# Software Management Plan for TiDES WP3.3

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## What software will you develop?

* We will develop a piece of software that will interface with the Lasair (WP3.2) broker to select suitable transients for spectroscopic follow up from LSST.
* The software will also push the candidate transients to the 4MOST observing queue.
* This software will act as a module/extension of the capabilities of Lasair.
* The software will interface with Lasair through the API systems and will be constantly ‘listening’ to the data stream.
* The software will interface with the 4MOST API for real-time candidate ingestion.
* The Lasair broker is currently in an advanced stage of development and uses the ZTF public survey data stream as the testbed. Our piece of software will also use the ZTF stream for its development but will be constructed with the flexibility to use LSST once survey operations begin.

## Who are the intended users of this software?

* Members of the TiDES/LSST:UK collaborations are the intended audiences. Although it is expected that the software will be developed by TiDES, launched once, and will then run in the background during survey operations with no public-facing interface.
* Other users would include those who will maintain and update the software during its lifetime.
* Users of the software will be expected to have familiarity with Python and the Lasair API. Additionally, command line skills will be essential as no graphical interface will be developed.
* The software will be developed using the anaconda package manager and hosted on a remote server running a Linux virtual environment.

## How will you make your software available to other users?

* A Github repository will be created within the LSST-UK organisation. [https://github.com/lsst-uk/tidesInterface-WP3.3]
* All source code will be available on Github.
* We do not expect many people download and run our software due as we will be running the software in a virtual machine and providing the output.
* Updates will be pushed to the Github repo.
* This work will be distributed with an Apache 2.0 license.

## How will you support those who use your software?

* Installation instructions, use-cases, and examples will be presented in online documentation.
* As we expect the software to only be used by TiDES/LSST-UK, in person support will be available from the development team. Slack
* Users can ask for help by launching a Github issue in the repo. All questions, responses and issues will be publicly available.

## How will your software contribute to research?

* 4MOST/TiDES is the largest spectroscopic follow up survey of transients and their host-galaxies from LSST. The TiDES collaboration focusses on three key science goals: i) mapping the diversity of the transient phase-space, ii) curating the largest sample of Type Ia SNe and their hosts for the most precise SN cosmology measurement, iii) Performing the largest AGN reverberation-mapping experiment to-date.
* To achieve each of these goals, transient phenomena need to be reliably identified in the LSST high-bandwidth data streams in real-time. This piece of software will do just that and will enable all the downstream science that follows.

## How will your software relate to other research projects?

* Our software interfaces with Lasair and will enable 4MOST/TiDES to collect spectroscopic observations of transient sources. This data will eventually be made public. There will be numerous other research projects that will spawn from this data feed we enable.

## How will you measure your software’s contribution to research?

* We will ask users of any TiDES data to cite our TiDES survey paper

## How will you deposit your software to guarantee its long term availability?

* Our software will be hosted in a Github repository. Given the scale of Github’s service and the many other important pieces of research software hosted there, we expect this to be a long-term solution for hosting.