurvey using Git and Docker

- Open a command window
- Run:
  - git clone https://github.com/adamzammit/limesurvey-docker
  - cd limesurvey-docker
  - git checkout demo
  - docker compose pull limesurvey
  - docker compose up -d
- Open a browser and browse to:
  - http://localhost:8082/admin

Installing queXS using Git and Docker

- Open a command window
- Run:
  - git clone https://github.com/adamzammit/quexs-docker
  - cd quexs-docker
  - git checkout demo2
    - This is for queXS version 2 set up to work for this demonstration
  - docker compose pull
  - docker compose up -d
- Open a browser and browse to:
  - http://localhost:8080/admin

Installing queXF using Git and Docker

- Open a command window
- Run:
  - git clone https://github.com/adamzammit/quexf-docker
  - cd quexf-docker
  - git checkout demo
  - docker compose pull quexf
  - docker compose up -d
- Open a browser and browse to:
  - http://localhost:8081/

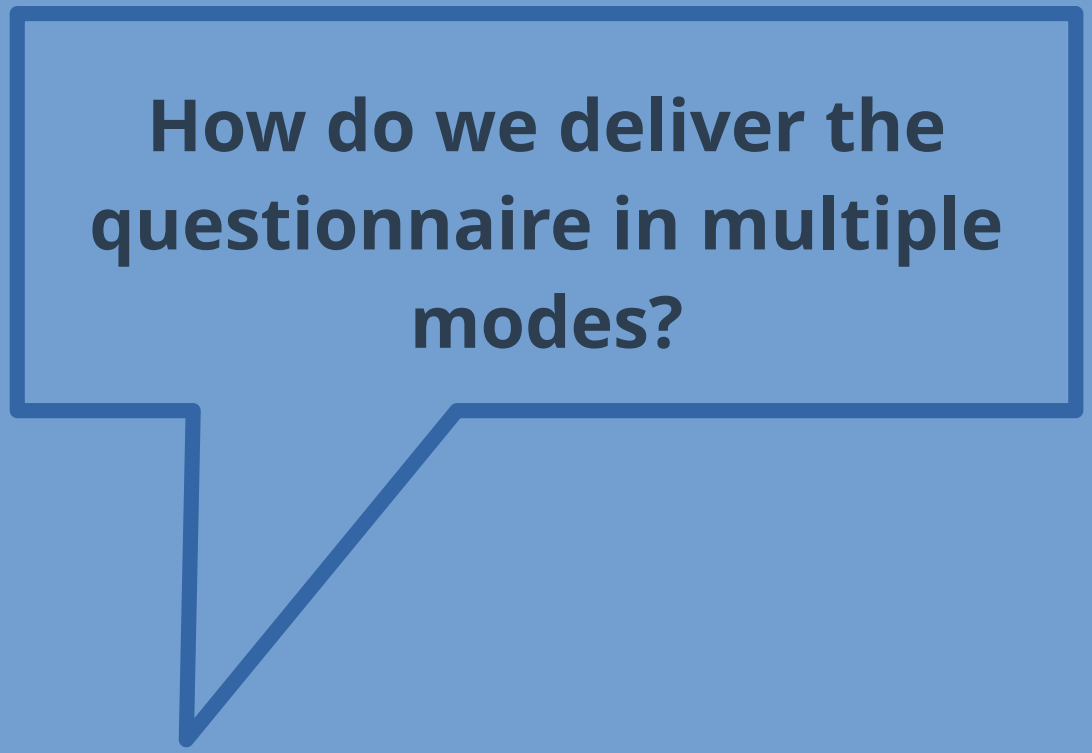
Connecting queXS ↔ LimeSurvey

- LimeSurvey Global Settings:
  - Security – set Iframe embedding to “Allow”
    - Allows for LimeSurvey to sit inside queXS for the telephone interviewer web interface
  - Interfaces – enable JSON-RPC
    - Allows for queXS to communicate with queXS
- queXS
  - Add questionnaire service
    - Set RPC URL to be the LimeSurvey Remote Control URL (host.docker.internal address)
    - Add username and password
    - Set Questionnaire entry URL to be LimeSurvey index URL (For interviewers to access)


Where do we start?

Creating a “base” questionnaire

- Setting up a questionnaire in LimeSurvey allows for running in web and CATI modes
- Export for paper and CAPI modes
- Text from previous questions can be inserted by using {QUESTIONCODE} notation
- A survey must be “Activated” to allow for data collection
- “Closed access mode” is required for CATI integration. Respondents will each have a unique entry code (token)


How do we deliver the questionnaire in multiple modes?

queXS (CATI)

- A questionnaire needs to be created in queXS linking to the web LimeSurvey questionnaire
  - Will add call/case management on top of the data collection component in LimeSurvey
- Load in a sample file via CSV
  - Requires at least a phone number column
  - Can infer timezones from phone number, state or post code
  - Choose limits for how many times sampled numbers should be called
- Assign which interviewers you want to work on the project
- Ensure the scheduler is reloaded
- Telephone interviewer view
  - Call the next available case
  - Make appointments
  - Set call outcomes
- Reporting view for supervisors
  - Future appointments
  - Outcome codes (AAPOR standard outcome based, of course)

Offline Surveys (CAPI) setup

- Need to clone a questionnaire in LimeSurvey to make available in CAPI mode
- Requirements for importing in to Offline Surveys Android App:
  - Activated survey
  - Open access mode
  - No welcome screen
  - All questions on one page

Offline Surveys (CAPI) load and run

- Install Offline Surveys app via Google Play store
- Add a new survey to the app
  - Use the URL of the survey as a participant
  - For demonstration – use URL: https://registry.acspri.org.au:8082/index.php/12345
  - Needs LimeSurvey username and password for data sync
- Can conduct the questionnaire offline
- Set up syncing to be automatic when online, or manual syncing

Export to a paper form

- Use the LimeSurvey export to queXMLPDF function to export to PDF
  - Can change font size / paper size / orientation at export stage
- Save the ZIP file and extract it
  - PDF file itself to print and distribute
  - Banding XML file that describes all elements on the form for digital processing later

Set up system for processing returned paper forms (queXF)

- Load in original PDF file and banding XML to queXF so it knows how to recognise the scanned forms
- Choose which operators you want to verify the forms

Scan, upload and process returned forms

- Scan in returned forms as individual PDF files (greyscale or colour at 300 DPI)
- Upload the PDF files to queXF
- Set queXF to process the imported files
- As a verification operator, assign each next form for processing and confirm data entry / response selection is correct
  - This can be done by multiple operators at a time
  - Response boxes are automatically selected but handwritten text manually entered
- Export the data as a CSV file

What can’t we do (yet)?

Some current limitations...

- If questionnaire differs by mode, data needs to be manually merged
- Offline CAPI only works on Android devices (online can use any device)
- Multi-mode case tracking limited to web and CATI modes (separate system used for paper and CAPI modes currently)

Where to from here?

What next?

- Give it a try!
- Any bugs or improvements can be lodged as GitHub issues or pull requests

References

- FOSS: https://fsfe.org/freesoftware/freesoftware.en.html
- Git: https://git-scm.com/downloads
- Docker: https://www.docker.com/get-started
- LimeSurvey: https://www.limesurvey.org
- queXS: https://quexs.acspri.org.au
- queXF: https://quexf.acspri.org.au
- queXML: https://quexml.acspri.org.au
- Offline Surveys: https://www.offlinesurveys.com/

Thank you – questions?

- Please contact me if you need more information: adam@acspri.org.au
- Thank you!