

# The New ESO Phase 1 System for Proposal Submission

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On 1 April 2019 ESO released its new Phase1 system (p1) for the submission of Director's Discretionary Time (DDT) observing proposals for the period between April and September 2019 (Period 103). The p1 interface will be extended to all types of observing proposals in the Period 105 Call for Proposals, which will be released in September 2019. This represents the first part of a broader overhaul of the ESO Phase 1 system that also entails a significant modernisation of the Observing Programmes Committee peer review process and associated tools. Here we highlight the main features of the new user interface for proposals submission.

## The new p1 system: an overall view

The upgrade of the current ESO Phase 1 system is a major undertaking, consisting of three main interfaces: the User Interface (UI) for the submission of observing proposals; the interface for the evaluation of the proposals; and the interface for the management of the entire Phase 1 process, from the preparation of the Call for Proposals to the release of the telescope schedule and user notifications at key stages of the process.

Phase 1 is fully embedded in the ESO Data Flow System, an integrated collection of software and hardware that facilitates the flow of scientific and operational information for the VLT (see Hainaut et al., 2018; ESO, 1998). Changes to Phase 1 can therefore impact many other tools and operational phases. This provides an opportunity for better integration with the various operational workflows, ensuring a smooth transfer of all the key information

from one phase to the next. Because of its very broad scope, the project has been divided into two parts: the user interface for proposals submission, and the management of the review process. The review of the proposals is carried out by the Observing Programmes Committee (OPC). The interface for the proposal submission part was released very recently, at the start of Period 103, for the submission of DDT proposals; the peer review management part of the project is currently being developed.

Probably the most relevant change at the heart of this upgrade is the move from the old ESOFORM package and stand-alone tools to web-based technology. The system is implemented using Google's Angular<sup>1</sup> and Semantic UI<sup>2</sup> frameworks for the client side, whereas the server side is based on the Java Grails framework<sup>3</sup>. It is expected to work on up-to-date versions of web browsers on any operating system. The new p1 proposal submission user interface uses the same look and interface conventions as the recent p2 tool, which is also shared by other tools being developed (exposure time calculators, and the Observation Preparation tool) to ensure a seamless user experience independently of the operational phase. Beyond the look and feel of the interface, this sharing of technologies also ensures that p1 will be integrated with other tools that implement the Data Flow System, i.e., p2, followed by the exposure time calculators and preparation software.

The p1 interface now uses the same abstraction to describe the actual physical instruments on the telescope as the other systems (Instrument Packages, used for instance for p2 and at the telescope), ensuring that p1 is always aligned and synchronised to the latest status of each instrument.

The system includes many new features, including allowing the Principal Investigator (PI) and Co-Investigators (Co-Is) to edit proposals in a collaborative way, graphically plotting target visibilities and the probability of realising the requested observing conditions. One can also retrieve target information directly from the Centre de Données astronomiques de Strasbourg (CDS) Sesame<sup>4</sup> or upload

them from a CSV file. Finally, a submitted proposal can now be updated right up to the deadline — previously changes to a submitted proposal could only be made by submitting a newer version and withdrawing earlier submissions.

There are also some practical implications, the most notable being the impossibility of directly submitting existing LaTeX proposals into the new system — a straightforward manual conversion is required. Furthermore, each of the Co-Is is now required to have an ESO User Portal account<sup>5</sup>; the PI will add them to the proposal using their email address.

## How to submit observing proposals via the new p1 User Interface

Being web-based, the new p1 system does not require any specific tool or package to be downloaded beforehand. Once logged into the User Portal, you just follow the link *Submit an observing proposal* in the Phase 1 section. Although some important features have changed — for example, the definition of an observing setup is done via a menu and time constraints are expressed in a different way — all the key components of the old classic LaTeX observing proposal are still there.

The left part of the interface is a list of all your proposals. Figure 1 shows the workflow menu, which is displayed for each proposal. In the following, we will guide you through the various steps, highlighting those that have changed the most.

As soon as you create a *New Proposal*, a dynamical checklist appears in the main window, summarising the actions that you need to take before you can submit the proposal. The checklist is understandably long at the very start, but it quickly reduces as you start to work through the various steps. In this way, last-minute surprises, such as having a proposal rejected because of some obscure error, are removed; once the checklist is empty, you can submit the proposal.

The first item on the left-hand menu (Figure 1) is the *Summary*, which is intended to provide an overall view of the proposal,

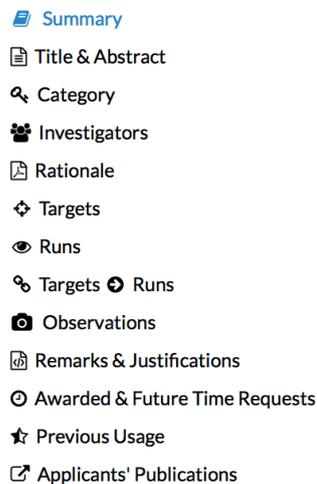


Figure 1. The left-hand menu of the new p1 user interface outlines the various steps to be followed in the preparation of an observing proposal. The order in which the steps are listed does not necessarily reflect the order in which these steps should be completed.

starting with the Programme ID, which will be assigned only after you submit the proposal. The format of the Programme ID has also changed; taking as an example, *104.20C8*: here 104 is the cycle in which the proposal is submitted, and 20C8 is a unique identifier. Then come the Programme Type, *Cycle*, and current *Status* of the application. The proposal will change its status from Draft (while working on it), to Submitted once the proposal has been submitted (via the *Submit* button) and the status will become “Valid” as soon as the call has closed (i.e., as soon as the proposal submission deadline has passed). DDT proposals are an exception, as their status goes directly from “Draft” to “Valid”. A proposal that has been retracted by reopening an already submitted proposal (by clicking on *Unsubmit*) will not be validated unless it is resubmitted. Each of the proposal sections can be edited directly from the *Summary* window or via the left-hand menu.

When adding *Investigators* (every team member must be registered in the ESO User Portal), the PI can search for them by typing their (exact) e-mail address in the search field. The PI is asked to assign a role to each of the Co-Is, the options being Co-I or delegated PI (dPI). Although the ultimate responsibility for the content of the proposal will always lie with the

PI, a dPI has the same privileges as the PI (for example, submitting/retracting the proposal, or changing the list of collaborators). Beware that as PI or dPI you can strip yourself of your respective privileges while assigning these roles, hence blocking any further management rights for that proposal.

The *Scientific Rationale* has kept its original structure, but now must be uploaded as a PDF file. Templates are available in the following formats: Google Docs, Microsoft Word and LaTeX. While there is no systematic check on the uploaded PDF file, proposals whose scientific rationale template has been tampered with (for example, by reducing the font or narrowing the margins) will be ignored. That said, you have the freedom to adjust the layout, for instance to include figures.

*Targets* can be uploaded from a CSV file — if several targets are required, the minimum set of parameters is “Name, Right ascension, Declination, Magnitude”. Each of these can also be added to the proposal by typing its identifier in a dedicated pop-up window that resolves it automatically (via Sesame). Targets will then have to be associated with runs once these have been created. Note that for instruments or modes requiring a reference star, that star has to be defined as a target together with the science objects.

The basic concept of *Run* has not changed with respect to the old Phase 1, i.e., a run remains the minimum schedulable coherent entity, defining a series of observations to be performed with one instrument, with a common set of observing constraints (that is, all the observations require conditions that have the same probability of realisation), and sharing the same run type and observing mode.

Once the high-level characteristics of a run have been defined, the instrument setups come next. The choice of what is available is now offered via pull-down menus, that guide the user to the successful definition of feasible combinations of setup elements. Those users already familiar with the ESO p2 system will recognise many features but will find fewer items because only those elements rele-

vant to Phase 1 (i.e., necessary for scheduling the observations and for performing the technical feasibility reviews) are available.

Another major improvement offered by the new p1 user interface concerns the definition of time constraints. These are specified at run level (look for the little clock icon) and with a customised syntax<sup>6</sup>. The interface allows for both absolute and relative time constraints and offers an immediate visualisation of the constraint (see Figure 2 for an example).

Using the *Targets* → *Runs* section, you can assign science targets to each of your runs. This will automatically define a series of observations, one for each observing setup defined in that run for each assigned target.

The last remaining major step of any observing proposal is the final computation of the telescope time needed to carry out the proposed observations (via *Observations* in the left-hand menu). The p1 user interface offers three views of telescope time: at the level of individual observations; at the target level (should a target be observed in multiple observations); and at the run level. Following a bottom-up approach, one must first define the time needed for each observation; here, one can simply fill in the blue box labelled *Telescope Time* (with one observation; i.e., integration time + all overheads<sup>a,7</sup>) or alternatively, specify the details of the individual components of each observation. We recommend the latter approach, at least for a small number of observations, so that the time request can be better evaluated during technical feasibility. Multiple exposures of the same observations (for example, to reach a deeper magnitude, to perform a mapping mosaic, or to monitor the variability of the target) or the wish to skip a given observation can be specified by using the *Repeat* field. These bottom-level exposure times *Telescope Time* (with one observation) are then propagated to compute the telescope time (*Tel. Time* in the blue boxes) at the target and run level.

The *Remarks & Justifications* section gathers all possible explanatory/commentary fields in one place. All fields are

### Time Constraints for Observing Run 'Run 1'

**i** Enter time constraints for your observing runs using the textual language defined [here](#). If the expression is valid, the time constraints are visualised on the right hand side.

```
between (2019-07-09T12:00, 2019-08-24T12:00) { [0.5bn
(2..10) 0.7en (... ) 0.3mn] }
```

2019-07-09T12:00	Absolute Time Interval	2019-08-24T12:00
0.5n	2d..10d	0.7n
		0 → ∞
		0.3n

Prio 1

mandatory, but one can always specify N/A (Not Applicable) for some of them. The most important ones remain the justification of the specified constraints and the telescope time requested. This section also includes the more technical/operation-related comments related to the specified telescope, observing mode and requested calibration. Target duplications with Guaranteed Time Observation (GTO) programmes and/or ESO Science Archive must be declared and clarified in the corresponding text boxes.

Finally, *Previous Usage* and *Applicants' Publications* complete the information that needs to be provided in terms of previous time allocation (to keep track of what is happening with previous sets of data) and publications with relevance to the subject of the proposal from the proposing team.

### The p1demo testing environment

A dedicated p1demo<sup>8</sup> environment has been set up so that users can experiment with the new p1 system before the official release of the next Period 105 Call for Proposals (foreseen for the end of August 2019). Please remember this is a public space; due care should be taken not to share confidential or sensitive information. Any user can use this environment to create a full proposal and test its submission and retraction. It includes the possibility of experimenting with preparing proposals using the entire suite of instruments of the La Silla Paranal Observatory, selecting all observing programme types — i.e., Normal, Large, GTO, GTO-Large, Monitoring and Calibration — and all observing run types: Normal, Target of Opportunity (ToO)-Soft, ToO-Hard, ToO-RRM (Rapid Response Mode).

Each step in the proposal preparation workflow is introduced by a short, informative (blue) box, supplemented by a more extended description of that specific step (mini-help). Many parts of the new proposal submission system resemble the old ESOFORM structure (Title, Abstract, Category, Investigators, and all ancillary information). More extensive help is available from the menu of the user interface, and via a help button at the top of each page. The p1demo environment also has some realistic proposals, and a commented proposal in which each field contains additional information and tips.

As already mentioned in previous sections, the biggest changes relate to how runs and observations are defined. Therefore, we recommend that users who plan to submit observing proposals at the next deadline familiarise themselves with the new interface beforehand. A short video-tutorial is also available<sup>9</sup>.

### The next steps

Although the feedback received so far has been positive, the full release of the new p1 user interface for the Period 105 Call for Proposals represents our next major milestone. Once this is accomplished, our focus will move to the OPC management part, i.e., all proposal traffic between the Call for Proposals deadline and the conclusion of the OPC process. Our aim is to offer the OPC referees a user-friendly interface whereby they will be able to follow all steps for the evaluation of proposals in one view — declarations of conflicts of interest, updates in review assignments, grading, review comments, etc. This will mean that the department overseeing the review process — the Observing Programmes

Figure 2. A graphical representation of a special case of time constraints. These are defined in the p1 interface using a dedicated, intuitive and well documented syntax (left) and immediately displayed in graphical form (right) to enable “sanity checks”. In this specific example, the user is requesting a total of 1.5 nights distributed as one 0.5-night allocation, followed by 0.7 nights (at least 2 days after, and within 10 days of, the first 0.5 nights), completed with a final allocation of 0.3 nights, any time after the preceding allocation. Note that one can now specify even the part of the night (beginning, middle or end) when the observations should preferably be scheduled.

Office (OPO) — will also benefit from this view in carrying out its daily business in support of the OPC. This represents a major step forward compared to the several different tools and views currently in use, not to mention all the manual interventions that take place.

At the same time, the User Portal will also be upgraded to support the introduction of scientific and technical keywords that most closely define the expertise of each professional astronomer registered in the portal. We will then be able to experiment with more detailed proposal assignment algorithms that are based, for instance, on expertise keyword matching. Another foreseen change that will impact the proposal preparation is how affiliations will be defined. ESO has decided to follow the official Global Research Identifier Database (GRID)<sup>10</sup> list, which is based on a very high-level differentiation of institutions (no more departments, groups, addresses, etc). Finally, in order to monitor — and mitigate — possible biases in the review process, the portal will request that all users specify their gender.

Any queries, comments and feedback on the new p1 system are very welcome via a dedicated e-mail address<sup>11</sup>. We are always keen to receive constructive feedback.

### Acknowledgements

The authors would like to thank all the ESO staff members and contractors who got involved in the project and made important contributions at different development phases. In particular, special thanks go to all the scientists in the User Support Department and Paranal Science Operations, and in particular Andrea Mehner. Moreover, all beta testers are thanked for their engagement and feedback, especially the members of the ESO Users Committee. Finally, special and warm thanks go to all colleagues in the Observing Programme Office (who had to bear with us on the bumpy road leading to this release) and Gaitee Hussain, former OPO staff member, for her involvement in the early phases of the project and for her precious proofreading of p1-related material.

### References

Hainaut, O. et al. 2018, *The Messenger*, 171, 8  
ESO 1998, *The VLT White Book*, (Garching, Germany: European Southern Observatory)

### Links

- <sup>1</sup> Google Angular framework: <https://angular.io>
- <sup>2</sup> Semantic framework: <https://semantic-ui.com>
- <sup>3</sup> The GRAILS project: <https://grails.org>
- <sup>4</sup> CDS Sesame: <http://cds.u-strasbg.fr/cgi-bin/Sesame>
- <sup>5</sup> The ESO User Portal: <http://www.eso.org/UserPortal>
- <sup>6</sup> The format of the time constraints is described here: <https://www.eso.org/p1demo/timeConstraintsHelp>
- <sup>7</sup> Overheads table: <https://www.eso.org/sci/facilities/paranal/cfp/overheads.html>

<sup>8</sup> The p1demo interface: <https://www.eso.org/p1demo/proposals>

<sup>9</sup> A p1 video tutorial: [https://www.eso.org/sci/observing/phase1/newP1tool/p1\\_shortIntroVideo\\_new.mp4](https://www.eso.org/sci/observing/phase1/newP1tool/p1_shortIntroVideo_new.mp4)

<sup>10</sup> Global Research Identifier Database (GRID): <https://www.grid.ac>

<sup>11</sup> E-mails can be sent to the p1 team at [p1@eso.org](mailto:p1@eso.org)

<sup>12</sup> The p2 demo interface: <https://www.eso.org/p2demo/login>

### Notes

<sup>a</sup> The overheads are the same as in p2; if you are already familiar with the overheads that apply to your particular instrument setup, you can use the overheads table<sup>7</sup>, otherwise it is recommended that you experiment with the p2demo<sup>12</sup>.

DOI: 10.18727/0722-6691/5142

Report on the ESO Event

## 20th Anniversary of Science Exploration with FORS

held at the ESO Supernova, Garching, Germany, 12 March 2019

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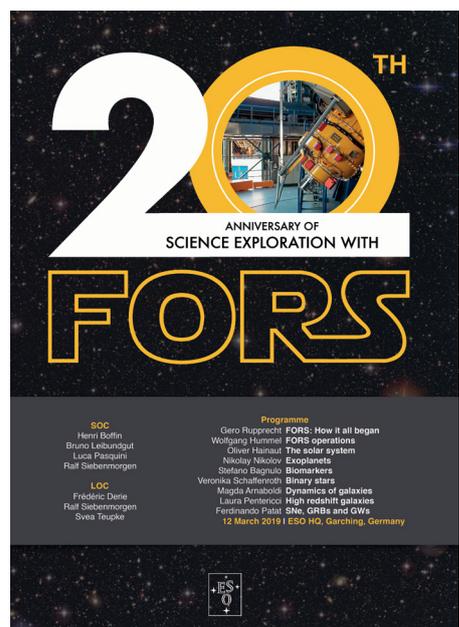
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About 50 scientists belonging to the “Friends of FORS” family convened at the ESO Supernova Planetarium & Visitor Centre to celebrate 20 years of successful science exploration with FORS1 and FORS2. Scientific highlights from these instruments were discussed, covering various research areas ranging from interstellar bodies entering our Solar System, to the detection of exoplanets and biomarkers, interstellar medium dust polarisation, binary star velocities, galaxy dynamics, high-redshift galaxies near the re-ionisation epoch, and transient astronomical events such as supernovae, gamma-ray bursts, and gravitational waves. In addition to reviewing the amazing scientific achievements from the FORS instruments, a specific goal of the conference

was to discuss ways in which to foster the high scientific impact of the instrument in the future. Various suggestions from the ESO community for upgrading the instrument were presented and discussed.

### A successful twin

The FOcal Reducer and low-dispersion Spectrographs, FORS, are two multi-mode instruments mounted on a VLT Unit Telescope (UT) Cassegrain focus. They are offered in several modes: imaging, polarimetry, long slit, and multi-object spectroscopy. In April 1999, the first of the twin workhorses of the VLT, FORS1, began science operations. In September 1999 FORS2 arrived at Paranal, entering into regular service in April 2000. Over the years, the two FORS instruments have provided unique data leading to many astronomical discoveries. Both instruments are among the most prolific instruments worldwide. In March we celebrated the scientific discoveries made with these successful instruments in



Credit: N. Boffin

Figure 1. The conference poster.