



# D3.12.1 Citizen Science System Trial

## *WP3.12 Support of EPO software*

**Project Acronym** LUSC-B  
**Project Title** UK Involvement in the Legacy Survey of Space and Time  
**Document Number** LUSC-B-45

<b>Submission date</b>	30/AUG/23
<b>Version</b>	1.0
<b>Status</b>	Final
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<b>Dissemination level</b>	
Public	

## Version History

<b>Version</b>	<b>Date</b>	<b>Comments, Changes, Status</b>	<b>Authors, contributors, reviewers</b>
0.1	30/AUG/23	Initial draft submitted for review	C Lintott
0.2	22/JAN/24	Updated following review	C Lintott
1.0	11/MAR/24	Approved by Executive, meta-data updated prior to publication	T Sloan

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## **1 Executive Summary**

This document briefly describes deliverable D3.12.1 “*Citizen Science system trial*” from the LSST:UK Phase B WP 3.12 “*Support of EPO software*”. The aim of the deliverable is to test integration and data flow from the Rubin Science Platform to a Zooniverse project. It thus required coordination on both project and Zooniverse sides.

## 2 Introduction

This document reports on deliverable D3.12.1 “*Citizen science system trial*” from the LSST:UK Phase B WP 3.12 “*Support of EPO software*”.

WP3.12 forms part of the LSST:UK In-kind contribution, UKD-UKD-S2 “*LSST:UK’s contribution to EPO software*”.

D3.12.1 is a Zooniverse test project. The deliverable aim is to test integration and data flow from the Rubin Science platform to a Zooniverse project; the material was presented to the 2023 Project and Community Workshop.

Please be aware that the original title of this deliverable was “Space warps trial project with bulk data”. The change in its title reflects the change in the nature of this test project as agreed with the in-kind recipient group, i.e. the EPO team, and the participating Space Warps science team.

Section 3 describes briefly the work done by the Zooniverse team in connecting the systems together. This required modifications to the Zooniverse API.

## 3 Implementation

### 3.1 Notebooks

We aim to provide users of the Rubin Science Platform with notebooks which can carry out the data transfer. These are available here: <https://github.com/lstt-epo/citizen-science-notebooks>.

#### 2.0 Make a subject set to send to Zooniverse

A subject set is a collection of data (images, plots, etc) that are shown to citizen scientists. It is also the unit of data that is sent to Zooniverse.

Here, we curate the subject set of objects to send to Zooniverse. This can be modified to create your own subject set. Your subject set must have 100 objects or less in the testing phase before your project is approved by the EPO Data Rights panel.

This example makes a set of image cutouts of galaxies.

```
In [ ]: print('Establishing the connection to the Butler')
        config = "dp02"
        collection = "2.2i/runs/DP0.2"
        service, butler, skymap = utils.setup_butler(config, collection)
        print('Connected')

In [ ]: print('Setting the parameters for making image cutouts')
        number_sources = 5 # change this to 100 for a full subject set test
        use_center_coords = "62, -37"
        use_radius = "1.0"
```

This query can be modified to select other types of sources. This query can be modified to select other types of sources. If you want more details on this please have a look at the RSP tutorial notebooks ('/home/your\_username/notebooks/tutorial-notebooks').

Figure 1: An extract from the `Citizen_Science_Testing.ipynb` notebook. This is one of the notebooks available at <https://github.com/lstt-epo/citizen-science-notebooks>.

In the notebook shown in Figure 1, queries on the Rubin platform can be transferred via this notebook to the Zooniverse side, into a new project created for the purpose.

## 3.2 Zooniverse API updates

The Zooniverse API was updated to allow for programmatic uploads of data to support this use case. Links to the key code follow.

- To allow deletion of data from the project side:  
<https://github.com/zooniverse/panoptes/pull/3579>
- To enable reporting for successful import of data:  
<https://github.com/zooniverse/panoptes/pull/3823>
- To report on progress:  
<https://github.com/zooniverse/panoptes/commit/4fbc80a460bf37aabb4aefc2a4a012de1ebc9755>

These updates also required some bug fixing:

<https://github.com/zooniverse/panoptes/pull/3577>

## 3.3 Example usage of the Zooniverse API

An example python implementation using the Zooniverse API to import data is given here:

[https://github.com/zooniverse/panoptes-python-notebook/blob/master/examples/subject\\_set\\_import\\_vera\\_rubin.ipynb](https://github.com/zooniverse/panoptes-python-notebook/blob/master/examples/subject_set_import_vera_rubin.ipynb)

## 3.4 Zooniverse API Documentation

Documentation on the Zooniverse system API is stored here:

<https://zooniverse.github.io/panoptes/#feature-description>

# 4 Testing and Follow-up work

These tools were provided to the Space Warps team who served as testers. Feedback from their use will be used in future version of the Notebook and in continuing to develop the Zooniverse API.

We had hoped to run an end to end test (including a live citizen science project). However, this would have required access to real (rather than simulated) data in the RSP, which was not available at the close of phase B. We expect to run this test early in phase C.