VLDIS Program Documentation
- 19920317 ----------
For version: 5.70
This document, along with other related information and further reading is available in the VLBA section of the Information System as item ARRY,OPS,CH27.

VLDIS is an interactive program that allows the VLBA operators and others to obtain displays showing the general status of the array as a whole. VLDIS also allows 'rlogin' and 'rscreen' access to the station computers, access to the Information System, the ability to monitor the current checker messages, and monitor at the "events" log for the current UT day. A graphing routine is also included for various antenna cryo system and weather parameters.

VLDIS attaches to and reads the shared memory segments created by VLGET (See ARRY,OPS,CH26).

VLDIS expects to be run on a 132 column, VT100 terminal. This terminal must be logged into any account on VLBACC.

Commands to VLDIS are issued mostly through single character keyboard actions.

The terminal screen is split into two sections. The top half contains the "VL" Display. The bottom half of the screen is where the other displays may be "brought up". Generally only one display at a time can be displayed in the lower section, however, the Weather, Mdata or Local Time and Ping Displays can all be up at the same time. The Checker Message, Log Reader, and Graphing Displays use the whole screen.

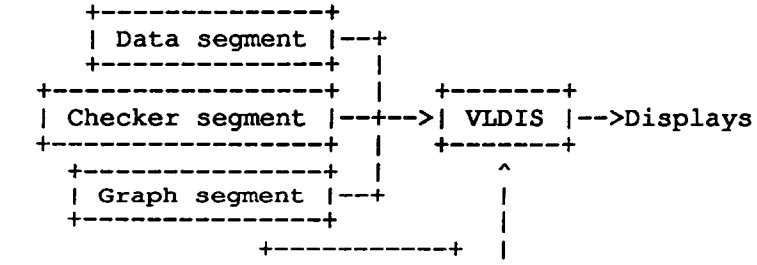
In addition to the display screens, VLDIS also provides for access to the station computer screens through an rscreen command, and to the -> prompt via the rlogin command. Also, the Information System can be brought up on the same terminal as VLDIS without having to quit, and a Korn shell can also be started to allow "regular" UNIX commands to be issued to the host computer.

As of version 5.00, VLDIS is capable of generating commands that will cause items to be displayed in color on a PC running "standard/popular" VT100 terminal emulation programs. Along with this there have been a few improvements in the appearance of the program on standard VT100 terminals. They will not be described here.

A small word of warning for observing projects that use loops:
The observing system only sends down specific information about the exact setup of equipment for scans the first time through a loop of scans. The rest of the time it does not. If there are, for instance, band or frequency changes inside the loop VLDIS will only be able to show them the first time through...this may cause trouble for other sections of VLDIS. For example the Tsys and Tcal screens will show wrong numbers for what is really going on at the antenna. So beware. When an antenna is inside a loop of scans there will be an asterisk between the date and time portions of the VL Display Stop Time item.

Overview

The following block diagram illustrates the operation of VLDIS.



When started VLDIS attaches to the three shared memory segments created by VLGET. These segments contain all of the information displayed by VLDIS. The data kept in the Data segment is what is used for all of the data displays. The data in the Checker segment is used only for the Checker Message Display routine. The Graph segment contains all of the data for the graphing routine. The Log Reader Display routine accesses the current .log file for its input.

All of the data on the screen is checked over every two seconds. Any changes that need to be made are displayed.

The Displays and Functions

VLDIS has the following displays and functions. They are activated by pressing the command key for the particular display or function. Pressing the command key when a display is up will normally deactivate that display. For some displays pressing the command key more than once will bring up another version of the display, or the next page of the display. The command for each data display is in the upper left hand corner of each display.

Command	Display/Function
v	The "VL" Display
w	Weather
m	MData (m1 and m2)
K	Cryo Displays (K1, K2 and K3)
b	BBC LSB Total and Switched Powers
B	BBC USB Total and Switched Powers
T	Tcal's
t	Tsys's
c	Channel data
g	General data
p	Ping (antennas with communications problems)
P	Ping (all antennas)
o	Overall Ping Status (antennas with communications problems)
O	Overall Ping Status (all antennas)
u	Utility Modules
l	Local Times
G	Graphing Display
h	Help
a	Alarm Display
C	Checker Messages
L	Log Reader
x	Will bring up the w, m and p Displays
%	Monitor Data Statistics Display
Space	Will cycle through the main observing displays in the following order: wmp,u,g,c,t,f,B,b,K,wmp...
^N	Cycle through the main observing displays from left to right in the above list (same as the Space command)
^P	Cycle through the main observing displays from right to left in the above list.
k	Will suspend VLDIS and start up the UNIX Korn shell.
#	Scan Qualifier/Scan Number toggle
S	Toggle silence
E	Switch the displays to the English units mode
M	Switch the displays to the metric units modes (wind in m/s or kph)
d	Absolute/Delta toggle
@	Arrange the VL Display antenna order by project
!	Arrange the VL Display antennas East to West
^A	Acknowledge alert messages
^R	Redraw the screen

Color.
VLDIS uses seven colors: white, bright white, purple, red, yellow, blue, and green. Page 3 of the Help Display contains a line that will display each of the colors. Each color has a different meaning. In general:

- White - used when everything is "OK".
- Bright white - used mostly for labels and to draw a little attention to a situation.
- Purple - used for the most serious conditions and when emergency stops are set.
- Red - used to attract attention to situations that may be affecting the astronomical data.
- Yellow - conditions that should be brought to the attention of the technicians at the next available opportunity or for conditions that are abnormal.
- Blue - used to denote conditions that are not bad, but are not quite right.
- Green - for alert messages.

An exception to all of this is the Weather Display temperature and wind indications. The temperature item follows the following rules:

- Purple - temperature < -20C (operating limit)
- Bright white - -20C - 0C (could be snowing)
- Blue - 0C - 10C (it's cold outside!)
- White - 10C - 30C
- Red - > 30C (it's hot outside!)

The wind speed and peak wind indications follow these rules:

- White - < 7m/s
- Blue - 7m/s - 8.9m/s (may affect pointing run data)
- Yellow - 8.9m/s - 17.9m/s (one elevation motor limit)
- Purple - > 17.9m/s (operational limit)

The Cryo Display also uses colors to call attention to various temperature and pressure readings:

- Blue - the temperature is too cold
- Red - the temperature is too hot or the pressure is out of range

The VL Display

The VL Display gives the user an overall summary view of what the array is up to. For each antenna it shows such items as the current project being observed, the source name, the current scan stop time as well as various "status flags". Display items:

- Project - The project code for the observation in progress. This is set by the "project=" command in the observing file. If the observing system is idle (either an observing file is not loaded, or the current observing file has "run out") the word "Idle" will appear in this slot and the remainder of the line will be cleared, except for the Source, Az and El slots. The BLD and ANT status flags will appear under the Band title. This situation can be "forced" by using the "Idle" command (see below).
- Source - The source name from the observing file "sname=" command. A lowercase letter following the source name (space permitting) indicates that the object has been designated as a calibrator by the observer in the observing file (using the "calib=" command). When the Project is "Idle" this position will display the ACU status mode. Any of the following may show up:
  - ? - This will be displayed until VLGET figures out what mode the ACU is in (the antennas will only send this information about every two minutes). If the ACU (or the antenna) has been turned off the status information may never be sent.

Standby, Park, Stow, Unstow and Point - The normal ACU modes.
Manual - This will show up when the ACU is in any of the manual modes.
Emerg stop - This will show up when any of the antenna or control building emergency stops are on. This state overrides all the other status modes.

Az - This is the commanded true azimuth at the beginning of the scan. Once the antenna is on source this will update to show the current azimuth (about every two minutes). This field remains active when the antenna is Idle.

El - This is the calculated elevation of the source at the beginning of the scan. Once the antenna is on source this will update to show the current elevation (about every two minutes). This field remains active when the antenna is Idle.

Qual/Scan - When "Qual": The numeric qualifier set by the "qual=" command in the observing file.
When "Scan": The scan number in the observing file (1 to end of file).

Band - 4cm, 20cm, 13/4cm...

Stop Time - The stop time of the current scan. This should match the OBS END time on the OBS Screen. This will not show the stop times of scans inside of loops. However, when VLGET detects that we are on a scan that is part of a loop of scans there will be an asterisk between the date and time. For example, 1991AUG23*00:09:00. Whereas during non-loop scans there will just be a blank: 1991AUG23 00:09:00
If an observing file contains scans that use durations rather than absolute stop times, the displayed stop time may not be "correct". When the observing system is on a scan whose length was specified by duration a plus sign will be placed between the date and time: 1991AUG23+00:09:00
A number before the stop date indicates how long the current scan has been observed. The units are whole minutes. This indicator will disappear shortly after the elapsed time of the scan reaches 5 minutes. This "timer" will show up when either the Stop Time or the Band fields change.
When the current time is past the indicated Stop Time the Stop Time will be displayed in reverse video or yellow.

Ftage - The VLBA tape drive, the commanded direction, and the tape footage. The footage should update every 16 seconds, and at scan changes. When the format is MKIII or VLBA it has the format: xy:00000
where x=1 or 2 the tape drive in use
y=f - recording forward
F - fast forwarding
r - recording reverse
R - rewinding
S - stopped
00000 - the tape footage in feet

When the observing file specifies the "format=" to be MARKII, "MkII" will appear in this slot. Specifying the format to be NONE will display "None". If the program cannot figure out which mode or which tape drive is in use "0?:00000" will appear here. When in the MkIII or VLBA format mode this will be the normal condition until the first time that the write heads are enabled.

Status Flags - The status flags will "light up" (reverse video or turn red) when the corresponding error condition is detected. The current flags will light up under the following conditions:
PER - when the antenna has a pointing error and is off source or is slewing.
PNT - when the antenna is not in the POINT mode.

FRM - when the subreflector or the ellipsoid (ellipsoid sensing is not currently used) is not in the correct position.
ACU - when the ACU fault bit is set. This covers a wide range of ACU problems. The monitor data point for this flag is sent down about every two minutes.
FMT - when the VLBA formatter has an error condition that is affecting the data (not currently used).
BBC - when one of the BBC's in use is detected to be out of lock or not at the commanded frequency. Which BBC can be determined by bringing up the Channel Display (see below).
SYN - when one of the 2-16GHz synthesizers in use are out of lock. You'll have to go to the antenna screens to find out which one.
REC - when the VLBA recorder currently in use should be moving, but isn't and/or when the VLBA recorder heads for the recorder currently in use are not in the correct position.
BTP - when the Total Power of one of the BBC's in use is not 15872-16640 counts.
BSP - when the Switched Power of one of the BBC's in use is not 205-2500 counts.
BLD - when one of the flags monitored on the Utility Display for the control building are on. This flag remains active when the antenna is Idle.
ANT - when one of the flags monitored on the Utility Display for the antenna are on, except for the FHTR flag. The ANT flag remains active when the antenna is Idle.

UT - the current UT time. VLDIS checks everything, then sleeps for 2 seconds. So this time will normally increment by 2 seconds. If there is an alarm set, the "UT:" will be displayed in reverse video.

In addition to the status flags there are two additional indicators. If an "x" appears next to the antenna designation, as in "FDx", this indicates that there is no monitor data file for the current UT day for this antenna. If a "c" appears next to the antenna designation, as in "FDc", this means that no new monitor data has been added to the monitor data file for this antenna for 1 minute (5 1/2 minutes when the antenna is Idle) and the "c" indicates that communications may be down. The "communications down" flag will not show up for an antenna that does not have a monitor data file. The "x" flag will not automatically override the "c" flag at UT midnight, but can be forced to replace the "c" flag using the "I" or "Idle" function (see below).

The Weather Display

The Weather Display shows the latest weather information sent back from the antennas. Currently the weather comes back about every 15 minutes. The Idle function (see below) will reset the weather data for the selected antenna to "No data" if there is no data file.

The snow depth reading is calculated by VLGET based on the rain gauge and the temperature readings (See ARRY,OPS,CH26 for further explanation).

An "f" next to the antenna designation indicates that the feed heaters need to either be turned on or off (whichever applies). The following rules are used to determine the necessary status:

1. If the temperature is below 1.0C they should be on
2. If the temperature is above 1.0C they should be off
3. If at any time the temperature and dew point are within 2.0C of each other they should be on.

The status of the feed heaters may be checked using the Utility Display. Once the state of the heaters has changed it could be up to 2 minutes (or more)

before the display updates.

The Monitor Data File Display

The Monitor Data File Display exists in two forms. The first form, m1, shows the size and the last time updated for the binary monitor data files for each antenna. The time is VLBACC local time. These files are located in the /vlbacc/mdata/XX directories. Each antenna has its own directory. So Kitt Peak's data would be in /vlbacc/mdata/KP and if it were the 14th of November of 1992, the file name would be 1992NOV14.dat.

The second form of the display, m2, tries to give the user an idea of the "flow rate" of monitor data by showing the change in size of the file between successive readings of the file size by VLGET.

Entering "m" will bring up the first display. Entering "m" again will bring up the second display.

The General Data Display

This display shows when the station computers were last rebooted, if checker message checking is turned on or off for each antenna, the ID numbers of the checker messages that are being ignored for each antenna, and the VSN of the tape last known to have been prepassed or mounted on each of the VLBA tape drives.

The checker message status is controlled using the VLCMD program (See ARRY,OPS,CH42). When all of the checker messages are turned off for any antenna the operator's VLDIS will "remind" the operator every odd UT hour.

This display will also indicate any current testing going on at the antennas.

The Cryo Display

This display shows the supply and return pressures for both cryogenic compressors along with the 15K, 50K and 300K stage temperature readings for each installed (and sending back monitor data) receiver. The time is the time the data was taken (which is currently done about every 30 minutes). The first four column headers are:

HeSA = Helium Supply A pressure
HeRA = Helium Return A pressure
HeSB = Helium Supply B pressure
HeRB = Helium Return B pressure

When the display is first started it will show the 15K stage temperatures (display K1). Pressing the "K" again will bring up the 50K stage temperatures (K2), and a third time the 300K stage temperatures (K3).

The Idle function (see below) will clear this display for an antenna if there is no data file.

The Ping Display

The Ping Display runs the "ping" command. There are two versions of this display. The "p" display attempts to ping only the antennas that have current communications problem. The "P" display attempts to ping all of the antennas (whether they exist or not). Each display runs all of the way through when the display is first brought up and again on the minute. All other screen updating is suspended while the Ping Display makes its way through the antennas.

If the display should appear to hang up, a ^C should get it going again.

The Channel Display

The Channel Display shows what is going on for each channel defined in the

current observing file. A typical entry may be

      4DL02U

The first number indicates the band. Here 4 means 4cm. 13 would be 13cm and
  so on.
The D means this channel has the D IF assigned to it.
The L means the assigned IF is LCP. This may not follow AB=RCP and CD=LCP
  if the transfer switch is thrown, or the IF is being "split".
The 02 is the number of the BBC assigned to this channel.
The U is the BBC sideband assigned to the channel.

If 4DL02U should appear in reverse video (or red), this indicates that the BBC for this channel is out of lock or its frequency does not match the assigned frequency. This would initially be indicated by the "BBC" status flag item being in reverse video (or red) in the VL Display.

The Frequency Display

This display shows the center frequency for each of the channels in use by the current observations.

The Tcal Display

The Tcal Display shows the interpolated Tcal for each channel derived from the Tcal files (in /vlbacc/home/vlbaops/TCAL), the center frequency, and the polarization of a given channel.

The Tsys Display

This display calculates the Tsys for each channel in use using the BBC total and switched powers and the Tcal values. At scan changes these values will "go away" and the line for an antenna will stay blank until the next set of BBC Total and Switched Powers is sent down from the antenna. If the calculated Tsys is greater than 999.9 degrees or less than 0.0 the indicated Tsys will be 0.0.

The BBCLSB/BBCUSB Displays

These two screens show the total and switched powers for each of the BBC's being used by the current observing program. The entries are

     3L:16234.456

3L is BBC number 3, lower sideband
16234 is the total power reading
456 is the switched power

The Overall Ping Status Display

The Overall Ping Status Display runs the "ping" command. There are two versions of this display. Both ping along a programmed path from the AOC out to the antennas. Key router boxes, communications ports, and computers along the way are pinged in an attempt to display how far out to an antenna we can get before we lose communications. Points that respond to the ping will be displayed in normal video. Points that don't respond will be displayed in reverse video (or red). The "o" display attempts to ping only the antennas that have current communications problems. The "O" display attempts to ping all of the antennas (whether they need it or not). Each display runs all of the way through when the display is first brought up. They will then wait one minute before running again. All other screen updating is suspended while the Overall Ping Display makes its way through the antennas.

If the display should appear to hang up, a ^C should get it going again.

The Utility Modules Display

This display decodes data sent back by the building and pedestal room utility modules. It's function is similar to that of the VL Display's Status Flags. The current flags will light up (or turn red) under the following conditions:

Building conditions:
- FTBL - Fire alarm trouble
- UPSA - UPS battery low alarm
- UPSI - UPS on inverter
- TXFR - Power transfer switch is selected to the emergency generator
- AIR1 - Air handler #1 alarm
- AIR2 - Air handler #2 alarm

Antenna conditions:
- FANT - Fire alarm *
- CRIT - Critical power breaker is tripped *
- NCRI - Non-critical power breaker is tripped *
- FTBL - Fire alarm trouble
- UPSA - UPS battery low alarm
- UPSI - UPS on inverter
- FHTR - Feed heaters on/off (will be blue when the heaters are on)

* These alarms actually come from the building utility module.

If any of the flags in this display are on the corresponding BLD or ANT flag in the VL Display will come on.

The times in the display are the times the readings were taken (about every two minutes). Both times should be the same. If one time or the other does not update it indicates that that utility module is not sending back data. This condition will also cause the BLD or ANT flag to come on.

The Idle function (see below) will clear this display for an antenna if there is no data file.

The Local Time Display

This display lists the local time and day at each of the antennas.

The x "Display"

This command will bring up the Weather, Mdata, and Ping Displays.

The Help Display

This display shows a list of the display commands, decodes the VL Display Ftage and Status Flags, and decodes the Channel Display items... The display is split into multiple pages. Entering "h" will bring up the first page. Entering "h" again will bring up the second page, and so on.

The Alarm Display

VLDIS allows the user to set up to 8 alarms. This is done using the "a" command. The lower portion of the terminal will display

```
a   Date/time (UT)      Message
0
1
2
3
4
5
6
7

Alarm command: _
```

The eight numbers down the side are the index numbers for the alarms. To set alarm #3 for example you would enter

```
3 930711 0450 Wake up!
```

On 1993JUL11 at 04:50 UT the bottom half of the VLDIS display that this alarm was set from will clear and the message

```
It's that time: 3 1993JUL11 04:50:00 Wake up!
```

will appear in reverse video and blinking. The terminal BELL will also sound. The alarms may be set in any order. When there is at least one set alarm yet to go off, the "UT" on the VL Display will be in reverse video.

If you set an alarm and then decide to "unset" it, bring up the Alarm Display, find the index number for the alarm you don't want, and enter just that number at the "Alarm command:" prompt.

If when entering the date portion of the alarm time you want the same date as the current date, just enter a "d" instead of the date, like

```
3 d 0450 Wake up!
```

Date/time entry. The date and time may be entered in any of the following ways:

```
For 1991JUL11 enter 1991JUL11
                    91JUL11
                    19910711
                    910711
                    d if the current date is 1991JUL11

For 04:50:00 enter  04:50:00
                    0450

For 04:00:00 enter  04:00:00
                    04:00
                    0400
                    04
                    4

For 00:50:00 enter  00:50:00
                    :50
                    0050
```

The message may be up to 80 characters.

To quit the Alarm Display enter "q" at the "Alarm command:" prompt, or just press the enter key without entering anything.

Any set alarm will not go off when running the Log Reader or Checker Message Displays.

The Checker Display

The Checker Display is used to look at all of the current checker messages known by VLGET (remember that VLGET does the actual extraction of the messages from the monitor data). The Checker Display uses the whole terminal screen. The display is updated about every 20 seconds.

Checker messages are divided into 4 priority levels. These levels duplicate the intent of those used for checker messages at the VLA which are color coded. On a VT100 terminal the levels are simulated in the following manner:

Level	Color	Description
4	Purple	Most important. Displayed in reverse video and highlighted

3	Red	Displayed in just reverse video
2	Yellow	Displayed just highlighted
1	Blue	Displayed in normal video mode

On capable terminals (PC's) the messages will be displayed in the actual color listed.

Pressing the space bar or typing ^N will cycle through each of the antennas in East to West order. Typing ^P will do the same in West to East order. If there is more than one antenna being monitored when the ^N or ^P command is issued, pressing the return key will return the original list of antennas that were being monitored.

The "Pri:" slot shows the priority levels that will be displayed.

The messages for any combination of antennas and priority levels can be selected. The "a" command will bring up a prompt for changing antenna(s). To enter more than one antenna just separate the two letter codes with a comma. To select all of the VLBA antennas just enter an asterisk or enter nothing. Entering 'q' will quit the display.

To change the priority selection use the "p" command. To select messages with 4, 3 and 2 priority levels, for example, enter "432" at the prompt. To see messages for all priority levels you can enter either "4321" or an asterisk or nothing.

The first time the Checker Display is started it will prompt for the list of antennas, the priorities, and the number of screen lines on the terminal. Just pressing <return> to the screen length question will set the screen length to 24.

Once set, the Checker Display will remember the list of antennas, the priority, and the screen length settings until you quit VLDIS completely.

The "l" command can be used to reset the screen length used by the display.

The Log Reader Display

VLGET creates a file in /vlbacc/home/vlbaops with a filename of something like 1991JUL17.log. This file contains a record of the days "events". This file can be read as new stuff is written to it by use of the Log Reader Display. If VLGET is not writing to the log file the terminal will just sit there. When VLGET makes an entry, that entry will be displayed on the terminal.

If you have a terminal capable of more than 24 lines, set the terminal, then use the "l" command to enter the number of lines you want the display to use. If you quit the display and come back it will remember how many lines it is supposed to be using (until you change it or quit VLDIS).

Just pressing <return> to the screen length question will set the screen length to 24.

To quit the display just press the "q" key. This will return you to the "regular" VLDIS Display.

The Graphing Display

The values for various points in the cryo systems and the weather station are collected by VLGET. A simple plot showing up to the last 75 readings of these points can be reviewed using this display. Commands are issued to the display at the "Command:" prompt. Most of the commands are made up of an antenna code and a code for the item that the user wants graphed. For example:

```
Command: PT 20CM50K
```

Normally the display will stop after a screenfull has been plotted. The display can be made to display all 75 points without stopping by using the LONG command. The default mode of stopping when the screen is full can be set/reset by using the SHORT command.

At the "<M for more> Command:" prompt any command can be entered that can be entered at the regular "Command:" prompt.

The following is a list of the item codes:

```
   20CM15K - 20cm receiver 15K stage plot
   20CM50K - 20cm receiver 50K stage plot
   13CM15K - 13cm receiver 15K stage plot
   13CM50K - 13cm receiver 50K stage plot
    6CM15K - 6cm receiver 15K stage plot
    6CM50K - 6cm receiver 50K stage plot
    4CM15K - 4cm receiver 15K stage plot
    4CM50K - 4cm receiver 50K stage plot
    3CM15K - 3cm receiver 15K stage plot
    3CM50K - 3cm receiver 50K stage plot
    2CM15K - 2cm receiver 15K stage plot
    2CM50K - 2cm receiver 50K stage plot
    1CM15K - 1cm receiver 15K stage plot
    1CM50K - 1cm receiver 50K stage plot
    7MM15K - 7mm receiver 15K stage plot
    7MM50K - 7mm receiver 50K stage plot
      HESA - Helium supply A pressure
      HERA - Helium return A pressure
      HESB - Helium supply B pressure
      HERB - Helium return B pressure
      TEMP - Air temperature plot
      DWPT - Dew point plot
      PRES - Barometric pressure plot
      WIND - Wind speed plot
      RAIN - Rain gauge plot
      SNOW - Calculated snow level plot
```

There are other commands that aid in moving between different plots and controlling how the plots are displayed:

```
   NANTENNA - "Next antenna". This will display the same plot for the next
              antenna to the West.
   PANTENNA - "Previous antenna". Same for the next antenna to the East.
       NEXT - Will display the next plot for the current antenna, or move on to
              the first plot for the next antenna West (plot order is the same
              as the above item list).
   PREVIOUS - Same as the NEXT command except in the reverse order.
  REDISPLAY - Redisplays the graph that was last displayed.
       LONG - Puts the display into a mode where the plotting does not stop
              when the screen is full.
      SHORT - Puts the display into a mode where the plotting stops when the
              display is full. This is the default mode.
    ENGLISH - Switches the graphs to show some items in English units.
     METRIC - Switches the graphs to show some items in metric units. Issuing
              the command more than once will switch between the wind speed
              being displayed in m/s and kph.
       HELP - Displays a brief command summary.
```

All commands, item codes, and antenna codes may be shortened so that you only have to enter enough to make the input unique.

The numbers on the far left are the day-of-year number for the day the point was recorded and the UT time. The next value is the actual reading value.

If the question "Max number of screen lines:" comes up, enter the number of lines that your terminal will support. This will control the number of points that will be plotted when in the "short mode". If you just press the return key

in response to this question the number of lines will default to 24.

To quit the graphing routine enter "QUIT" or just press the return key at the prompt. All input can be in upper or lower case.

The Monitor Data Statistics Display

This display shows the number of monitor data records of each type that have been processed by VLGET during the current UT day. Some of the record types are counted individually. The rest are counted as "Other". The display also shows the number of monitor data bytes that have been skipped due to the data being rejected by VLGET as being "bad". The counters reset at UT midnight.

The Rlogin Function

The rlogin function is accessed using the r command. You will be prompted for the two letter antenna code. If you don't want to rlogin to an antenna just press the return key at the prompt without entering anything.

The Rscreen Function

The rscreen function is accessed using the s command. You will be prompted for the two letter antenna code. If you don't want to rscreen to an antenna just press the return key at the prompt without entering anything.

The Idle Function

The Idle Function is used to "erase" the remains of old observing that may be left on the screen from losing communication with an antenna before the end of an observing program. If an antenna "stops" observing without sending back the proper end of observation indicators, issuing the "I" command and supplying the desired antenna at the prompt will cause the line for that antenna to be cleared, and the Project set to "Idle". It may also clear the data from other displays for the specified antenna. The Idle Function can also be used to get rid of the communications down indicator in the VL Display, which cannot be overridden by other flags. This is done by idling the antenna when the Monitor Data File Display indicates that there is "No file" for the desired antenna.

Normally only the Array Operators will be able to use this function.

The Unidle Function

This will allow the undoing of the Idle Function. The project and weather time items will initially appear as "Unidled" but will update when new data is received. This function will only unidle the antenna if the project is "Idle", and unidle the weather if it is "No data".

Normally only the Array Operators will be able to use this function.

The Redraw Function

This function clears and then redraws the terminal screen. The command is ^R. ^L will also perform this function.

The Quit Function

To quit VLDIS just press the "Q" key. You can also quit VLDIS, the Checker and Log Reader Displays by pressing the ESCAPE key.

The Space Function

Pressing the space bar will cause VLDIS to cycle through the main observing displays. If none of the displays listed above are up the cycle will begin with the Weather, Monitor Data and Ping Displays combination. If one of the listed displays are up the cycle will begin with that display. If all of the antennas

are Idle some of the displays will be skipped (they would be blank anyway).

The Next Function

Typing ^N (CTRL-N) will cycle through the main observing displays in the same manner as the Space function. If all of the antennas are Idle some of the displays will be skipped (they would be blank anyway).

The Previous Function

Typing ^P (CTRL-P) will cycle through the main observing displays in the opposite direction to that of the Space and Next Functions. If all of the antennas are Idle some of the displays will be skipped (they would be blank anyway).

The Shell Function

Typing "k" will suspend VLDIS and start a Korn shell. From here the user may execute any of the "regular" UNIX commands. To get back to VLDIS type a ^D or enter "exit".

The Qual/Scan Toggle Function

The field between the El and Band fields on the VL Display can be set to show either the scan qualifier (set by the observer in the observing file) or show the scan number (1 to the number of scans in the observing file). This selection is made by typing "#".

The Toggle Silence Function

Typing an uppercase "S" will toggle the silence mode. When on the terminal bell will not be rung (at all). This will be indicated by an asterisk before the VLDIS version. Typing "S" again will turn the terminal bell ringing back on.

"E"nglish and "M"etric Mode Functions

Typing "E" will switch the Weather and Graphing Displays to show items in English units (inches, mph, degF). "M" will switch the displays to show items in metric units (cm, m/s or kph, degC).

The Absolute/Delta Function

Typing "d" will cause the Weather Display to toggle between displaying the actual temperatures that were recorded and displaying just the difference between the last two readings (about 15 minutes apart). This applies to the temperature, dew point, barometric pressure, and rain readings.

The Rearrange Function

The "@" function will group the antennas in the VL Display by project code. If more than one antenna is observing the same project they will be listed in East to West order.

The East to West Function

The "!" function will undo the Rearrange Function and cause the antennas in the VL Display to be ordered in East to West order.

The Message Alert

When the site technicians make an entry into the TECH screen an alert message will be displayed on the VLDIS screen indicating the antenna that the message was from and the time of the message. The message itself will be placed into the daily log file. This indicator will only show up on the Array Operators' copy of VLDIS.

If VLDIS remains "idle" (sitting on the same set of displays) for too long the user will get a "reminder" to check through the displays. This indicator will only show up on the Array Operators' copy of VLDIS.

When checker messages are turned off for any of the antennas an alert will come up every odd hour to remind the user. This indicator will only show up on the Array Operators' copy of VLDIS.

The Acknowledge Function

Typing ^A will acknowledge any of the above Message Alerts.

The Startup Message

A startup message can be made to come up before the displays start by creating the file "vlmessage.dat" and putting the message into it. If this file does not exist then VLDIS will start normally. The current path to this file is /vlbacc/home/vlbaops/BIN/.

Operation

To start VLDIS just enter

```
vldis
```

from any account on VLBACC. The VL Display will come up automatically. VLDIS can also be started from the Information System (if you are logged into an account on VLBACC) by entering the same.

If you only want to use the Checker Display portion of VLDIS, enter

```
vldis -C
```

If you only want to use the Log Reader Display portion enter

```
vldis -L
```

Quitting either of these displays when VLDIS is started like this will quit VLDIS completely. You will not be returned to the regular displays.

If you would like to see VLDIS in color, enter

```
vldis -PC
```

Error Conditions

The following messages

```
There has been a DATA shared memory allocation error.
There has been a DATA shared memory attachment error.
There has been a CHK shared memory allocation error.
There has been a CHK shared memory attachment error.
There has been a GRAF shared memory allocation error.
There has been a GRAF shared memory attachment error.
```

when starting VLDIS indicate that the program is having trouble accessing the shared memory segments created by VLGET. The program will not start if one of these errors are encountered. This will generally mean that VLGET is not running.

VLGET leaves the current date and time in one of the shared memory segments. When VLDIS is running it checks to see that the time left by VLGET is within 60

seconds of the current time. If it is not VLDIS assumes that VLGET has stopped for some reason and displays an alert message. The only option at that point is to quit VLDIS.