

- Interactive RScript to:
  - Move files from SD card to Hardrive/Drobo
  - Checks EXIF data with lookup table (local CSV) to ensure userlabel is valid
  - Checks that the time is valid
  - Checks the Project, Type, Year, Site and Service with a lookup table (local CSV) to check that it is valid.
  - Create file directory structure
  - Renames files based on EXIF data

## Tagging Image Data

- Harddrive/Drobo (or the data is moved to another device by senior technical staff) given to a 'tagger' to tag the images with EXIF Pro.

## Data Cleaning

- Harddrive/Drobo with tagged data (or the data is moved to another device by senior technical staff) is returned to project leader.
- RScript to clean data is run to:
  - List of images without tags (if applicable)
  - List of priority species events without abundance (if applicable)
  - List of cameras where userlabel does not match folder name (if applicable)
  - List of cameras that are missing from the data (if applicable)
  - Create a cleaned .csv file
  - Create an operation table for camera trap nights
- Data is manually fixed.
- Process is repeated until data passes checks

### Metadata Extraction Process

- From the image data stored on Harddrive/Drobo, an R Script is used to extract the metadata from the files into file for analysis

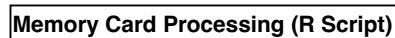
## Analysis and Storage of Metadata

- Metadata from .csv data is used for analysis in research
- .csv files are accumulated into a **SQLITE** database for long-term storage

## Manual File Upload/BackUp

- Files are manually uploaded to two backup locations (e.g. UNE's OwnCloud and Tower Storage on campus)

Title: VPRU Image Processing, Storage and Analysis Solution	
Page Title	Current Process
Sheet:	1 of 2
Author(s): Abby Hine and Glen Charlton	
Version:	v1.0
Date Modified:	2023/10/04



- Interactive RScript to:
  - Move files from SD card to temporary local files on local drive.
  - Checks EXIF data with lookup table (cloud database) to ensure userlabel is valid
  - Checks that the time is valid
  - Checks the Project, Type, Year, Site and Service with a lookup table (cloud database) to check that it is valid.
  - Create file directory structure
  - Renames files based on EXIF data
  - Upload to cloud (Space) storage.

### Automated Cleaning Process

- Detect new data automatically (or triggered from previous process)
- AI Algorithm used to tag NULLs, vehicles, humans and potentially some species.
- Create database of image location, tagged status, AI confidence score and other meta data.

## Tagging Image Data

- RShiny App (or similar) to down data requiring tagging is downloaded to local drive.
- Data is tagged using local EXIFPro

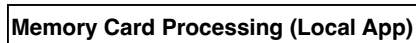
## Data Cleaning

- Harddrive/Drobo with tagged data (or the data is moved to another device by senior technical staff) is returned to project leader.
- RScript to clean data is run to:
  - List of images without tags (if applicable)
  - List of priority species events without abundance (if applicable)
  - List of cameras where userlabel does not match folder name (if applicable)
  - List of cameras that are missing from the data (if applicable)
  - Create a cleaned .csv file
  - Create an operation table for camera trap nights
  - Once confirmed, metadata for images in cloud and the database are updated.
- Data is manually fixed.
- Process is repeated until data passes checks

## Analysis and Storage of Metadata

- Basic R-Shiny interface to access metadata from cloud database and either analyse within the app or download csv of required data for further analysis.

Title: VPRU Image Processing, Storage and Analysis Solution	
Page Title	First Iteration
Sheet:	2 of 3
Author(s): Abby Hine and Glen Charlton	
Version:	v1.0
Date Modified:	2023/10/04



- Interactive app to:
  - move files from SD card to temporary local files on local drive.
  - Checks EXIF data with lookup table (cloud database) to ensure userlabel is valid
  - Checks that the time is valid
  - Checks the Project, Type, Year, Site and Service with a lookup table (cloud database) to check that it is valid.
  - Create file directory structure
  - Renames files based on EXIF data
  - Upload to cloud (Space) storage.

### Automated Cleaning Process

- AI Algorithm used to tag NULLs, vehicles, humans and potentially some species.
- Create database of image location, tagged status, AI confidence score and other meta data

## Tagging Image Data

- Data requiring manual tagging is tagged using hosted version of EXIFPro (or custom tagging software).

## Data Cleaning

- Triggered by updated tags, tagged data is checked for:
  - List of images without tags (if applicable)
  - List of priority species events without abundance (if applicable)
  - List of cameras where userlabel does not match folder name (if applicable)
  - List of cameras that are missing from the data (if applicable)
  - Update operation database table for camera trap nights
- Data is either returned to needing tagging or metadata for images in cloud and the database are updated

## Analysis and Storage of Metadata

- More advanced R-Shiny interface to access metadata from cloud database and either analyse within the app or download csv of required data for further analysis.
- Interface for viewing data, camera status, service status, etc.

Title: VPRU Image Processing, Storage and Analysis Solution	
Page Title: Second Iteration	Sheet: 3 of 3
Author(s): Abby Hine and Glen Charlton	
Version: v1.0	Date Modified: 2023/10/04