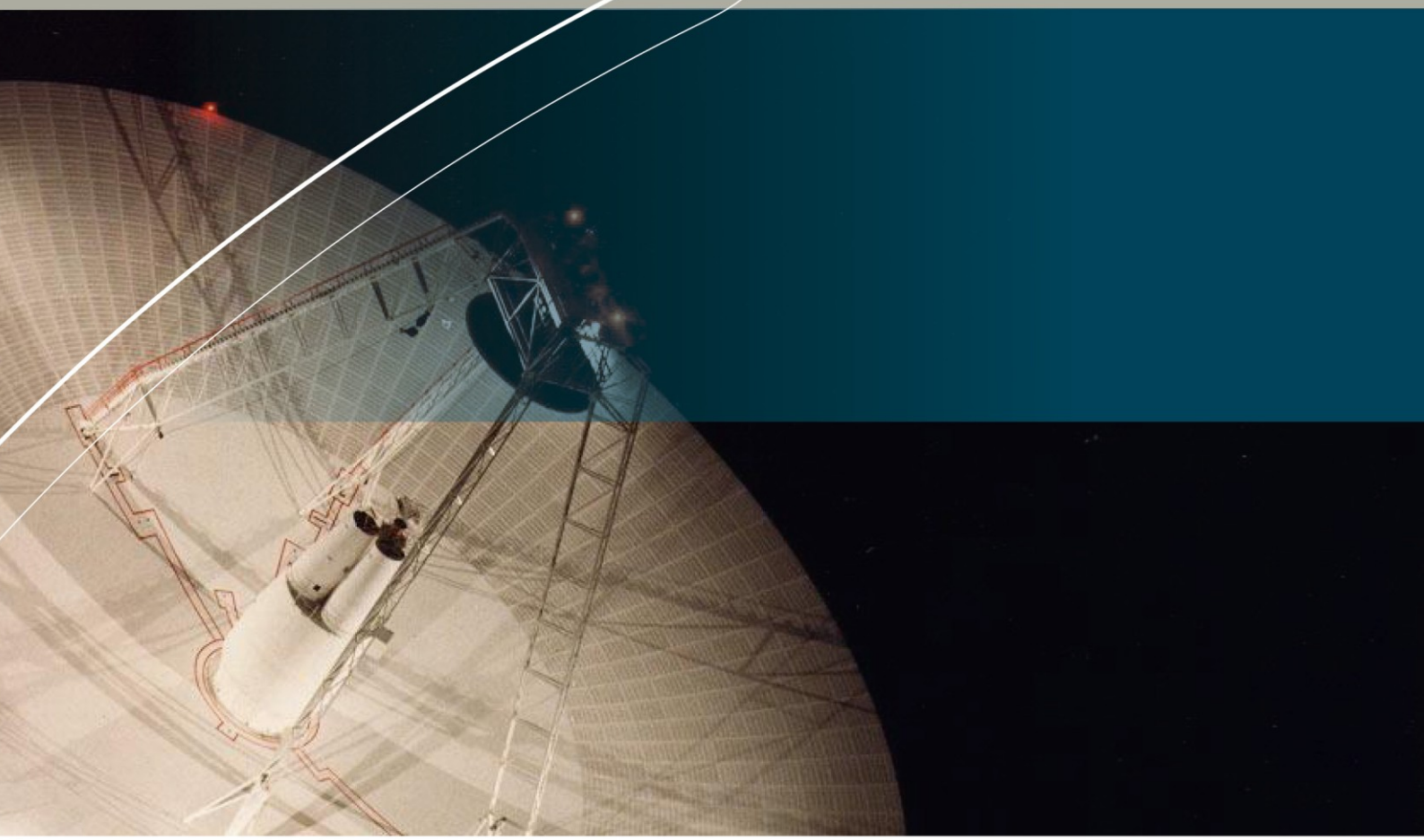
GRASP



GRASP User's Manual
Ch. 8: GRASP 10 for GRASP 9 Users

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8. GRASP10 for GRASP9 Users

This section is intended for those who are familiar with GRASP9 and wish to know the main differences between GRASP9 and GRASP10. The general changes will be described in the following. Special attention will be given on how input and output files are stored.

Antenna design tasks often require many calculations with different settings of the parameters, to achieve the desired antenna performance. In GRASP9 this means that, in order not to overwrite previous results, it is necessary to either define a new file name or save the project in a new directory. This process is quite cumbersome and it is easy to make errors.

GRASP10 makes use of the same objects and commands of GRASP9. However, its design flow is much more fluent. This means that when saving the project for the first time the user is asked to specify a project directory. The GRASP10 project file will be stored here and at the same time a subdirectory named “Working” will be generated. This subdirectory will contain the .tor and .tci files as well as possible input files, such as tabulated surfaces and feeds. The structure is illustrated in Figure 8-1.

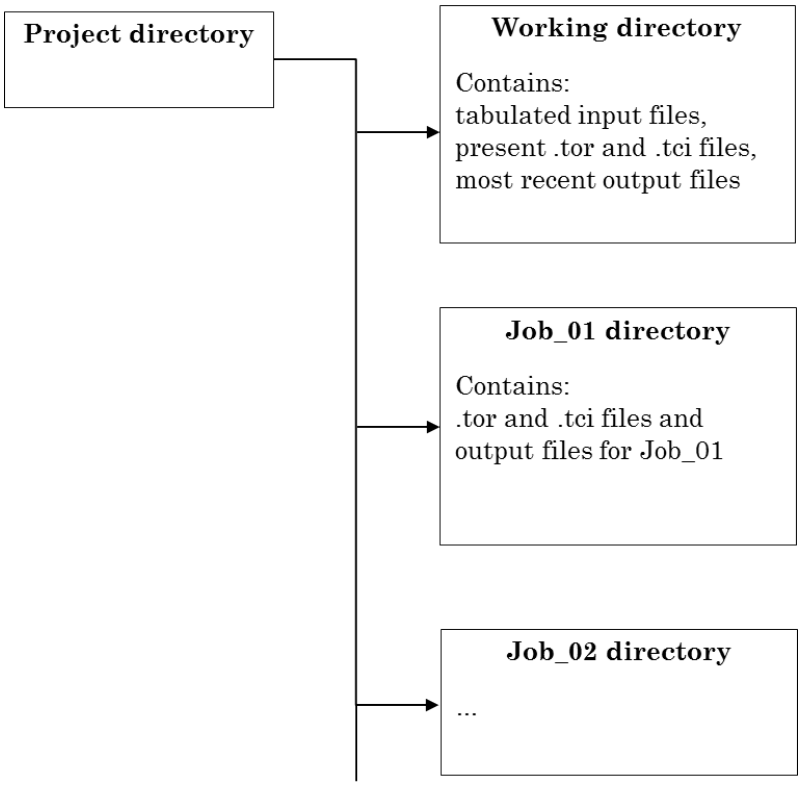

Figure 8-1 Directory structure of GRASP10.

Before the first execution of the commands, the user is prompted to give a

job name, for example Job_01. All calculations are performed using the data in the Working directory and the output results are also stored here. When the job is terminated the output results are copied to the directory Job_01 together with the .tor and .tci that generated these results. The user may now wish to change some data and run again. These new results will then be stored in Job_02 together the modified .tor and .tci files. The Working directory always contains the most recent data.

The advantage of this new structure is that one can easily check the results obtained at any time during the design process. Since the results are stored automatically in different directories it is no longer necessary to change the file names and, in fact, it is not necessary to define output file names at all, since this is done automatically by GRASP10. Another very important advantage is that it is possible to revert to a previous design because the .tor and .tci files are kept for each individual run.

GRASP10 is everywhere equipped with tool tips that pop up when hovering the mouse over an object, text field or menu button. Moreover, by right-clicking on the objects, jobs, drawing canvas and plotted results a number of possibilities are given to the user. For example, right-clicking on the drawing canvas gives immediate access to a number of facilities for manipulating the view.

The wizards for single and dual reflector antenna design work in the same way as in GRASP9, but the input parameters are given in a more convenient form.

GRASP10 now also contains a wizard for the very popular ring focus systems. Two different types are available, a Cassegrain design and a Gregorian design.

The wizards now include a sketch of the feed element with approximately correct size. This is very useful in order to evaluate the influence of possible blockage from the feed.

The GRASP10 graphical user interface is divided in four main windows:

1. Objects
2. Commands
3. Jobs
4. Results

Each window is activated by pressing the corresponding tab on the left side of the main window. These four windows will be described in the next sections.

8.1 The Objects Window

The Objects window is shown in Figure 8-2. It is divided in two parts. The left side shows a navigator, denoted "Object Explorer", and the right side presents automatically a 3D-view of the antenna structure. An object can be edited directly by double-clicking on the object either in the "Object Explorer" or in

the 3D-view. When an object is marked in the "Object Explorer" it changes colour in the 3D-view.

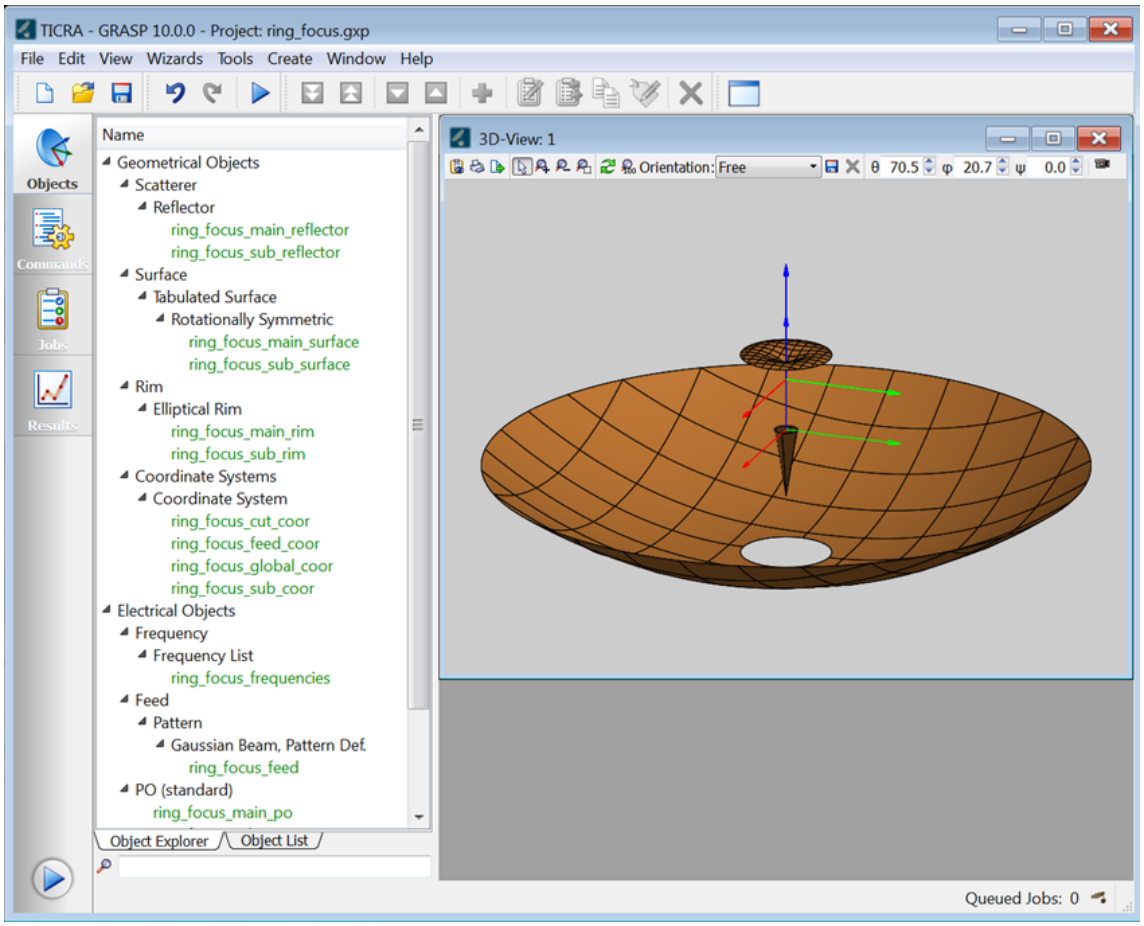

Figure 8-2 GRASP10, Objects window.

Many of the object editor menus now have a check box, "Show Advanced Settings". If it is checked, all attributes are shown. If it is not checked, only the most important attributes are shown in the editor.

Right-clicking an object in the "Object Explorer" makes it possible to generate a copy of the object with another name.

A particularly nice feature in GRASP10 is the possibility to rename an existing object. This was a very tedious task in GRASP9 because it had to be done manually in all objects and commands that were referring to this object. In GRASP10 the name is checked for validity and automatically changed everywhere.

The GRASP9 plot objects are no longer necessary. Ray plots, which were generated by specific ray plot objects in GRASP9, are now generated in the "3D-view settings" menu, under "Visualization Objects". It is possible to have several 3D-views with different settings.

8.2 The Commands Window

All commands are specified in the Commands window. The command types are identical to those of GRASP9, the only difference being that it is now

possible to have more than one source in several commands. One can for example generate the total field from the feed, the subreflector and the main reflector in one "Get Field" command. This would require one "Get Field" and two "Add Field" commands in GRASP9.

8.3 The Jobs Window

The Jobs window is shown in Figure 8-3. It is divided in two parts. The left side lists all the jobs while the right side shows the log file for each job.

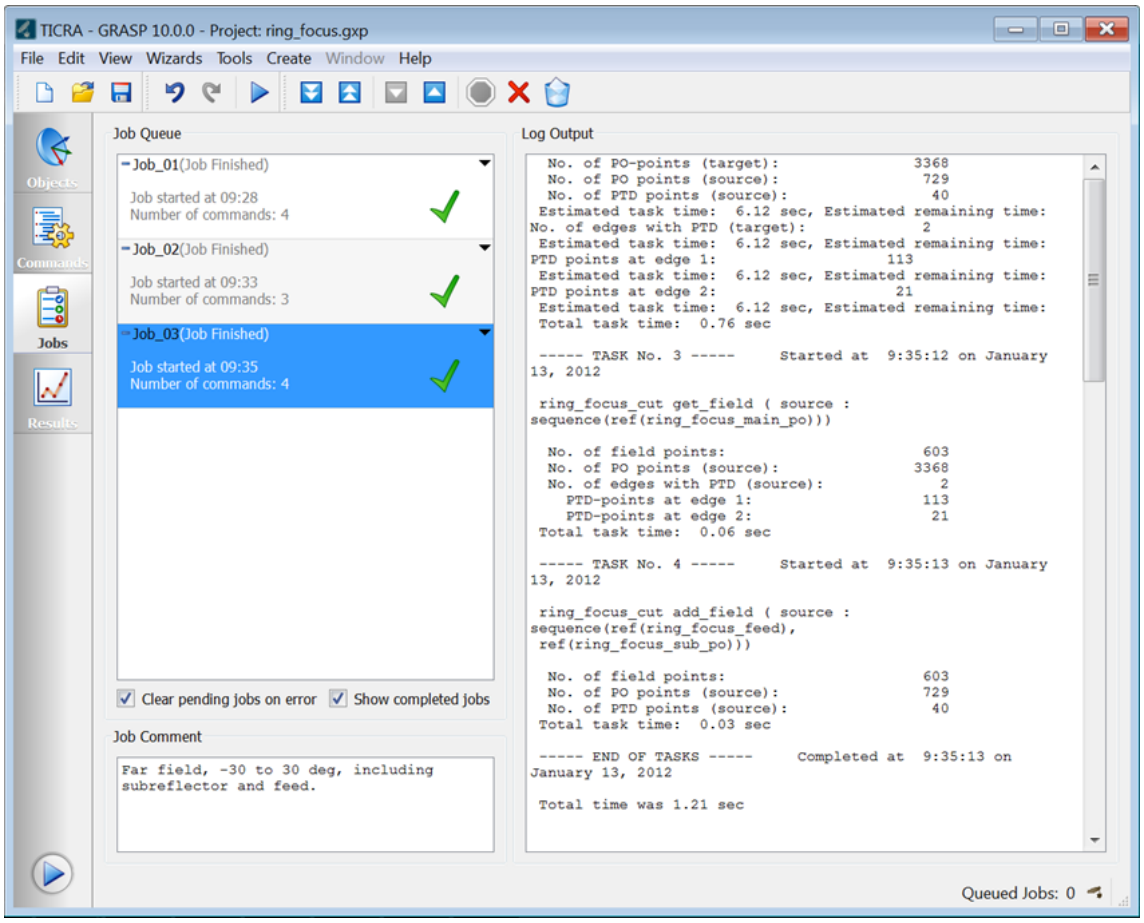

Figure 8-3 GRASP10, Jobs window.

A new job is initiated by clicking the blue “play” button (this corresponds to the “submit” button in GRASP9). An updated job-number is automatically proposed and a small text field is presented where the user can write comments for this particular job. This job comment is written at the bottom of the job list to the left of the window. It is recommended to make use of this comment field because it helps identifying the job in the “Results” tab to be presented next.

8.4 The Results Window

The Results window is used to visualize the results of the computations as shown in Figure 8-4. The left side of the window is the Results Explorer showing a list of all the jobs while the right side is used to plot the results. The

bottom of the Results Explorer repeats the job comments mentioned above when a particular job is selected.

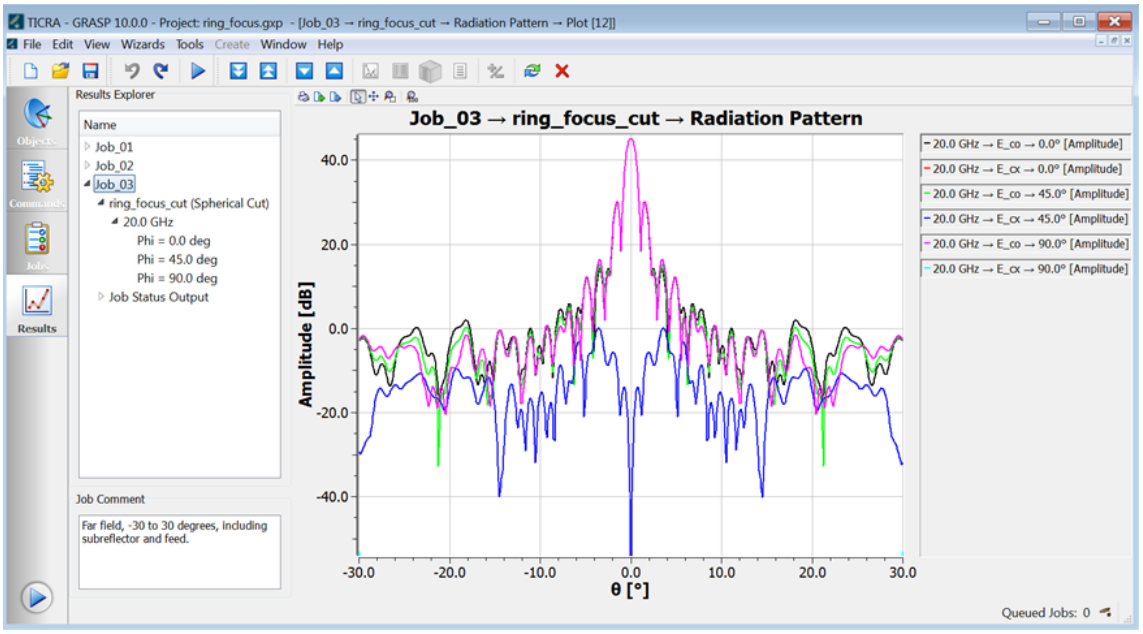

Figure 8-4 GRASP10, Results window.

By right-clicking on a job name, it is possible to:

1. "Revert to", which will load the objects used in the selected job and use that as the active antenna geometry.
2. "Delete job", which will delete the calculated results from the disk and remove the selected entry from the Results Explorer.

The Results window replaces some of the features from the "Postprocessor" which was delivered together with GRASP9 and previous versions. Since many advanced features of the "Postprocessor", such as for example contour plots, are not yet available in GRASP10, the "Postprocessor" is still included in the GRASP10 package.

The different parts of the plot may be edited and manipulated by right-clicking at a curve, at the canvas, at the axes, at the text along the axes or at the legend area in the right side. Attention is also given to the green icon "$+/-$" on the top bar, which allows one to subtract and add curves from and to each other.