1 Caps/Nap Menu

1.1 Introduction

The distributed `wish` startup file '`wishrc.tcl`' (which is copied to file '`.wishrc`' on unix systems) ends with the command '`caps_nap_menu`', which displays a GUI menu consisting of three buttons labelled *Browse*, *Command* and *Help*. This command '`caps_nap_menu`' is defined by the file '`caps_nap_menu.tcl`'. Each of these three buttons is used to display a sub-menu detailed in the following sections.

1.2 Browse

The *Browse* menu provides access to browsers for Tcl variables and a variety of files. These file browsers typically provide facilities to:

- Select a file using the `choose_file` GUI (see section **??**).
- Select data from this file.
- Display this data as text.
- Plot this data (as an XY graph or a 2D image) using `plot_nao` (see section **??**).
- Print this data.
- Convert this data to a NAO.

Detailed help is available within each browser.

1.2.1 Tcl Variables

This facility for browsing *Tcl variables* is defined by the file `browse_var.tcl`. It can be used to display the names and values of all tcl variables (including arrays), but has particular facilities for those referencing NAOs. The menu buttons have the following functions:

namespace Use tree widget to set the namespace.

list List tcl variables in the namespace matching the glob pattern. Display a line for each matching tcl variable. This line contains the variable's name and value provided there is room. Otherwise the line is truncated. You can click on a line to display:

- full value of an ordinary tcl variable or array whose line is truncated as above
- a NAO as either text or graph/image as specified by the radio-button

help Display *Help on Tcl Variable Browser*.

cancel Remove *Tcl Variable Browser* widget.

1.2.2 *AVHRR* and *ATSR* Satellite Files

This item is only available if the Caps package is loaded.

1.2.3 *CIF* Files

CIF files originated at Melbourne University. Their use has been largely replaced by netCDF but some data still exists in this format. This facility for browsing *CIF* files is defined by the file `browse_cif.tcl`.

1.2.4 *HDF* and *netCDF* Files

Introduction

HDF and netCDF are two similar common file formats used for data in the form of arrays and grids, especially in the earth sciences such as Meteorology and Oceanography. See section **??** for further information about HDF and netCDF.

The term *variable/SDS* is used below. This means *variable* for netCDF and *SDS* for HDF.

The HDF/netCDF browser is a powerful tool which allows one to select a variable/SDS or attribute from a displayed tree, then (for variable/SDS) select a region within it.

The HDF/netCDF browser is defined by the file `hdf.tcl`.

Instructions

1. Use the `choose-file` GUI to open an input file. Instructions can be displayed by pressing this GUI's own `help` button. Opening the file should result in the display of a *file structure tree*.

2. Use this tree as follows to select either a variable/SDS or an attribute. (The default selection is a variable/SDS with the maximum number of elements.)
   - Click on a variable/SDS to select it and display the spatial sampling widget.
   - Click on a ' `+`' to display attribute names.
   - Click on an attribute to select it and display its value.

3. The spatial sampling widget allows you to select part of a variable/SDS. (The entire variable/SDS is selected by default.)
   Each dimension is represented by a row containing one or two lines. The first line represents subscript values. If a coordinate variable exists then it is represented on a second line.
   Change a subscript using any of the following:
   - Drag the slider along the scale widget. This is convenient for coarse adjustment.
   - Click on the spinbox arrows or scale troughs.
   - Press the keyboard up/down keys.
   - Use the keyboard to enter numbers. Fractional subscript values can be used to produce magnification.
   - On an image, drag the mouse to define a bounding box.
   - Press the `Dimension` button to restore all defaults.
   - Press the `From`, `To` or `Step` column heading button to restore defaults in a column.
   - Press the row heading buttons to toggle a row between defaults and saved values.

   The values selected along a dimension are defined as follows:
   - If $step > 0$ then *from*, *to* and *step* define an arithmetic progression.
   - If $step = 0$ and expression is blank then use single value *from*.
   - If $step = 0$ and expression is not blank then use this expression.

4. The following buttons along the bottom are used to select an action:
   `Range`: Display minimum and maximum value.
   `Text`: Display start of data as text.
   `Graph`: Use `plot_nao` to display data as XY graph(s).
   `Image`: Use `plot_nao` to display data as 2D image(s).
   `Animate`: Animate window-sequence produced by `Graph` or `Image`.
   `NAO`: Create Numeric Array Object.
   `Re-read`: Force a read (e.g. after rewriting the file).

   Select `Raw` mode if you want the following attributes to be ignored:
   `scale_factor, add_offset, valid_min, valid_max, valid_range`.

1.2.5 *Image* Files

This facility for *viewing image files* is defined by the file `vif.tcl`. Standard Tk supports the PPM, PGM and GIF formats. If the package `Img` is installed then it will be used, giving support for BMP, XBM, XPM, PNG, JPEG and TIFF as well. The ActiveTcl distribution of Tcl/Tk includes `Img`.

1.3 Command

The *Command* menu allows the following common Tcl commands to be executed with a mouse click:

`history` Display command history. This differs from the command-line `history` command in that it uses a scrolled window. Note that `tkcon` also provides:
- *History* entry in main menu

- *History* entry within *File/Save*

`exit` Quit.

1.4 Help

The *Help* menu provides access to local and Web documentation on:

- Caps/Nap Menu
- Tcl/Tk
- Nap
- Caps

Note that the Web versions may be more recent than the installed local documentation.