

McIDAS

Man computer Interactive Data Access System

McIDAS-OS2 Users Guide

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McIDAS-OS2 Users Guide

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Installation Procedure

Use the procedure below to install McIDAS-OS2. **Read all instructions before starting the installation.** These instructions assume that you are familiar with the OS/2 Presentation Manager™ graphical interface. If you need more information, see the *IBM OS/2 Getting Started* manual.

If you're installing McIDAS-OS2 for the first time, begin with the Setting Hardware Characteristics procedure on the next page.

If you're installing OS/2 Version 1.3 Standard Edition, turn to page 1-3 and begin with the Installing OS/2 Version 1.3 Standard Edition procedure.

If you're upgrading to OS/2 Version 1.3 Extended Edition for TCP/IP, turn to page 1-5 and begin with the Installing OS/2 Version 1.3 Extended Edition for TCP/IP procedure.

If you're installing a software upgrade and already have McIDAS-OS2 on your system, turn to page 1-11 and begin with the Installing McIDAS-OS2 Software procedure.

Setting Hardware Characteristics

AT-Based Workstations

To set the hardware characteristics for AT-based workstations, you must determine the type of mouse, alter the hardware and replace the ProNET card.

1. To determine the mouse type, first remove the computer cover then remove the mouse card. In the upper-right corner of the card is some text describing the card. Locate the REV level (e.g., REV C) and mouse type (Bus, Inport or Other, if listed) and write them down. You'll need this information later. Put the mouse card back in the computer.
2. To make hardware alterations, first remove the AST extended memory card. On switch pack 2, place switch 2 in the ON position. On Jumper Pack J6, attach a jumper strap on pins 3 (second from the right). There are two 3 pins (see below).

7 5 4 3 3

. . . | .

. . . | .

7 5 4 3 3

Replace the AST card.

3. Remove the ProNET card. If your ProNET card is a one-half slot length board, locate the Interrupt Jumper Block and strap pin 17 to pin 14. If it is a full slot length board, locate the Interrupt Jumper (over the bus connection) and wire wrap JP17 to JP14. Replace the ProNET card.
4. Replace the cover on the computer.
5. To install OS/2 Version 1.3 Standard Edition, go to page 1-3; to install OS/2 Version 1.3 Extended Edition for TCP/IP, go to page 1-5.

PS/2-Based Workstations

If you have a PS/2-based workstation, perform step 1 below to alter the hardware.

1. Install the computer's reference diskette and boot the system. Change the configuration of the ProNET card so the I/O address reads x10E0.
2. To install OS/2 Version 1.3 Standard Edition, go to page 1-3; to install OS/2 Version 1.3 Extended Edition for TCP/IP, go to page 1-5.

Installing OS/2 Version 1.3 Standard Edition

1. To install OS/2 Version 1.3 Standard Edition, follow the procedure on pages 1 through 8 of the *IBM Operating System/2 Standard Edition Version 1.3 Getting Started* manual (the 159-page spiral insert). Select the appropriate responses for your system configuration.
2. The second step of the installation procedure asks you to select one of these base operating system installation options:

1. Accept the default base operating system configuration
2. Select base operating system configuration

Select option 2. The following choices appear on the screen:

Country Information
Documentation
Fonts
High Performance File System
Optional System Utilities
OS/2 DOS Environment
Picture Utilities
Serial Device Support
Serviceability and Diagnostic Aids

Choose the Optional System Utilities and Serial Device Support options. Choosing other options depends on your system needs and available disk space. Each option is described in Appendix A, Selecting System Installation Options, in the *IBM Operating System/2 Standard Edition Version 1.3 Getting Started* manual. Also see the on-line help for the installation procedure.

3. When you get to the step that asks you to select the mouse type, the choices below will appear on the screen if you have a PS/2.

IBM Personal System/2 Mouse
Microsoft Mouse, Serial Version (039-099)
Microsoft Mouse, Serial Version (039-199)
Microsoft Mouse, Serial Version (056-X99)
Microsoft Mouse, PS/2 Version (056-X99)
PC Mouse Systems Mouse
Visi-On Mouse
None of the Above

If you have a PC/AT system, these choices appear on the screen.

Microsoft Mouse, Bus Version (037-099)
Microsoft Mouse, Bus Version (037-199)
Microsoft Mouse, Bus Version (056-X99)
Microsoft Mouse, Inport Version
Microsoft Mouse, Serial Version (039-099)
Microsoft Mouse, Serial Version (039-199)
Microsoft Mouse, Serial Version (056-X99)
PC Mouse Systems Mouse
Visi-On Mouse
None of the Above

Select the correct mouse for your system. NOTE: If the mouse driver does not install properly during the boot, if the screen goes black and the system is locked, or if the mouse doesn't function properly after the boot, you may have selected the wrong mouse. Reinstall the operating system selecting a different mouse.

4. When you are asked to choose the default printer driver for your system, choose IBMNULL.DRV, the IBMNULL driver. The system will then ask you to choose the port your printer is connected to. Serial printers are usually connected to COM1; parallel printers are usually connected to LPT1. However, your system may be different.
5. System performance can sometimes be greatly improved by changing the MAXWAIT statement to one (MAXWAIT=1) and the DISKCACHE statement to 200 (DISKCACHE=200) in your CONFIG.SYS file.
6. When the installation is complete, boot the computer. Then turn to page 1-11 to install the McIDAS-OS2 software.

Installing OS/2 Version 1.3 Extended Edition for TCP/IP

1. The first part of this installation is identical to that of OS/2 Version 1.3 Standard Edition. Therefore, perform steps 1-5 on the previous two pages before continuing with these instructions.
2. When you complete the base operating system installation, you will see a menu labeled IBM OS/2 Extended Edition Installation Option. Under that will appear this question:

Do you have a Custom Installation Diskette?

Your choices are Yes or No.

Select: **No**
Press: **Enter**

3. The Select Basic Configuration Services menu is displayed on the screen. It looks like this:

Select Basic Configuration Services

Basic Configuration Services allows you to create a Communications Manager Basic Configuration file for one or more of the following:

- 3270 terminal emulation
- ASCII terminal emulation
- 5250 workstation feature
- Remote Data Services on LAN
- LAN services

Do you want to create a Basic Configuration file?

1. Yes
2. No

Select: **Yes**

by moving the highlight bar to Yes and pressing Enter. Then type an appropriate file name and comment for the configuration file.

4. The Basic Configuration Services Main Menu is then displayed on the screen. It looks like this:

Basic Configuration Services Main Menu

Select a Communications Manager Basic Configuration feature that you want to create or change.

1. 3270 terminal emulation
2. ASCII terminal emulation
3. 5250 workstation feature
4. Remote Data Services on LAN
5. LAN services

You will return to this menu for additional selections. Select F3=Exit when your last selection is complete.

Select: **LAN services**

5. The Specify LAN Services Configuration menu is displayed on the screen. Your two choices are:

LAN requester
LAN server

Select: **LAN requester**

6. The Select LAN Adapter Defaults menu is displayed on the screen. It looks like this:

Select LAN Adapter Defaults

Use the spacebar to select the adapter type. An arrow is displayed next to the option when it is selected. Press Enter when you have completed the selections.

Adapter type :

IBM Token Ring Network
 IBM PC Network
 3Com Etherlink Network
 Western Digital EtherCard PLUS Network
 Ungermann-Bass NIU Network

Select the type of LAN address for your workstation:

Use universal address
 Specify a locally administered address

First specify the adapter type, i.e., the type of Ethernet card your workstation has.

Then select the type of LAN address for your workstation.

Select: **Use universal address**

7. You will return to the Basic Configuration Services Main Menu. To continue,

Press: **F3**

8. Next you will be asked the Target Drive Specification for the Communications Manager. To accept the default drive C:,

Press: **Enter**

If you want to install the Communications Manager on another drive, type that drive letter, press Enter.

9. The Communications Manager Install Menu is displayed on the screen. To install the Communications Manager,

Press: **F3**

10. You will then be asked the Target Drive Specification for the LAN Requester. To accept the default C: drive,

Press: **Enter**

Or designate an alternate drive, if desired.

11. The LAN Requester Install Menu is then displayed on the screen. It looks like this:

LAN Requester Install Menu

Select an option below to install LAN Requester base or additional features or the entire LAN Requester component.

1. LAN Requester base
2. Online Reference and Help panels
3. API data structures
4. All of the above

You will return to this menu for additional selections when option 1, 2, or 3 is selected.

Select F3=Exit when your last selection is complete.

You must choose number one.

Select: LAN Requester base

Select other options as needed for your workstation. Also specify appropriate requester and default domain names.

12. You will then be asked to select requester services from this menu:

Select Requester Services

Select the services to start when the requester is started. Services available are Messenger and Message Popup.

1. Messenger
2. Messenger and Popup
3. Neither of the services above

Select either number 1 or number 2.

You will then return to the LAN Requester Install Menu. To continue with the installation process,

Press: F3

13. The IBM OS/2 Extended Edition Install/Remove Menu is displayed on the screen. Again,

Press: F3

This completes the installation process. Boot your system; then go to the next page and install TCP/IP Version 1.1.

Note

If you have a Western Digital Ethercard, you will encounter an error during the boot-up process. Press Enter to continue. When the Presentation Manager comes up, you must edit the file \CMLIB\PROTOCOL.INI. In that file is a statement that reads:

BINDINGS=TCMAC2

Change that line to read:

BINDINGS=WDMAC

Save the file and boot your system. The error should be gone.

Installing TCP/IP Version 1.1

1. Be sure an OS/2 prompt, either windowed or full screen, is displayed on the screen. Insert Diskette #1 of the TCP/IP for OS/2 in the A: drive. Then,

Type: **A:ICAT**
Press: **Enter**

2. From the Main Menu,

Select: **Install**

3. The Installation Tool menu is displayed on the screen. Click on the boxes next to the products you want to install. You must choose the Base Product option.

When you've made your choices, click on the Install button. As the installation progresses, you will be asked to insert diskettes into the A: drive.

4. When the installation is complete, the Main Menu is again displayed on the screen. Now,

Select: **Configure**

5. The TCP/IP Configuration Tool menu options, shown below, appear on the screen.

- | |
|---|
| <ol style="list-style-type: none">1. Network Interface Parameters2. SLIP Interface Parameters3. Automatic Starting of Services4. Configure Services5. Routing Information |
|---|

Select: **Network Interface Parameters**

This selection displays a window for configuring the parameters for your system. Click on the box next to Enable LAN Adapter 0. Then fill in the box labeled IP Address, which is the address for the workstation you're installing this software on. Click on the Menu button to save your settings and return to the Configuration Tool menu.

6. Select: **Routing Information**

This selection displays the Configure Routing Information window on the screen.

To insert an entry,

Press: F5

A small Route-Insert Before window is displayed on the screen. It has four boxes to fill in. At the Route Type box,

Press: D

The word Default appears in the box.

In the box labeled Gateway, type the IP address of your gateway machine. Then click on the Enter button.

When the Configure Routing Information window is again displayed on the screen, click on Menu to save the settings and return to the Main Menu.

7. From the Main Menu, click on the Exit button to quit the installation/configuration procedure.

Now go to the next page for instructions on installing McIDAS-OS2 software.

Using Asynchronous Communication

You need a TrailBlazer modem and either a dial-up or dedicated telephone line to use asynchronous communication with McIDAS-OS2. See Appendix B in this manual for specific line requirements and modem configurations. Appendix C describes how to establish a McIDAS session with a host.

To successfully log on to the host, you must have a valid user ID and project number combination on the mainframe you want to connect with. Some sites may require a password.

Installing McIDAS-OS2 Software

The McIDAS-OS2 Version 5 software series runs under IBM's OS/2 Version 1.3 operating system on IBM PS/2 workstations.

The installation diskettes are divided into two groups. The first group (labeled Disk 1 through Disk 7) contains the software required for your system to run host-based and local (PC-based) commands.

The second group of diskettes (labeled Development) contain source code for subroutines and programs, the link libraries and the MAPS needed for cross referencing. If you plan to develop PC-based applications, install these files. If you do not want to install the Development software, press Ctrl+C when prompted to end the installation.

The OS/2 operating environment consists of one or more sessions or partitions. You can move between them by pressing Alt+Esc, i.e., hold down the Alt key and press the Esc key, releasing both at the same time. You can also use the Presentation Manager Windows to move between partitions. The number of sessions or partitions depends upon your workstation's configuration.

If you're performing a routine upgrade, be sure to exit McIDAS-OS2 before beginning the procedure. See the EXIT command for more information.

1. Begin the installation by accessing the Presentation Manager interface. To do this,

Press: **Ctrl+Esc**
Select: **Group-Main**
Select: **OS/2 Full Screen**

You will know you are in the OS/2 mode when the system displays this prompt:

[C:\]

2. Place the diskette labeled Disk 1 in drive A.

3. If you are installing McIDAS-OS2 for the first time, or are skipping several upgrades,

Type: **A:INSTALL**
Press: **Enter**

To perform a routine upgrade:

Type: **A:UPDATE**
Press: **Enter**

An **INSTALL** on a new system requires 10 mb (minimum) of free disk space. Although an **UPDATE** theoretically requires less than 1 mb of free disk space, be sure enough space is provided for new files or files that have increased in size.

Throughout the installation procedure, the system will pause and ask you to insert diskettes into drive A by number. If the needed diskette is already in the A drive, press **Enter** to continue.

4. When you've installed the required files from the diskettes, the system will prompt you with the following message.

Preparing to install additional files
for software **DEVELOPMENT** environments

Either insert **DEVELOPMENT** Diskette 1 and press **ENTER**
- or -
type **CTRL+C** to stop

You must now decide whether to install the Development software. The Development files contain source code for subroutines and programs, the link library and the **MAPS** needed for cross referencing. If you do not want to install this software, press **Ctrl+C** to end the installation. Otherwise, insert the Development diskette and press **Enter** to continue.

After completing the **INSTALL** procedure, this **OS/2** prompt appears on the screen:

[C:\MCIDAS\TOOLS]

5. If you have not already done so, remove the diskette from drive A.

Running the SETUP Program

After you install the McIDAS-OS2 software, run the SETUP program using the instructions below.

Caution!

The SETUP program alters the \CONFIG.SYS and \STARTUP.CMD files on your system. Interrupting the execution of this program with a Ctrl+C or BREAK may corrupt these files. If you make a mistake and need to correct an error, answer the remaining questions, then rerun SETUP without booting your system.

1. From an OS/2 prompt, check that you are in the \MCIDAS\TOOLS subdirectory. Then,

Type: **SETUP**

Press: **Enter**

The system prompts you with a series of questions about your system configuration.

2. If you are using Asynchronous Communications, the two questions below will appear on the screen:

Communications port for data connection?

Normally, the default value of COM1 is displayed. You must type the name of a port, e.g., COM1, COM2, etc.

Modem command for LOGON to use to dial-up host (or NONE)? . . .

If you want LOGON to attempt to dial up the host that you normally connect to, enter the required modem command text here, e.g., ATDT9,6085551234. Subsequently, the LOGON command will issue this modem command if no host session exists.

3. If you're using TCP/IP communications, this question will appear on the screen:

IP ADDRESS for LOGON to use to connect to host (or NONE)? . . .

Enter the IP ADDRESS of the host that you want the LOGON command to attempt to connect to.

4. If you don't have a printer, select the parallel printer option when prompted in the SETUP program.
5. If you use a serial printer, this question will appear on the screen:

Port to use for Printer connection?

Normally, the default value of COM1 will appear unless it conflicts with the asynchronous connection for data communications. If this is the case, the default value of COM2 is displayed. You must type the name of a port, e.g., COM1, COM2, etc.

6. The following question relates to the VDISK that McIDAS-OS2 needs for communications.

Virtual Disk (VDISK) is assigned to what letter (D, E, etc.)?

OS/2 assigns this letter when the system boots up and the CONFIG.SYS file is interpreted. During this process the message below is briefly displayed on the screen.

VDISK Version 1.30 Virtual Disk D

The letter D is the logical drive letter that the system assigned to the Virtual Disk. Its value depends on your hardware configuration.

If you do not know the correct answer to the question,

Type: D

After the SETUP program is completed, boot your system and look for the message shown above.

If the letter D does not appear in the message, DO NOT start McIDAS. Rather, rerun SETUP and substitute the correct letter for the default given in the message. When you're done running SETUP, you may start McIDAS.

7. If you use ProNET or TCP/IP communications, the following question will appear on the screen:

Would you like auto logon when host is connected (Y/N)? . . .

If you answer yes, the following response is displayed:

Type the complete image of the LOGON command to use for Auto Logon, including the word LOGON and your password, if needed:

Type the complete LOGON command that you want to use for Auto Logon. For example,

Type: **LOGON ABC 1234 X PASSWD**

Press: **Enter**

8. If you have a VGA display, specify the number of image frames as a nonzero value. If you have 4 mb of memory, specify 4 image frames. Each additional megabyte adds about 8 frames. As the number of frames is increased, disk size also becomes important.
9. If you have a WIDE WORD workstation and want to create briefing frames, see page 1-18 for more information.
10. If you answer Y to this question:

Provide for inclusion of USER programs (Y/N)? . . .

Your search paths are modified to include \MCIDAS\USER\CODE. We recommend you place any locally developed programs in \MCIDAS\USER\CODE for inclusion with McIDAS-OS2 on your system. If you specify your own alternate search path, it is removed if you answer N to the above prompt and you must reinsert it manually.

11. Boot the system.

Press: **Alt+Ctrl+Del** (simultaneously)

The first logon under OS/2 will take some time due to memory management software that runs on initialization.

If the system does not initialize properly when you boot, it could be your mouse driver. If you're using OS/2 Version 1.3, see the NOTE in instruction 3 on page 1-4.

12. If you have a VGA workstation, enter the McIDAS-OS2 command below when you boot the system for the first time after installing the software. Otherwise, graphics won't appear correctly on VGA frames.

Type: **EG I 1** *maximum number of frames on the workstation*

Press: **Enter**

Registering MD File Schemas

Each version of McIDAS-OS2 includes copies of the LW files DCSVCA, DCRAOB and DCISFC in the \MCIDAS\DATA subdirectory. These files define the SVCA, RAOB, RSIG and ISFC MD file schemas. RAOB and RSIG are in schema DCRAOB. Additional schemas will be supplied as needed.

When you register a schema using McIDAS-OS2 command SCHE (in the Commands section of this manual), the LW file is read and the schema's internal form is copied into LW file SCHEMA, which also resides in the \MCIDAS\DATA subdirectory. Command SCHE can also add locally developed schemas to the PC.

The MD file input/output routines read, write and extract data to and from MD files of registered schema types only. This is why you should always register the supplied schemas using the SCHE command after installing McIDAS-OS2 for the first time.

Once a schema is registered on the PC, it is not necessary to register it every time you install a new version of McIDAS-OS2. When a schema is updated, it is noted in the *Significant Program Changes* document supplied by SSEC for your site coordinator. You must register the new schema version to remain compatible with SSEC.

To register the MD file schemas, first complete the software installation procedure. Then bring up McIDAS-OS2 in the local mode (H key turned off). Finally, use McIDAS-OS2 command SCHE to register each schema.

To register the schema SVCA,

Type: SCHE DCSVCA
Press: Enter

To register the schemas RAOB and RSIG,

Type: SCHE DCRAOB
Press: Enter

To register the schema ISFC,

Type: SCHE DCISFC
Press: Enter

Use the list schema command, LSCHE, to verify the registered schema types and version numbers or to search the schemas for a specified key.

Reconfiguring a WWW for Local and Remote Use

In principle, you can configure the WIDE WORD Workstation (WWW) by running the SETUP program in \MCIDAS\TOOLS. In practice, this is undesirable because it requires you to make decisions that should be made by the system administrator.

When the WWW is connected asynchronously, as it will be when running on a remote backup, the frame/graphic configuration must be 480/640. Protocols don't permit wide frames to transmit over asynchronous communications. You must transfer the digital data using command SENAA first and then use the McIDAS-OS2 DF command to display wide frames. When you configure back to ProNET, you must know the workstation's original configuration.

Since only two data files (STARTUP.SYS and ALLOC.WWW) in \MCIDAS\DATA are affected, keep one copy of each file for each configuration. It is then an easy process to construct batch files that invoke the correct copy and the swap is easy. A side benefit of this procedure is that you can test both configurations ahead of time.

Creating Briefing Frames on a WWW

When you configure a WIDE WORD Workstation (WWW) with the SETUP program, you can allocate part of its memory to briefing frames. To do this, watch for the prompt below on the screen.

Should remaining memory be allocated as I (image) or G (graphics) frames?

Then,

Press: I

Pressing I allocates the remaining memory to as many 480 by 640 image frames as possible. Frames in this group are like VGA frames in that they combine images and graphics in one frame. Image levels 1-8 are converted to level 9 before they are written into the WWW memory. Graphics written to these frames are written in levels 1-8. Level 0 and levels 9-255 are unchanged. Command EG erases the entire frame.

The advantage of briefing frames is that you can display them on channel two of the WWW, independently of what is happening on the main display. Thus, the workstation simultaneously controls two different displays, each of which may contain image and graphic data.

When you define briefing frames, McIDAS-OS2 loads two extra modules during its initialization process. These modules are a Briefing Manager and a Briefing Control Interface. The Briefing Control Interface monitors the serial COM3 port looking for ASCII characters 0 through 9. Characters 1 through 9 are interpreted as requests to show briefing loops 1 through 9. The 0 character starts and stops looping on the briefing display. You may need to insert a MODE command into the STARTUP.CMD of the system to characterize the COM3 port to read the device that commands the Briefing Control Interface. If you use the SSEC recommended keypad, the mode command should read:

MODE COM3:9600,N,8,1

Insert it just before the START command for the McIDAS session.

Briefing loops are produced and previewed on the main WWW. Use command SG to ensure that graphics will be imbedded in the image. Turn the W command toggle off when previewing briefing loops to avoid confusion.

You can save nine loops as briefing loops with the DEFLOOP command. For example,

Type: **DEFLOOP SAVE 3**
Press: **Enter**

This entry defines the current looping state of the workstation as loop number 3. It saves the current loop bounds set with the LB or LS command (use even if the loop you want to save is a single image or graphic). It also saves the dwell rates and initial looping state of the WWW. To display loops 1-9 defined with DEFLOOP, press briefing keypad keys 1-9.

You can define the loop in motion or static, depending on the state of the main display when you entered DEFLOOP.

See the McIDAS-OS2 Loop Control System information in the Introduction section of this manual for information about using briefing frames in displaying loops.

You can save a loop as a single loop with the `LOOP` command. For example:

```
LOOP 1-3  
  ...  
END
```

This entry defines the current looping state of the workstation as loop 1-3. It saves the current loop bounds set with the `LB` or `UB` commands and gives you the loop you want to save as a single image or graphic. It also saves the `LB` and `UB` looping state of the `WW`. To display loops 1-3 defined with `LOOP`, press `display` looped save 1-3.

You can define the loop in motion or static depending on the state of the main display when you entered `LOOP`.

See the `McIDAS-OS2 Loop Control System` information in the introduction section of this manual for information about using looping frames in displaying loops.

Introduction to McIDAS-OS2

The McIDAS-OS2 Version 5 software series operates under version 1.2 of the IBM Operating System/2. This system operates in two modes, OS/2 and DOS. OS/2 allows multitasking of commands where more than one program can operate at a time. The DOS mode, or DOS Compatibility Box, is similar to the IBM DOS version 3.3.

Since each operating mode has its own command processor, it is possible to execute DOS or OS/2 commands and continue running McIDAS-OS2. Pressing Ctrl+Esc invokes the OS/2 Task Selection Menu. Use it to leave the McIDAS-OS2 environment for word processing or file maintenance. McIDAS-OS2 will be unaffected.

Switching Domains

To leave the McIDAS-OS2 domain,

Press: **Alt+Esc** (simultaneously)

Each time you do this, OS/2 rotates to the next session.

Alternatively,

Press: **Ctrl+Esc**

to return to the Task Manager. From there you can select the desired session.

The DOS Compatibility Box provides a 640K DOS partition for running DOS-based applications. It only works with applications that do not require either extended/expanded memory or system resources in use by other sessions.

If you develop software, create a session of TOOLS if one does not already exist. First, select the OS/2 Full Screen prompt. Then,

Type: **\TOOLS**

Press: **Enter**

See the *McIDAS Applications Programming Manual* for more information about software development.

Entering Commands

Use the following protocols when entering McIDAS-OS2 commands.

- Enter up to 160 characters on each command line. The command line scrolls to the right as necessary.
- Do not precede commands with a linefeed.
- After typing a command, press Enter to execute it.
- Execute system defined single-letter commands by simultaneously pressing the Alt and letter keys, or typing the letter and pressing Enter. You can enter single-letter commands with the Alt key during entry of multiple-letter commands.
- Enter single-letter strings with a pound sign (#). Press Ctrl and the letter if the single-letter string is a complete command.
- Run commands on either the host or PC. An H on the text window status line means that commands entered from the keyboard will execute on the host (except those which control the video system or enhancements).
- Since the same command may exist on both the PC and host, precede a command with a period to bypass execution on the PC while in the PC mode (no H is seen on the status line).
- Commands used in strings or entered into the PC-based scheduler must contain a period (.) if they are to run on the host.
- Use the question mark (?) command in the local mode to display local status. Active PC commands are listed with a Process IDentification (PID) number. To terminate a command, use the slash (/) command with this PID value. Use the SS command to obtain the status on the host.
- If multiple commands are entered on one line, they must all be sent to the host or run on the PC.

Editing the Command Line

Listed below are the command line editing keys. If your keyboard has a numeric keypad that is not separate from the cursor arrows, enter the commands with an asterisk (*) after them by simultaneously pressing the Ctrl key.

Editing Keys	Function
Home*	Moves the cursor to the beginning of the line.
End*	Moves the cursor to the end of the line.
Insert*	Toggles the insert typing mode.
Delete*	Deletes the character under the cursor.
Backspace	Deletes the character to the left of the cursor.
Right/left arrows*	Moves the cursor one character to the right or left.
Tab or Shift+Tab	Moves the cursor one parameter to the right or left.
Enter	Executes the command, turns Num Lock off and Caps Lock on. If the text window's bottom line is not displayed, pressing Enter forces the display to the bottom showing the echoed command.
Esc	Erases the command and places the cursor at the front of the line.
Alt+?	Obtains HELP information for PC-based commands.
& and ^	Recalls a command if the command line is empty, or contains a command recalled with & or ^. The & recalls the previous command from a circular list of the last 20 commands entered. ^ scans the recall list in the opposite direction.
Space	Is ignored in the first column of the command line, unless you are in the Insert mode.

Selecting, Printing and Erasing Text Windows

You can select 10 CRT text windows with the numeric keypad. Windows 0-4 are scrollable to 80 lines of text and may be written by any command. You can view 23 lines at a time. Windows 5-9 are nonscrollable, fixed sized, point-addressable display windows written by PC-based user definable applications, e.g., the F Key Menu System and ASK user interface.

Text directed to windows 1-4 is not repeated on window 0. If text is written to a window you are not viewing, a flashing yellow window number will appear at the far right of the command status line. See the status line information on page 2-6. When you switch to that window, the system removes the indicator from the status line.

EGA and VGA workstations using OS/2 version 1.2 have a standard configuration of 8 graphics/image frames. Each frame uses 128,160 bytes of on-board memory. More frames may be used if the memory capacity is increased. You can toggle between graphics frames and text windows with the plus key (+) on the numeric keypad. When a graphics frame is displayed, typing a number on the numeric keypad will display that text window.

The text windows employ the following color code.

Color	Application
blue	window background
gray	output from local commands
white	output from host-based programs
yellow	error messages from local programs
magenta	output from communications activities
green	command echo
cyan	input command line

Pressing the Print Screen key prints the currently displayed text on your local printer.

PC command CLEAR erases the text window.

Using Text Window Keywords

All commands support the TWIN, TCOL and TMOD text window keyword parameters. These keywords direct output to any text window in a color you select.

TWIN TWIN directs output to the specified text window. For example, TWIN=3 directs output to window 3.

TCOL TCOL defines the text output color. The COLORS command displays a color palette. You can also select a blinking text mode. Host commands use the color range from 0-15 listed below. PC commands can use all colors. COLORS displays the palette and TCOL values on window 5.

Number	Color
0	blue
1	black
2	green
3	cyan
4	red
5	magenta
6	brown
7	gray
8	dark gray
9	bright blue
10	bright green
11	bright cyan
12	bright red
13	bright magenta
14	yellow
15	white

TMOD TMOD sets the mode of TWIN. However, this does not apply to window zero.

TMOD=2 displays the window specified by TWIN. It is available for host commands only.

TMOD=4 neither erases nor displays the window. It is the default.

Interpreting the Status Line

A status line is displayed above the command line. Below is an example, followed by a description of each part.

Δ-H-049-001-064-RT-K-W-L-P-J-Y-N-Z-V----- 7 FEB 91040--151510-----0-37-01234

- Δ** A cyan triangle means the insert mode for command line editing is on. Whatever you type is inserted in the command line at the cursor position.
- H** H means the host mode is active. It is activated whenever the ProNET or asynchronous communications encounters a connect condition. The PC sends most commands to the host when the H key is on. Some loop control and enhancement commands are reflected back to run on the PC.
- 049 001 064** These numbers are the current image frame number and loop bounds. The loop bounds do not appear for random loops defined with the LS command.
- R** R means the workstation has received data and not decoded it. The R disappears when the receive queue is empty.
- T** T means the workstation is requested to transmit data but is not done yet. The T disappears when the transmit queue is empty.
- K W L P J Y N Z** These letters are listed when the corresponding command is active. Use Alt+letter to toggle them. EGA/VGA workstations do not support Y, J and N. Z is only supported on WIDE WORD workstations.
- V** V means the velocity cursor is invoked during a cloud drift wind tracking session (PCMW is running).
- 7 FEB 91040** This is the current date (DD MMM YYDDD) taken from the workstation, not the host.
- 151510** This is the current time (HHMMSS) taken from the workstation, not the host.
- 0** This is the current text window number.

- 37** This is the top line number of the text window. It is displayed if the window bottom is not shown. Use the up/down arrows to move by single lines. Use the Page Up/Down keys to move by 20 lines. Older keyboards use Ctrl+function to activate arrows, Up/Down keys, etc.
- 01234** These flashing numbers at the end of the line indicate that there are text windows with text that you have not viewed. They disappear after displaying the text. A yellow number on a black background means a window is activated for text capture by the command TFILE.

Changing Graphics Colors

The tower workstation graphics color level range is 0 to 7; 0 is the background level that covers the entire screen. Command GU modifies these colors.

VGA workstations have color levels ranging from 0 to 15. The graphics palette named IMAGE.ET is automatically loaded when a host-based graphics command is executed. You may want to use command GU to load a graphics palette when executing a PC-based command. When graphics overlay a satellite image, only levels 1 to 3 are used for graphics. All 16 levels may be used when displaying graphics alone.

Using String Tables and Function Keys

String Tables

Local string tables are always active, even when commands are sent to the host. The string table commands TD, TE, TL and TU are identical to the mainframe commands. Your local terminal number, needed when saving and restoring strings, is always number 1. Use the SAVEFILE keyword in TU to keep personal copies of your strings. To send a string with one pound sign (#NAME) to the host, enter two pound signs (##NAME). To enter #NAME in a host string table, enter four pound signs (####NAME).

Use command SENST to transfer string tables to the host or PC.

Function Keys

To program your own function keys, use the PC string table commands while in the PC mode (H is toggled off). Using the Alt, Shift, and Ctrl keys, there are 40 combinations for the function keys.

TE KEYF <i>n</i>	"command	where <i>n</i> defines the function keys from F1 to F10
TE KEYAF <i>n</i>	"command	combines the Alt key with a function key
TE KEYSF <i>n</i>	"command	combines the Shift key with a function key
TE KEYCF <i>n</i>	"command	combines the Ctrl key with a function key

The F Key Menu interface supports more than 1000 menu screens. For more information, reference the McIDAS-OS2 F Key Menu System documentation that begins on page 4-1.

McIDAS-OS2 Loop Control System

Defining a Loop

McIDAS-OS2 can display an automatically repeating sequence of images and/or graphics much like a movie loop. You define the frame sequence with either the LS (Loop Sequence) or LB (Loop Bounds) command. Command DR (Dwell Rate) determines the amount of time that each frame is displayed. Once a loop is defined, several single-letter commands can further define the state of your display.

- The L command starts and stops the loop. If the loop is actively stepping through frames, pressing Alt L stops on the first frame of the loop. Similarly, if looping is inactive, pressing Alt L starts the animation. When the loop is active the letter L appears on the command status line.
- The A command manually advances one frame while the loop is stopped.
- The B command backs up one frame while the loop is stopped.
- The Y command toggles the image loop control on and off. The looping control can treat graphics and images independently on tower and WIDE WORD workstations. If the letter Y appears on the command status line, it means the images are not included in the looping. Simply press Alt Y to change this. Conversely, if the letter J appears on the status line, it means graphics frames are included in the looping. Y and J are defined opposite one another because in the normal state, images are included in the looping, but not graphics.
- The J command toggles the graphics loop control on and off.

The loop control system also includes commands that modify the cursor, graphics, enhancements and nortel (N-key) state. Basically, any command that defines the state of the display is considered part of this system, i.e., the User Common display state.

Saving and Recalling Loops

After you define a loop or display state using the commands described above, use F Key Menu System pseudo commands *S and *R or command DEFLOOP to save the definition. The loop can be quickly reinstated later by pressing a function key or using the MOVIE command. You can define up to 99 loops for each workstation. For more information and an example, see the F Key Menu System section of this manual.

The MOVIE command automatically steps through the predefined loops at user defined rates. If you have a WIDE WORD Workstation (WWW), you can create special briefing frames and use either the MOVIE command or a separate numeric keypad connected to the extra serial port on the PS/2 to display the briefing loops on channel 2.

Automatically Updating Loops

Each time you use command DF or DFASAP to display a new image from the mainframe, the PC checks the loop state definition for the loops saved with the F Key Menu (loop numbers 1-29 only), DEFLOOP, and the current loop. If any of these contexts were set up with command LS and contains a reference to the frame just displayed, the loop sequence is rotated until the new frame is in position 1 of the loop.

The dwell rates are not changed. Therefore, the newest image always has the dwell initially set for position 1. In addition, this position is always the frame displayed when animation is stopped since the system always stops a loop on the first frame of that loop. This automatic updating of loops works identically on all McIDAS-OS2 workstations. Graphics are not automatically updated.

Creating Briefing Loops

Briefing loops are loops of images and/or graphics created to produce manual or automated presentations. They are created on any workstation display and may be shown on either the main display or channel 2 of a WWW. For WWWs, see the Creating Briefing Frames on a WWW section in the Installation Procedure Chapter.

Create briefing loops to set the display to the desired state. When the display is set, use the DEFLOOP command to assign the current state of the terminal to a loop number from 1 to 99. For WWW briefing frames, loops 1-9 can be used with the keypad.

Using Briefing Frames on a WWW

When you configure a WWW with the SETUP program, you can allocate part of its memory to briefing frames. See Appendix A in this manual for further details. These special frames combine images and graphics into one frame that can be displayed independently through the second video channel of the WWW. Hence, a second monitor allows you to control two simultaneous, high resolution displays.

In addition, you can create briefing loops with these special frames. This allows you to set up an independent briefing display on any WWW. To make this more flexible, McIDAS-OS2 loads two extra modules during its initialization process if briefing frames exist on the workstation. One of the modules monitors the serial COM3 port, looking for ASCII characters 0 through 9. If a suitable ASCII keypad is connected to this port, keys 1 through 9 are interpreted as requests to display briefing frames 1 through 9. The 0 key starts and stops the looping on the briefing display. In the absence of such a keypad, use command MOVIE.

Commands

This section of the manual contains the McIDAS-OS2 commands. Below is an explanation of the conventions used in documenting these commands.

Interpreting Bold and Italicized Terms

Actual keyboard entries appear in **BOLD** type. Type these entries exactly as they appear. Command names, some parameters, all keywords and examples are bolded. For example:

IGG MAKE 2 SUB 1

Variable entries, such as parameters, appear in *italics*. For example,

HELP *command*

If you want to list the on-line documentation for command CUR, type the following entry at the keyboard:

HELP CUR

Use capital letters and leave a space between each term/number in a command line.

Concatenating Commands

You can concatenate commands with semicolons. For example:

SF 3; EG 3; DF 101 3 EC MSN; MAP

Using the Alt Key

When you see an Alt entry, it means you will press two keys simultaneously. The Alt key is like the Shift key in that you hold it down while typing another key. For example,

Press: Alt B

means that you should hold down the Alt key and press the B key.

Recognizing Screen Prompts

System prompts and responses look like this:

Boxed text displayed in this typestyle indicates a screen message.

Interpreting the Command Information

Most of the command descriptions have Format, Default, Parameter, Keyword, Remark and Example sections. However, some commands have only a Remarks section. To better understand the information in each of these sections, see the sample command description on the next page.

Command Name

This line gives a brief description of the command's function.

Format	The format contains the command name along with any positional parameters and/or keywords that it needs to perform its function. Commands can have several formats. Enter BOLDED terms exactly as they appear in the command format. <i>Italicized</i> terms are variables. You must enter a value or option in place of it in the command line. If a format takes more than one line, the second line is indented.
Default	The default is the shortest useful version of the command. Below the default is a description of its function. If a command doesn't have a default, you must specify the parameters. Typing the letter X in a command tells McIDAS-OS2 to insert the default value for that parameter.
Parameters	Parameters are numbers or letters that provide information to a McIDAS-OS2 command. To the right of each parameter is an explanation of its function. Enter parameters in the exact order specified in the command format. It is not always necessary to include every parameter. Insert the letter X in place of a parameter if you want to use its default value. Enter BOLDED parameters exactly as they appear in the text. If a parameter is <i>italicized</i> , insert the appropriate number/letter in the command format.
Keywords	Keywords further clarify a command function; they are optional. Keywords are from 1 to 6 characters in length followed by an equals sign (or comma) and a value, e.g., COLOR=3 , LAT=20 40 , UNIT=A . Text values must be typed exactly as they are listed with the keyword. Use as many keywords as you want in a single command format. Although keywords are listed alphabetically in the documentation, their order in the command format is not important. Just be sure they come after the parameters in the command line. To the right of each keyword is an explanation of its function. Most keywords may be truncated to three characters. For example, you can enter COL instead of COLOR , or UNI in place of UNIT .
Remarks	Additional information about the command is contained here.
See Also	Mentioned here are other related commands that you can reference.
Examples	One or more examples are provided for each command. If an example takes more than one line, the second line is indented. Directly below each bolded command line is an explanation of what the entry does.

& (Ampersand)

Recalls a previously entered command.

Remarks

The & command displays a previously entered command on the screen's command line. You can backtrack up to 20 commands by repeatedly typing the ampersand.

You can modify the command line before entering the command.

The ampersand command works in this manner only if you have not typed any other characters on the command line.

See Also

The caret (^) command tracks previously entered commands in the opposite direction.

^ (Caret)

^ (Caret)

Recalls commands by backing up the command queue.

Remarks

To recall commands in the direction opposite the ampersand (&),

Type: ^

Each press of the caret key backs up the command queue by one.

? (Question Mark)

Lists the McIDAS-OS2 command status.

Remarks

The question mark (?) command lists all commands that are currently executing on the PC.

The output format is as follows:

Column	Output Format
1	the command entered; it may be truncated if it's a long command
2	the Process IDentification (PID) number used when terminating a command

See Also

See the slash (/) command for information about terminating a program. You cannot terminate a program that is running on another workstation.

/ (Slash)

Terminates a command.

Remarks

To terminate a command, enter a slash followed by the Process IDentification (PID) number. If you don't know the PID number, use the question mark (?) command to list it.

To determine the PID number,

Type: **?**

Press: **Enter**

Then,

Type: **/ PID number**

Press: **Enter**

You cannot terminate a program that is running on another workstation.

Example

/ 4

This entry terminates PID number 4.

A

Advances one frame.

Remarks

To advance the frame position by one,

Press: **Alt A**

or

Type: **A**

Press: **Enter**

AA

Copies and displays a digital area.

Formats

AA *sarea darea frame locate station mag line ele [keywords]*

AA *sarea darea frame locate y-coord x-coord mag line ele [keywords]*

Default

AA *sarea darea*

This entry copies *sarea* to *darea* beginning at the upper-left corner of the area and provides a *darea* size of 500 lines by 640 elements. It is not displayed on an image frame.

Parameters

sarea source area number of the data

darea destination area number; it must be different than *sarea*

frame image frame number for display; the data in *darea* is displayed on the frame

OPP displays the image on the opposite image frame

0 does not display the image (default)

locate type of coordinates the area transfers and TV load use as a reference point (default=AU, meaning the area coordinates are displayed with the upper-left corner line and element); use one of these coordinate systems:

A area

E earth

I image

followed by one of these locations:

C centered

D lower-right corner

U upper-left corner

station station ID, e.g., MSN, DSM, 2C2; it must be preceded by EU, EC or ED

y-coord y-axis coordinate (default=upper-left corner of the area)

x-coord x-axis coordinate (default=upper-left corner of the area)

mag image blowup or blowdown factor; positive numbers blow up; negative numbers blow down; blowups repeat data values; blowdowns sample data (default=1)

	<i>line</i>	line number dimensioning <i>darea</i> (default=500 if subsecting a sounder)
	<i>ele</i>	element number dimensioning <i>darea</i> (default=500 if subsecting a sounder)
Keywords	ASIZE=	ALL moves the entire area including all bands; it is not necessary to designate a frame number
	BAND=	band number to move, the range is 1 to 9, A, B, C where A=10, B=11 and C=12; (default=8 for VAS, 2 for AVHRR) ALL moves all bands if subsecting a sounder
	EMAG=	element only blowup or blowdown
	GRAY=	OFF does not display a gray wedge (default) YES adds a gray wedge to the bottom of the image, the range is 0-63 for tower workstations, 0-255 for WWWs, 0-15 for EGA/VGA workstations; it uses the defaults below
		<i>repeat inc start line</i>
		<i>repeat</i> brightness repetition factor (default=10 for tower workstations, 5 for WWWs, 40 for EGA/VGA workstations)
		<i>inc</i> if > 0, it increments black to white; if < 0, it increments white to black (default=1 for tower and EGA/VGA workstations, 2 for WWWs)
		<i>start</i> starting brightness value (default=0)
		<i>line</i> starting TV line (default=bottom of the image minus 10 lines)
	IR=	1 moves the IR or sounder imagery documentation
	LMAG=	line only blowup or blowdown

Remarks You cannot specify keyword **ASIZE** and parameter *locate* in the same command line.

The coverage of one TV frame on tower workstations and WWWs is 480 lines by 640 elements. The coverage on a VGA workstation is 350 lines by 640 elements.

You cannot copy areas with the DOS or OS/2 COPY command as you will lose calibration information.

The coordinates for displaying images are listed below.

Location Reference	Y-coordinate	X-coordinate	Format
A	line	element	0 to 5 digits
E	latitude	longitude	DDD:MM:SS
I	line	element	0 to 5 digits

Examples

AA 101 2000 1 EC 38 90 - 4

This entry copies area 101 to area 2000 and displays the image on image frame 1, earth centering it at 38° N and 90° W. It has a blowdown factor of 4.

AA 101 2000 1 ASIZE=ALL IR=1

This entry copies the entire area 101 into area 2000, including IR/sounder imagery documentation. All other forms of AA do a line-by-line transfer of data subsections. The image is displayed on image frame 1.

AA 104 2000 10 EC 36 90 2

This entry copies area 104 into area 2000 and displays the image on image frame 10. It is centered on earth coordinates 36° N and 90° W. The brightness values are averaged while making a two times blowup.

AA 101 3000 OPP IU 5000 6000

This entry copies area 101 into area 3000 and displays it on the image frame opposite the displayed frame. The area is moved and displayed by upper-left corner image coordinates 5000 and 6000.

AA 110 5000 OPP EC MSN

This entry copies area 110 into area 5000. It displays the area on the opposite image frame, centering it on Madison, WI.

AA 105 6512 ASIZE=ALL

This entry moves the entire area 105 plus all bands to area 6512. It does not display the image.

AAMAP

Remaps an area into a Mercator or polar stereographic projection.

Format	AAMAP <i>sarea darea frame projection clat clon res line ele</i> [keywords]	
Default	AAMAP <i>sarea darea X projection clat clon</i> This entry remaps <i>sarea</i> into the specified projection, centering it on <i>clat</i> and <i>clon</i> . It stores the remapped projection in <i>darea</i> but does not display the remapped image.	
Parameters	<i>sarea</i>	source area number of the data
	<i>darea</i>	destination area number; it must be different than <i>sarea</i>
	<i>frame</i>	image frame number for display; the data in <i>darea</i> is displayed on this frame 0 does not display an image (default)
	<i>projection</i>	MERC remaps to a Mercator projection PS remaps to a polar stereographic projection
	<i>clat</i>	center latitude
	<i>clon</i>	center longitude
	<i>res</i>	remapped image resolution in kilometers (default=1)
	<i>line</i>	number of lines in <i>darea</i> (default is workstation dependent)
	<i>ele</i>	number of elements in <i>darea</i> (default is workstation dependent)
Keyword	BAND=	band number for multiband images
	SPLINE=	spline size (default=20)
Remarks	Command AAMAP remaps any navigated image to a polar stereographic or Mercator projection.	
Example	AAMAP 4960 6848 2 MERC 35 90 4 This entry remaps area 4960 into a Mercator projection centered on 35° N and 90° W. The new image, which has a resolution of 4 km, is stored in area 6848 and displayed on image frame 2.	

ASK1

Defines a question to prompt the user for string input.

Format	ASK1 <i>row col color string [keyword] "question"</i>		
Default	No default; you must specify the parameters.		
Parameters	<i>row</i>	row of the display to use for the question; the range is 0-22 (default=1)	
	<i>col</i>	column of the display to start the question; the range is 0-79 (default=1)	
	<i>color</i>	color for the question; the range is 0-255 (default=3)	
	<i>string</i>	string name to place the user's answer in	
	<i>"question"</i>	the question to ask; quotes are required; use either uppercase or lowercase letters	
Keyword	CLEAR=	YES	clears the display window before asking the question
		NO	does not clear the display window (default)
Remarks	Command ASK1 defines a question that prompts the user for a value. The value is entered in the string named by ASK1. ASK1 is well suited for user interface tools like the F Key Menu System.		
	ASK1 always uses text window 8 to ask its question.		
	Full editing keys are available to change the string entry.		
	When you press the Enter key, everything that you typed following the question on window 8 is placed in the string.		
Example	ASK1 10 15 14 PARA "Enter parameter to be plotted: This entry prints 'Enter parameter to be plotted:' on row 10, column 15 in yellow. The result goes into string PARA in the current string table.		

AVGI

Reduces image resolution by averaging.

Format	AVGI <i>sarea darea lres eres</i> [<i>keyword</i>]
Default	AVGI <i>sarea darea</i> This entry averages <i>sarea</i> by one line and element, and places the new area in <i>darea</i> .
Parameters	<i>sarea</i> source area to average <i>darea</i> destination area of the averaged data <i>lres</i> number indicating the resolution reduction for lines <i>eres</i> number indicating the resolution reduction for elements (default= <i>lres</i>)
Keyword	BAND= band number from multibanded areas (default=lowest numbered band)
Remark	The area size cannot exceed 26000 elements.
Example	AVGI 10 20 4 This entry blows down area 10 four times by averaging pixel values. The new area number is 20.

AVGI area shown has been filtered	Format
AVGI area shown	Default
This entry averages data by the time and of event, and places the new area in order	AVGI area shown
AVGI area shown	Format
AVGI area shown	Default
AVGI area shown	Format
AVGI area shown	Default
AVGI area shown	Format
AVGI area shown	Default
AVGI area shown	Format
AVGI area shown	Default

B

Backs up one frame position.

Remarks

To go backwards through the frames,

Press: **Alt B**

or

Type: **B**

Press: **Enter**

BATCH

Executes McIDAS-OS2 commands serially from a text file.

Formats	<code>BATCH [keyword] "file</code> <code>BATCH par1 par2 ... parn [keyword] "file</code>
Default	No default; you must specify the file name.
Parameters	<code>"file</code> name of the DOS file containing the commands <code>par1 ... n</code> value to substitute in the command text wherever the notation % X appears
Keyword	<code>DEST=</code> name of the text file to write commands into instead of running them; the file contains the list of expanded commands and can be used by other programs. <code>C</code> directs commands to the screen for viewing only
Remarks	The source file containing the commands must be in the DOS text format (i.e., lines must end with a carriage return or carriage return/linefeed) and must reside in the \MCIDAS\DATA subdirectory, unless you enter a fully qualified name that includes the disk drive and path. Most text editors place a carriage return or carriage return/linefeed at the end of each line. Commands are performed serially, i.e., each must finish before the next one begins. This is NOT true, however, for commands beginning with a period (.). These commands are sent to the mainframe where they are performed in random order. BATCH does not wait for their completion before going to the next command line. If a command aborts, the entire BATCH file is abandoned at that point. Normal string table substitution may be used within each command and will take place as the command is executed. Stay in the local mode (H key off) while BATCH is running; otherwise all commands will be sent to the mainframe.
Example	If you have a BATCH file that contains the following command line: <code>DF %1 %2 EC MSN</code> entering this McIDAS-OS2 command: <code>BATCH 101 3 "file</code> will result in: <code>DF 101 3 EC MSN.</code>

C

Lists an image frame's directory.

Remarks

To list the current image frame's directory,

Press: **ALT C**

or

Type: **C**

Press: **Enter**

The output looks like this:

FRM	SS	YYDDD	HHMMSS	BAND	LINE	ELEM	LMAGN	EMAGN	AREA
5	61	91042	91300	4	2923	41	1/ 3	1/ 5	1

Each of the columns is described below.

Column	Meaning
FRM	image frame number
SS	sensor source
YYDDD	year and Julian day
HHMMSS	image time
BAND	band number
LINE	first (uppermost) image line loaded into the image frame
ELEM	first (leftmost) image element loaded into the image frame
LMAGN	line magnification; the first number is the blowup factor of the displayed data relative to the resolution of the data in the area; the second number is the blowdown factor of the displayed data relative to the best sensor resolution
EMAGN	element magnification; see LMAGN above
AREA	area number

Remarks

If the area number is -1, the frame contains an image loaded from the mainframe. To list the mainframe image frame directory, type **Alt C** in the host mode. If an image is loaded on the PC, its frame directory will differ from the mainframe; the mainframe commands have no knowledge of the PC frame directory.

CA

Modifies the area directory.

Format	CA area par1 par2 ... par11 [keywords] "text"	
Default	CA area par1 ... par11 This entry changes the parameters in the <i>area</i> directory. Insert the letter X in places where you don't want to change the parameter.	
Parameters	<i>area</i>	digital area number for the directory you want to change
	<i>par1 ... par 11</i>	new directory values; insert the letter X to indicate no change
	<i>"text"</i>	the text to replace the memo portion of the area directory as seen by typing the command line: LA area FORM=EXP ; quotes are mandatory
Keywords	BAND=	replaces the band sequence; the range is 1-32 NA means not applicable
	CAL=	changes the length of the calibration section of the prefix
	CTYPE=	changes the calibration type
	DOC=	changes the length of the documentation section of the prefix
	LEV=	changes the length of the level section of the prefix
	NAV=	<i>pri sec</i> changes the primary and secondary codicil navigation pointers; for system navigation, enter: NAV=0 0
	STYPE=	changes the source type
Remarks	Parameters entered with the CA command replace the current values listed by typing: LA areas . The values for keywords DOC, CAL and LEV must be multiples of four.	

Example

To change the line and element coordinates from 2162 and 9229 to 2100 and 9000, you must first list area 2. To do this,

Type: **LA 2**

Press: **Enter**

The system displays the following information on the screen.

area	ss	yyddd	hhmmss	lcor	ecor	lres	eres	zres	lsiz	esiz	zsiz	bands
2	32	89128	164600	2162	9229	1	1	1	500	640	1	NA

To change the line and element coordinates,

Type: **CA 2 X X X 2100 9000**

Press: **Enter**

The area directory's LCOR and ECOR are changed to 2100 and 9000, respectively. The system displays the following information on the screen.

area	ss	yyddd	hhmmss	lcor	ecor	lres	eres	zres	lsiz	esiz	zsiz	bands
2	32	89128	164600	2100	9000	1	1	1	500	640	1	NA
proj: 0 created:89128 173302 memo: AAA-MSI TO VIS IN REAL TIME												
type: VISR cal type: BRIT												
area offsets: data=768 navigation= 256 calibrations= 0												
doc length: 0 cal length: 0 lev length: 0 PREFIX= 0												
valcod: 0 zcor: 1 band-8: NA reel#: 0												
start yyddd: 89128 start time: 164602 start scan: 101												

CCODE

Lists country codes.

Format	CCODE <i>parm</i>
Default	CCODE This entry lists all country codes.
Parameter	<i>parm</i> country to list (default=ALL)
Remarks	If <i>parm</i> is two characters, CCODE looks for the one country whose code matches it. If more than two characters are specified, all string matches are found.
Examples	CCODE UK This entry lists the country with UK as its country code. CCODE FRANCE This entry lists the country code for France. CCODE ISLAND This entry lists all country codes that have the word ISLAND in them. CCODE Z This entry lists all country codes that contain the letter Z.

CLEAR

Clears a text window.

Format	CLEAR <i>bwin ewin</i>
Default	CLEAR This entry clears all text from the current window.
Parameters	<i>bwin</i> beginning text window number to clear; the range is 0-4 (default=current) <i>ewin</i> ending text window number to clear; the range is 0-4 (default= <i>bwin</i>)
Examples	CLEAR 4 This entry clears text window 4. CLEAR 2 3 This entry clears text windows 2 and 3.

CM

Generates a graphics movie.

Format	CM <i>blev elev</i> [<i>keywords</i>]	
Default	No default; you must specify the parameters.	
Parameters	<i>blev</i>	beginning graphics level to loop; the range is 1-7 (default=1)
	<i>elev</i>	ending graphics level to loop; the range is 1-7 (default= <i>blev</i>)
Keywords	GO=	YES starts looping immediately NO does not loop immediately (default)
	INT=	timing interval (looping speed) in milliseconds (default=33)
	TIMOUT=	sets the timeout (default=500 msec)
Remarks	Use command CM with tower and WIDE WORD workstations only. CM creates a graphics movie that steps through the specified graphics color levels one at a time. Press the left mouse button to begin the movie, the right button to pause, and both buttons to stop the program. CM will hold an initiator until you press both mouse buttons.	
See Also	Use CM with host command GMOVIE to animate streamlines.	
Examples	CM 2 6 INT=500 When you press the left mouse, the graphics will loop between levels 2 and 6, remaining on each color for 500 milliseconds.	
	CM 1 7 This entry loops graphics levels 1 to 7.	

COLORS

Displays the text window color table.

Remarks

Command COLORS displays a color chart on text window 5.

The value for text color consists of a COLOR value, which is listed down both sides, and the ATTRIBUTE ADDITION VALUE which is listed along the top row only. The ATTRIBUTE VALUE is for reference purposes during software development.

For example, solid bright yellow is COLOR VALUE=14. A green background has an ATTRIBUTE ADDITION VALUE=32. Keyword TCOL colors any text window output and may be added to any command. To select the above combination, add the values, i.e., TCOL=46.

Colors 0-15 are the only available colors for mainframe commands.

Example

LWU LIST A TCOL=175

This entry displays the output from LWU in the current text window in flashing white letters on a green background.

COTV

Contours the digital data within the cursor and produces a 2- or 3-dimensional plot.

Format	COTV <i>interval unit [keywords]</i>		
Default	COTV This entry contours the entire brightness range of the digital data within the cursor with an interval of 1 count. The 2-dimensional plot is plotted in color level 1.		
Parameters	<i>interval</i>	contour interval number; do not use this parameter with a 3-dimensional plot (default=1)	
	<i>unit</i>	BRIT	brightness value (default)
		RAD	radiance
		TEMP	temperatures
Keywords (General)	BAND=	band number of the area; the range is 1 to 9, A, B and C where A=10, B=11 and C=12 (default=current image band)	
	COLOR=	color level; the range is 1-7 (default=1)	
	DIM=	2	draws a 2-dimensional display within the cursor (default)
		3	draws a 3-dimensional histogram
	OPTION=	digital data counts (default)	
		G	2-dimensional gradient
Keywords (2-Dimensional Only)	RANGE=	<i>beg end</i>	range of values to contour (default=0-255)
	LMOD=	1	labels every line
		2	labels alternate lines (default)
	SIZE=	height of the labels in pixels (default=6)	
	SMO=	smooths contours (default=20)	

ELV= elevation viewing angle (default=20)

LINE= *min max* line limits for the plot (default=50 450)

PAN= graphics panel number; the range is 1-4

ROT= rotation angle (default=45)

You may need to blow up the image resolution when using 2-dimensional contours. Otherwise, the plot inside the cursor may be too cluttered to read. You can use a maximum of 10,000 pixels within the cursor when plotting.

The maximum cursor size on a WWW is 256 x 256 pixels.

COTV 3 COLOR=3

This entry contours the data inside the cursor every 3 counts in color level 3.

COTV DIM=3

This entry draws a 3-dimensional histogram of the data within the cursor.

CTRL

Sends control characters to a modem.

Format	CTRL "codes
Default	No default; you must specify the codes.
Parameter	"codes the letters corresponding to the ASCII control codes; quotes are mandatory
Remarks	Use this command to send ASCII control characters to the asynchronous communications device. It is useful for those installations requiring special codes for establishing communications. You may also use it to cause an escape condition in Hayes-compatible modems.
Examples	CTRL "ABC This entry sends CTRL A, CTRL B and CTRL C to the modem. CTRL "+++ This entry sends three plus signs, which is often useful with modems.

CUR

Defines cursor size, type and color.

Formats

CUR *height width type color* (use with tower or WWW)
CUR *height width type blue green red* (use with tower or WWW)
CUR *height width type number* (use with VGA)
CUR *option*

Default

CUR
 This entry displays a 31 x 31 red crosshair cursor on tower workstations and WWWs; it displays a 31 x 31 crosshair cursor in the current color level on a VGA display.

Parameters

height cursor height in pixels; even size is rounded up to odd size; if entered as X, the size does not change (default=31)

width cursor width in pixels; even size is rounded up to odd size; (default=*height*)

type

BOX	box cursor
XHAIR	crosshair cursor (default)
XBOX	crosshair inside box cursor
SOLID	solid box cursor (tower and WWWs only)
BULL	external crosshair with bullseye cursor (tower and WWWs only)

color color name from the color palette; tower workstation or WWW only (default=RED)

blue blue color intensity; the range is 0-255 (default=0)

green green color intensity; the range is 0-255 (default=0)

red red color intensity; the range is 0-255 (default=255)

number VGA workstation color level; the range is 0-15 (default=2)

option

ON	makes the cursor visible (default)
OFF	makes the cursor invisible

Remarks

Options vary among PC configurations.

CUR is a reflected command, meaning it runs locally even if a dot is placed in front of it.

To list the VGA workstation color levels, enter: **GU TABLE**.
To list palette colors and gun intensities for tower workstations and WWWs, enter: **GU COLORS**.

Even cursor sizes are always rounded to the next odd number. It is not possible to use even-sized cursors.

Examples**CUR 21**

This entry makes the current cursor 21 x 21 pixels.

CUR 20 40 BOX GREEN

This entry changes the cursor to a green box, 21 x 41 pixels, on a tower workstation or WWW.

CUR 40 30 XBOX BLUE

This entry makes a 41 x 31 pixel, blue, crosshair inside box cursor on a tower workstation or WWW.

CUR X 53 XHAIR

This entry makes a crosshair cursor. The width of the cursor is 53, the height and color do not change.

CUR 32 25 BOX 45 15 25

This entry makes a 33 x 25 box cursor colored by 45 blue, 15 green and 25 red color intensities on a tower workstation or WWW.

CUR OFF

This entry makes the cursor invisible.

CW

Fills or erases the graphics within the cursor.

Format	CW <i>level frame height width</i>								
Default	CW This entry erases the graphics within the cursor.								
Parameters	<table><tr><td><i>level</i></td><td>graphics color level; the range is zero to the maximum available for the display type (default=0 to erase all graphics within the cursor)</td></tr><tr><td><i>frame</i></td><td>graphics frame number (default=current)</td></tr><tr><td><i>height</i></td><td>height of the area to erase in pixels (default=cursor height)</td></tr><tr><td><i>width</i></td><td>width of the area to erase in pixels (default=cursor width)</td></tr></table>	<i>level</i>	graphics color level; the range is zero to the maximum available for the display type (default=0 to erase all graphics within the cursor)	<i>frame</i>	graphics frame number (default=current)	<i>height</i>	height of the area to erase in pixels (default=cursor height)	<i>width</i>	width of the area to erase in pixels (default=cursor width)
<i>level</i>	graphics color level; the range is zero to the maximum available for the display type (default=0 to erase all graphics within the cursor)								
<i>frame</i>	graphics frame number (default=current)								
<i>height</i>	height of the area to erase in pixels (default=cursor height)								
<i>width</i>	width of the area to erase in pixels (default=cursor width)								
See Also	Use the EG command to erase the entire graphics frame.								
Examples	CW 1 3 This entry fills the cursor with color level 1 on graphics frame 3. CW 6 2 50 30 This entry fills a 50 x 30 box centered at the cursor with color level 6 on graphics frame 2.								

D

Lists the digital values at the cursor center.

Remarks

To list the digital brightness value of the image pixel under the cursor's center,

Press: Alt D

or

Type: D

Press: Enter

The D command lists area number, area coordinates, image coordinates, Raw digital values, brightness values, radiance, and blackbody temperature for appropriate data sources.

This command does not execute if the area is not on your disk.

DEFLOOP

Lists, saves and restores the workstation's loop state.

Format	DEFLOOP LIST <i>bloop eloop</i> DEFLOOP SAVE <i>loop "label</i> DEFLOOP REST <i>loop</i>
Default	No default; you must specify a set of parameters.
Parameters	LIST lists the directory of saved display states SAVE saves the state of display REST restores a previously saved display state <i>bloop</i> beginning loop to list (default=all defined loops) <i>eloop</i> ending loop to list (default=<i>bloop</i>) <i>loop</i> loop number to save or restore; the range is 1-99 <i>"label</i> label to be saved with the loop state; 48 characters maximum including blanks
Remarks	DEFLOOP saves the state of the workstation display by saving the display parameters in User Common. This includes loop bounds, commands set by TERM, enhancements, graphics and cursor state and the nortel key (N). DEFLOOP and F Key Menu pseudocommands *R and *S have the same basic function of saving the state of your workstation display. They also use the same filing system to save loops. Loop state information saved with DEFLOOP is displayed with the MOVIE command. For WWWs, video channel 2 may be used independently of the main display by using an ASCII keypad connected to serial port COM3; keys 1-9 recall loops 1-9 only. If you use a briefing frame on the WWW that uses imbedded graphics, use the SG and SF commands before saving the loop state. Display state data is stored in the file CONTEXT.SLT in \MCIDAS\DATA.

Examples

DEFLOOP SAV 3 'East US visible hourly'

This entry saves the workstation's current display state as loop number 3 with the label 'East US visible hourly.'

DEFLOOP RES 27

This entry restores loop 27 and displays its label if one was specified. The LS, DR and F commands may be used to interrogate the state.

DEFLOOP LIST

This entry lists loop numbers and labels for loops saved with a label.

DF

Displays a digital area on an image frame.

Formats	DF area frame locate y-coord x-coord mag repeat [keywords] DF area frame locate station mag repeat [keywords]	
Default	DF area frame This entry displays the <i>area</i> digital data on the image <i>frame</i> number, displaying the upper-left corner of the area in the upper-left corner of the image frame.	
Parameters	<i>area</i>	digital area number of the data to display
	<i>frame</i>	image frame number to display OPP displays the image on the opposite image frame
	<i>locate</i>	coordinate type for loading images (default=AU, meaning the area coordinates are displayed with the upper-left corner line and element); use one of these coordinate systems: A area E earth I image T TV (displays the image using the cursor location) followed by one of these locations: C centered D lower-right corner U upper-left corner
	<i>y-coord</i>	y-axis coordinate (default=upper-left corner of the area)
	<i>x-coord</i>	x-axis coordinate (default=upper-left corner of the area)
	<i>station</i>	station ID, e.g., MSN, DSM, 2C2; must be preceded by EU, EC or ED
	<i>mag</i>	image blowup or blowdown factor (default=1)
	<i>repeat</i>	number of consecutive frames loaded from consecutive areas (default=1)
Keywords	BAND=	area band number; the range is 1-9, A, B and C where A=10, B=11, C=12 (default=8 for VAS; 4 for AVHRR)

CAL= **QTIR** the calibration module name; use QTIR for a fast POES load (default is from the area directory); the first calibration is used for the entire image; the digital area is unaffected

EMAG= element blowup or blowdown (default=1)

EU= *name.ET* name of the enhancement to apply to the image

GRAY= **OFF** doesn't display a gray wedge (default)
 YES adds a gray wedge to the bottom of the image using the defaults below; the range is 0-255 for WWWs, 0-63 for tower, 0-15 for VGA workstations

rep inc str lin

rep brightness repetition factor (default=5 for WWWs, 10 for tower workstations and 40 for VGA workstations)

inc if > 0, it increments black to white; if < 0, it increments white to black (default=2 for WWWs, 4 for tower workstations and 1 for VGA workstations)

str starting brightness value (default=0)

lin starting TV line (default=the number of lines in that particular frame minus 23 lines)

INC= *ainc finc* area/ frame increments for repeat parameters

LEVELS= *lev brange erange* sets the VGA gray levels used for image and graphics enhancements

lev gray shade levels used for an image; the range is 1-255 (default=13, where 13 levels are used for image levels and 3 for graphics; 14 levels for radar images with no stretch table)

brange beginning of the gray range to change; the range is 0-255 (default=20 for no stretch for a satellite image; 0 for stretch for a satellite image or no stretch for a radar image)

erange end of the gray range to change; the range is 0-255 (default=250 for no stretch for a satellite image; 255 for stretch for a satellite image or no stretch for a radar image)

LMAG= line blowup or blowdown (default=1)

SF= **YES** automatically sets the image frame to the frame to be loaded prior to the display (default=NO)

SU= name of the stretch table to apply to the image

UPDATE=ON checks to see if the image to be loaded is already displayed on the frame; if the image is already displayed, it won't be redisplayed (default=OFF)

Remarks

If more than 16 levels are specified in the *lev* option of keyword **LEVELS**, the available 16 gray shades are wrapped around. If the number of levels is a multiple of 8, all 16 shades are used; otherwise, 13 shades are used, allowing 3 for graphics colors.

DF displays images from areas up to 10,000 lines and elements in size. The coordinates for displaying images are listed below.

Location	Y-coordinate	X-coordinate	Format
A	line	element	0-5 digits
E	latitude	longitude	DDD:MM:SS, DDD.fraction or the station ID
I	line	element	0-5 digits
T	raster	pictel	0-3 digits

See Also

Use command EU or GU to restore a palette for VGA workstations.

Examples

DF 1 10 EC 36.50 90.50 -4 2

This entry loads areas 1 and 2 into image frames 10 and 11, respectively. The images are centered at 36½° North and 90½° West, with a 4x blowdown.

DF 4 2 ED MSN

This entry loads area 4 into image frame 2 with the lower-right corner centered on Madison, WI.

DF 1 OPP GRAY=X

This entry loads area 1 (from the upper-left corner of area 1) into the image frame opposite the displayed frame and displays a gray wedge.

DF 3 2 EC STL LEVELS=11 60 200

This entry displays area 3 on frame 2, centered on St. Louis. VGA workstations use 11 levels as the gray scale and 5 as graphics levels. The gray scale is stretched from approximately 60 to 200.

DF 200 5 EC EGLL SF=YES GRAY=YES SU=BRITST

This entry displays area 200 on image frame 5, centered on London's Heathrow Airport. The image frame is displayed before the image is loaded on the screen. A gray wedge is displayed at the bottom of the image. The image is stretched by an existing stretch table called BRITST.

DIST

Finds the distance on a satellite image.

Formats

DIST CIR *angle inc distance [keywords]*
DIST ROT *angle inc distance [keywords]*
DIST STE *angle din distance [keywords]*
DIST E *lat lon [keywords]*
DIST I *line ele [keywords]*
DIST T *raster pictel [keywords]*

Default

DIST

This entry finds the distance between two points on a navigated satellite image.

Parameters

CIR draws a circle around the initial cursor location beginning at a specified distance and angle

ROT draws all or part of a circle around the initial cursor location beginning at a specified distance and angle

STE steps the cursor away from the initial cursor location at a specified distance and angle

E steps the cursor away from the initial cursor location by the specified latitude and longitude increments

I steps the cursor away from the initial cursor location by the specified line and element increments

T steps the cursor away from the initial cursor location by the specified raster and pictel increments

angle moves the cursor away from the original location by this angle (default=0)

inc increment (in degrees) to shift the cursor along its circular path

distance number of km to move the cursor from its original location

din increment (in km) to step the cursor along its straight-line path

lat degrees of latitude to move the cursor; northward is positive

lon degrees of longitude to move the cursor; westward is positive

line number of lines to move the cursor; downward is positive

ele number of elements to move the cursor; rightward is positive

raster number of rasters to move the cursor; downward is positive

pictel number of pictels to move the cursor; rightward is positive

Keywords

COLOR= graphics color level of the characters; the range is 1-7 (default=2)

SIZE= height of the plotted characters in pixels (default=5)

SYM=

- . a period marks off the distances (default)
- + a plus sign marks off the distances
- * an asterisk marks off the distances
- o a lowercase letter O marks off the distances

Remarks

Command DIST will not execute unless the satellite image is navigated. Each cursor location that you mark on the graphics frame is indicated by a period (default) or a symbol chosen with keyword SYM. Parameters ROT, STE, E, I and T run interactively. A symbol is plotted on the graphics frame at the new cursor location each time you press the left mouse button.

Examples

Position the cursor at the point on your navigated satellite image that is the starting point of the calculation. Then,

Type: **DIST**
Press: **Enter**

The program replies:

Press LEFT mouse button to measure point.
Press RIGHT mouse button to exit DIST.

Move the cursor to the point where you want the distance measured. Press the LEFT mouse button. The distance from the initial cursor location appears on the screen. Repeat this sequence to measure the distance from the initial cursor location to other points.

DIST CIR 45 30 100 SYM=*

This entry draws a circle of asterisks on the graphics frame 100 km away from the original cursor location beginning at angle 45. The circle contains 12 asterisks since the increment is 30 degrees.

DMAP

Lists the name and size of LW files.

Formats	DMAP <i>bstring</i> <i>estring</i> DMAP *. <i>ext</i>
Default	DMAP This entry lists the name and size of all LW files in the \MCIDAS\DATA subdirectory.
Parameters	<i>bstring</i> beginning text string to search for (default=all) <i>estring</i> ending text string to search for (default= <i>bstring</i>) *. <i>ext</i> lists all files with this extension; the asterisk cannot be mixed with characters
Remarks	Command DMAP lists in the ASCII collating sequence. An asterisk may be used as a wild card character when a file extension is explicitly given. No other ASCII characters can accompany the asterisk.
Examples	DMAP AREA0001 This entry lists information about the LW file AREA0001. DMAP A C This entry lists the LW files beginning with letters A, B and C. DMAP MDXX0001 MDXX9999 This entry lists information about MD files 1 to 9999. DMAP *.MNU This entry lists information about all files with the .MNU extension.

DOQTL

Selectively deletes MD files.

Format	DOQTL <i>bmdfile emdfile cutoff</i>
Default	No default; you must specify the parameters.
Parameters	<i>bmdfile</i> beginning MD file in the range (no default) <i>emdfile</i> ending MD file in the range (no default) <i>cutoff</i> maximum number of MD files kept on the system, in days (no default)
Remarks	Command DOQTL allows you to delete unwanted MD files on the PC according to the specified cutoff. If <i>cutoff</i> =4, only the MD files for the last four days are retained on the PC; the rest are deleted. This assumes that the MD file allocation on the PC is the same schema as that on the mainframe, i.e., MD files 1 to 10 are for SVCA schema data, MD files 11 to 20 are for RAOB schema data, etc.
Example	DOQTL 1 30 2 If the current day is 91223, this entry saves MD files 2, 3, 12, 13, 22 and 23, and deletes the rest.

DOSTOLW

Converts DOS format files to LW format files.

Format	DOSTOLW <i>sfile</i> <i>dfile</i> R
Default	No default; you must specify the files.
Parameters	<i>sfile</i> source DOS file name and extension <i>dfile</i> destination LW file name; it must be different than <i>sfile</i> R replaces the destination file if it already exists
Remarks	The LW file format is an 80-character card image, blank padded as needed, with no carriage returns.
Example	DOSTOLW SFCPLT.RUN SFCPLT This entry converts the DOS file named SFCPLT.RUN to an 80-character card image format LW file named SFCPLT.

DR

Defines the dwell rates for frame looping.

Formats

DR *rate1 rate2 ... raten*
DR *repeat*rate repeat*rate ...*
DR **INI**
DR **AUTO**

Default

DR
This entry lists the current dwell rates within the loop.

Parameters

rate1 ... n dwell rate for each frame (no default)
repeat number of frames for which the rate applies (no default)
INI initializes the dwell rates to 9 units for the first frame and 6 units for all subsequent frames
AUTO assigns the longest dwell to the latest image

Remarks

The rate is in units of 1/15 second for tower and WWWs, while it is PC-dependent for EGA and VGA workstations.

The last frame assigned a rate determines the rate for all subsequent frames in that loop. See the examples.

You can mix the command formats. For example, **DR 3 3 5*8 3** is the same as **DR 3 3 8 8 8 8 3**.

Set the dwell rates to compensate for irregularly spaced image times. Graphics frames within a loop are assigned dwell rates identical to image frames. EGA and VGA workstations do not differentiate graphics from image frames.

Examples

DR 12 6 6 12

This entry sets dwell rates to 6 for the second and third frames, and 12 for the first, fourth and all subsequent frames of the loop.

DR 3*5 4 3

This entry sets dwell rates to 5 on the first three frames, 4 on the fourth frame, and 3 on the fifth and all subsequent frames of the loop.

DR 7

This entry sets all frames to dwell rate 7.

E

Lists the earth coordinates at the cursor center.

Remarks

To list the earth coordinates at the cursor center,

Press: **Alt E**

or

Type: **E**

Press: **Enter**

Command E lists:

- the latitude and longitude of a pixel on a displayed navigated image in the format HH:MM:SS
- satellite image line and element coordinates
- TV monitor raster and pictel coordinates; position raster=1 and pictel=1 is the upper-left corner of the screen; position raster=488 and pictel=640 is the lower-right corner of the screen

On tower workstations and WWWs, the E key lists the current image's coordinates. On EGA/VGA displays, the last displayed graphics or image is used.

The output format of E is shown below.

Frame	Latitude	Longitude	Tvline	Tvelem	Line	Elem
nn	DDD:MM:SS	DDD:MM:SS	nnnn	nnnn	nnnn	nnnn

EB

Invokes black and white contrast stretching.

Format	EB <i>inlo inhi outlo outhi</i>
Default	EB This entry invokes interactive mouse-controlled contrast stretching. Pressing the left mouse button begins the process. Pressing the right mouse button ends the process, leaving the current enhancement.
Parameters	<i>inlo</i> lowest input brightness value (default=0) <i>inhi</i> highest input brightness value (default=255) <i>outlo</i> new low brightness value (default=0) <i>outhi</i> new high brightness value (default=255)
Remarks	Use command EB with tower workstations and WWWs only. The input brightness values correspond to the brightness levels of the imagery stored in the terminal refresh memory. Input brightness levels below <i>inlo</i> and above <i>inhi</i> are not changed. <i>Inlo</i> is output at level <i>outlo</i> and <i>inhi</i> at level <i>outhi</i>. Brightness values between <i>inlo</i> and <i>inhi</i> are output at levels determined by linear interpolation between <i>outlo</i> and <i>outhi</i>. When using the mouse-controlled version, moving the cursor to the right along the x-axis decreases the upper brightness bound (from level 255) to be enhanced as white (255). Moving the cursor upward along the y-axis increases the lower brightness bound (from level 0) to be enhanced as black (0). To save the current enhancement, use command EU SAVE.
Examples	EB 50 150 0 255 This entry rescales input brightness level 50 as 0 (black) and input brightness level 150 as 255 (white). The 100 counts between 50 and 150 are linearly stretched along the 255 counts between 0 and 255.
	EB 30 255 50 200 This entry rescales input brightness level 30 as 50, and input brightness level 255 as 200. The 225 counts between 30 and 255 are linearly stretched along the 150 counts between 50 and 200.

ECHO

Displays a line of text on the workstation.

Format	ECHO "text"
Default	ECHO This entry echoes a blank line.
Parameter	"text" the text to display on the screen; the quote is mandatory
Remark	You will use ECHO primarily in a RUN command.
Example	ECHO "This is a test" This entry prints 'This is a test' on the screen.

EG

Erases graphics frames.

Formats	EG <i>bframe eframe</i> [<i>keyword</i>] EG I <i>bframe eframe</i> (use with EGA/VGA workstations only) EG B <i>bframe eframe</i> (use with EGA/VGA workstations only)
Default	EG This entry erases the current graphics frame.
Parameters	<i>bframe</i> beginning frame in the range to erase (default=current) <i>eframe</i> ending frame in the range to erase (default=<i>bframe</i>) I erases graphics and image frames on EGA/VGA displays and back planes B erases graphics and image frames on EGA/VGA displays only; the back plane is not erased
Keyword	LEV= specifies a level number (bit plane) to erase; the range is 1 to 8 (use with WWWs only)
Remarks	The I and B erase options are only valid on EGA/VGA workstations if you select the SAVE IMAGE FRAME option during the SETUP procedure. When you select this option, a copy of the image portion of the display is saved in a file referred to as the "back plane." During an EG command, graphics are deleted from the display by restoring the image saved in the back plane. This gives the impression of separate image and graphics frames. Entering the B option in an EG command will erase the display only. Since the image still exists in the back plane, it can be redisplayed by entering an EG command. The I option erases both the display and the back plane. If you have an EGA/VGA workstation, you must enter the command below when you boot up the system for the first time after installing software. Otherwise, the graphics will not appear correctly on VGA frames. Type: EG I 1 <i>maximum number of frames on your workstation</i> Press: Enter

Examples**EG 6 12**

This entry erases graphics frames 6 through 12.

EG I 2 3

This entry erases the graphics and images on frames 2 and 3 on EGA/VGA displays and back planes.

EG B 2 3

This entry erases the graphics and images on frames 2 and 3 on EGA/VGA displays; the back plane is saved.

EG LEV=3

This entry erases color level 3 on the current graphics frame on a WWW.

ET

Provides pseudocoloring for image frame overlays.

Formats

ET NOR

ET *option table1 table2*

ET CUR *scale*

ET TIN *scale ry yg gc cb bm*

ET CON *vlo vhi irlo irhi scale ry yg gc cb bm*

Default

No default; you must specify a set of parameters. Enter X for each desired parameter default; press N to display the pseudocoloring frame overlay.

Parameters

NOR coloring for false stereo which combines straight red with a straight green enhancement table

CUR uses the current enhancement of the IR image (created with command EU) to color the overlay of the IR and visible images

TIN colors the visible sensor image with the information derived from the IR image; although the colors are predefined, you can select the breakpoints and saturation

CON colors the visible sensor image with the information derived from the IR image; only brightness values falling within both thresholds are colored; the colors are predefined, but you can choose the breakpoints and thresholds

option

AND	logical AND
MUL	geometric mean
OR	logical OR
SUB	arithmetic difference

table1 pseudocoloring table, the range is 1 to 256; it is saved with the EU command (default=current)

table2 pseudocoloring table, the range is 1 to 256; it is saved with the EU command (default=frame opposite the current frame)

scale color depth, the range is 1 to 10 (default=5)

<i>ry</i>	the point in the opposite frame scale to change from a red to a yellow tint; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>yg</i>	the point in the opposite frame scale to change from a yellow to a green tint; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>gc</i>	the point in the opposite frame scale to change from a green to a cyan tint; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>cb</i>	the point in the opposite frame scale to change from a cyan to a blue tint; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>bm</i>	the point in the opposite frame scale to change from a blue to a magenta tint; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>vlo</i>	lowest visible threshold; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>vhi</i>	highest visible threshold; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>irlo</i>	lowest IR threshold; the range is 0-63 for tower workstations and 1-255 for WWWs
<i>irhi</i>	highest IR threshold; the range is 0-63 for tower workstations and 1-255 for WWWs

Remarks

The ET command generates a color enhancement table (also called a pseudocoloring table) for overlaying TV frames. Not all terminals have the pseudocoloring hardware.

Use the N key to toggle the table in and out of the video refresh data path. When the table is in the data path, two video frames are combined pixel by pixel and the combination is displayed on the TV monitor. The pixel value from the current frame is indexed into the rows of the table, while the pixel value from the frame opposite the current frame is indexed into the columns of the table. The value at the intersection contains the red-blue-green levels to display for this pixel. A common application is to tint clouds in varying colors according to height. In this case, the opposite frame displays an IR image complementing the current visible picture.

To construct a pseudocoloring table, use the EU command to generate and save two enhancement tables. Call them TF and TO and call the pseudocoloring table T12. The ET command generates T12 as follows:

$$T12 (R,C) = F (TF (R), TO (C))$$

Combining the two images depends on function F which takes the form of one of the following:

$$F = \text{OR} \quad T12 (R) . \text{OR} . TO (C) \text{ (Logical OR)}$$

$$F = \text{AND} \quad T12 (R, C) = TF (R) . \text{AND} . TO (C) \text{ (Logical AND)}$$

$$F = \text{SUB} \quad T12 (R, C) = TF (R) - TO (C) \text{ (Arithmetic Difference)}$$

$$F = \text{MUL} \quad T12 (R, C) = TF (R) \times TO (C) \text{ (Geometric Mean)}$$

This method of generating the table applies the designated function to the two frames, pixel by pixel. The result is displayed on the screen. For example, if you use a straight line red pseudocoloring for TF and a straight line green pseudocoloring for TO, the combination produced by ET places both frames on the screen simultaneously, one in red and the other in green. The pseudocoloring hardware is a specialized high speed computer for performing pixel rate computations on two images at one time. The pseudocoloring table contains the program for the computations.

CON Enhancement

The CON (deep CONvection) enhancement is similar to the TIN method described below, except it also accepts IR and visible input thresholds. Assume a visible image is placed on a frame and the corresponding IR image on its opposite frame. The CON option lightly colors the visible image based on the IR data. It enhances only the image data that falls within both the visible and IR thresholds. The color scheme is based on five color breakpoints which may or may not fall within the IR threshold. The lowest shading of the IR is red. The visible input threshold enables you to differentiate between deep convection cloud tops and high cirrus, indistinguishable from the IR data alone.

TIN Enhancement

The TIN (cloud height TINting) enhancement sets up a special table to achieve the following effect. Assume the current frame contains a GOES image from the visible sensor and the opposite frame contains the corresponding image from the IR sensor. The TINT table lightly colors the visible sensor image with information derived from the IR image. The lowest values of IR tint the visible image with red, followed by yellow, green, cyan, blue and magenta. Since the brightness values in the IR correspond roughly to temperature, and temperature to height, the color tint of the visible image is an indication of cloud height.

You can control the color depth of the tint and breakpoints of the *ry*, *yg*, *gc*, *cb* and *bm* changes in the IR brightness scale.

Examples

In the following examples, press the N key to display the pseudocoloring frame overlay.

ET NOR

This entry applies red and green pseudocoloring to view a false stereo image with red and green glasses.

ET SUB 1 2

This entry generates a new overlay by subtracting pseudocoloring save table 2 from 1.

ET CUR 3

This entry uses the current pseudocoloring on the IR image to tint the visible image. The 3 lightens the color saturation.

ET TIN X 20 30 40 50 60

This entry uses the default saturation to tint the overlay using brightness breakpoints 20, 30, 40, 50 and 60.

EU

Enhancement utility.

Formats

```

EU COLORS
EU DEL name
EU LIST
EU MAKE lo hi bcolor ecolor bframe eframe
EU MAKE lo hi bcolor ecolor [keyword]
EU MAKE lo hi blo bhi glo ghi rlo rhi bframe eframe
EU MAKE lo hi blo bhi glo ghi rlo rhi [keyword]
EU REST name bframe eframe
EU REST name [keyword]
EU SAVE name
EU TABLE name

```

Default

EU
This entry restores the default enhancement to the current frame.

Parameters

COLORS	lists the defined colors
DEL	deletes a saved enhancement
LIST	lists all saved enhancements on the PC
MAKE	sets the enhancement
REST	restores a saved enhancement
SAVE	saves the current enhancement
TABLE	lists the values of an enhancement (default=current)
<i>name</i>	enhancement name (default=default enhancement)
<i>lo</i>	lowest brightness value; the range is 0-255 (default=0)
<i>hi</i>	highest brightness value; the range is 0-255 (default=255)
<i>bcolor, ecolor</i>	color name range
<i>bframe</i>	beginning video frame (default=current image frame)
<i>eframe</i>	ending video frame (default=bframe)

EU

Enhancement utility.

Formats

EU COLORS
EU DEL *name*
EU LIST
EU MAKE *lo hi bcolor ecolor bframe eframe*
EU MAKE *lo hi bcolor ecolor [keyword]*
EU MAKE *lo hi blo bhi glo ghi rlo rhi bframe eframe*
EU MAKE *lo hi blo bhi glo ghi rlo rhi [keyword]*
EU REST *name bframe eframe*
EU REST *name [keyword]*
EU SAVE *name*
EU TABLE *name*

Default

EU
 This entry restores the default enhancement to the current frame.

Parameters

COLORS lists the defined colors
DEL deletes a saved enhancement
LIST lists all saved enhancements on the PC
MAKE sets the enhancement
REST restores a saved enhancement
SAVE saves the current enhancement
TABLE lists the values of an enhancement (default=current)
name enhancement name (default=default enhancement)
lo lowest brightness value; the range is 0-255 (default=0)
hi highest brightness value; the range is 0-255 (default=255)
bcolor, ecolor color name range
bframe beginning video frame (default=current image frame)
eframe ending video frame (default=bframe)

<i>blo</i>	lowest blue gun intensity value; the range is 0-255 (default=0)
<i>bhi</i>	highest blue gun intensity value; the range is 0-255 (default=0)
<i>glo</i>	lowest green gun intensity value; the range is 0-255 (default=0)
<i>ghi</i>	highest green gun intensity value; the range is 0-255 (default=0)
<i>rlo</i>	lowest red gun intensity value; the range is 0-255 (default=0)
<i>rhi</i>	highest red gun intensity value; the range is 0-255 (default=0)

Keyword	LOOP=	YES	applies the enhancement to all frames defined in a loop
		NO	does not apply the enhancement (default)

Remarks The files created when you execute an **EU SAVE** are transportable to any PC-based workstation via the **SENLW** command or diskette.

Examples **EU LIST**
This entry lists all the saved enhancement tables on the terminal.

EU MAKE 20 75 255 255 0 0 255 255

This entry color enhances all image pixels with brightness values between 20 and 75 to solid magenta.

EU MAKE 100 200 RED YELLOW 1 3

This entry color enhances the image pixel brightness values between 100 and 200 on image frames 1 to 3 from red to yellow.

EU SAVE VAPOR

This entry saves the enhancement on the current frame to a file named VAPOR.

EU REST VAPOR LOOP=YES

This entry restores an enhancement called VAPOR to all frames defined in a loop.

EU TABLE

This entry lists the values of the current enhancement.

EXIT

Exits McIDAS-OS2 to the OS/2 operating system.

Remarks

Because you can run OS/2 commands in McIDAS-OS2, you will not ordinarily need to use the EXIT command.

To return to McIDAS-OS2 after an EXIT,

Type: **MCIDAS**

Press: **Enter**

If you have a serial interface on your printer, you cannot send output to the printer while in OS/2 unless you redirect the printer output with the following command.

Type: **MODE LPT1=COM1**

Press: **Enter**

When returning to McIDAS-OS2, boot the PC to direct the printer output back to its default device.

Do NOT use the Presentation Manager "Close" option to stop the entire McIDAS-OS2 session; doing so is likely to prevent other workstations on the same ProNET ring from working properly. To remove the entire session, first use the McIDAS-OS2 EXIT command. When you receive the OS/2 command prompt,

Type: **EXIT**

Press: **Enter**

This terminates the OS/2 session. Boot your computer to restart McIDAS-OS2.

F

Displays the video terminal status.

Remarks

To list the workstation status,

Press: **Alt F**

or

Type: **F**

Press: **Enter**

This command is reflected back to the PC.

The output format of F is shown below.

Video Status for Your Workstation

	<u>Image Frame(s)</u>	<u>Graphics Frame(s)</u>
Number Available	nn	nn
Current	nn (Opp=nnn)	nn
Loop Bounds via LB	n to n	n to n
Random Looping via LS	Yes/No	Yes/No
Visible (K & W toggle)	Yes/No	Yes/No
Connected (Y & J toggle)	Yes/No	Yes/No
Looping (L toggle)	Yes/No	Yes/No
Cursor parameters: Size = nnn/nnn	Type =cursor type	
Center position = nnn/nnn	Color=color	

Image frames nn-nn and Graphics frames nn-nn are nnnn BY nnnn.

The F command will not display the Graphics Frame(s) column on a VGA workstation since image and graphics frames are identical on a VGA workstation.

If you use the command LB to set image or graphics loop bounds, the table indicates the loop bound set. If you use the command LS to set the loop bounds, random looping is in effect. In this case, you can enter LS or LS G to list the current loop definition.

The final lines of the output format describe the number and size of the image and graphics frames. These values vary depending on your workstation. If you have a WWW, you can redefine the frame allocation. See Appendix A in this manual for instructions.

See Also

Use commands K, W, J, Y and L to modify the loop control system. Command K toggles the image on/off. W toggles the graphics on/off. J toggles the graphics loop control on/off. Y toggles the image loop control on/off. L toggles the image and graphics looping on/off.

Use command U to list the host terminal number (see the *McIDAS Reference Manual*).

GD

Sets graphics display parameters.

Format	GD INI GD <i>width dlength gcolor glength</i>
Default	GD This entry lists the current graphics parameters.
Parameters	INI initializes the graphics parameters to their logon values <i>width</i> graphics line width in pixels (default=last value set; at logon the default is 1) <i>dlength</i> length of the dashes in a line (default=last value set; at logon the default is 10 pixels) <i>gcolor</i> color level of the gaps in dashed lines; the range is 0-7 for tower and WWWs, 0-3 for VGA workstations (default=last value set; at logon the default is 0, no color) <i>glength</i> length of the gaps in dashed lines (default=last value set; at logon the default is 10 pixels)
Example	GD 3 5 3 5 This entry sets the line width to 3 pixels. The length of dashes and gaps in the dashed lines is 5 pixels. The color of the gaps is set to color level 3.

GRDIMG

Converts a grid to a TV image.

Format	GRDIMG <i>grid area rmag cmag [keywords]</i>
Default	GRDIMG <i>grid area</i> This entry places <i>grid</i> in digital <i>area</i> using the minimum and maximum grid values to determine the digital value range.
Parameters	<i>grid</i> source grid number <i>area</i> destination area number generated by GRDIMG <i>rmag</i> grid row magnification factor for the blowup (default=1) <i>cmag</i> grid column magnification factor for the blowup (default=1)
Keywords	COL= <i>begin end</i> beginning and ending column limits (default=1 <i>maximum column</i>) GRIDF= grid file number (default=current or that set by IGU SET <i>gridf</i>) RANGE= <i>low value high value low bright high bright</i> specifies the range of grid values <i>low value</i> lowest grid data value (default=minimum value) <i>high value</i> highest grid data value (default=maximum value) <i>low bright</i> lowest digital brightness value (default=0) <i>high bright</i> highest digital brightness value (default=255) ROW= <i>begin end</i> beginning and ending row limits (default=1 <i>maximum row</i>)
Remarks	The maximum grid size is 120 columns. Use keyword COL to specify a subset. The maximum element size is 640. Use a smaller column magnification or specify keyword COL if an error results.
Example	GRDIMG 1 5000 RANGE=270 300 This entry places grid 1 in area 5000. The grid is 20 by 20 and contains temperatures (K). The temperatures from 270 to 300 K take on digital values ranging from 0 to 255. All values below 270 are 0; those above 300 are 255.

GU

Graphics utility.

Formats

GU COLORS
GU DEL *name*
GU LIST
GU MAKE *level color bframe eframe*
GU MAKE *level blue green red bframe eframe*
GU OFF *level bframe eframe*
GU ON *level bframe eframe*
GU REST *name bframe eframe*
GU SAVE *name frame*
GU TABLE *name*

Default

GU
This entry restores the default graphics file to the current graphics frame.

Parameters

COLORS lists the predefined colors

DEL deletes a graphics file

LIST lists all saved graphics files on the PC

MAKE sets the graphics levels

OFF turns a graphics level off; use with tower workstations and WWWs only (default=turns all levels off)

ON turns a graphics level on; use with tower workstations and WWWs only (default=turns all levels on)

REST restores a saved graphics file

SAVE saves the current graphics file

TABLE lists the values in a graphics file (default=current)

name graphics file name; on VGA workstations and WWWs, the file name does not include an extension, e.g., .GRA, .ET

level graphics level number (default=0-7 for tower workstations, 1-8 for WWWs, 1-15 for VGA displays)

<i>color</i>	predefined color
<i>bframe</i>	beginning graphics frame number; use with WIDE WORD and VGA workstations (default=current)
<i>eframe</i>	ending graphics frame number; use with WIDE WORD and VGA workstations (default=bframe)
<i>blue</i>	blue color gun intensity; the range is 0-255 (default=0)
<i>green</i>	green color gun intensity; the range is 0-255 (default=0)
<i>red</i>	red color gun intensity; the range is 0-255 (default=0)
<i>frame</i>	graphics frame number; use with WIDE WORD and VGA workstations (default=current)

Examples

GU MAKE 7 WHITE 1 3

This entry sets graphics color level 7 to white for graphics frames 1 to 3.

GU OFF 7 1 3

This entry turns graphics color level 7 off on graphic frames 1 to 3 only.

GU TABLE

This entry lists the values in the current graphics file.

H

Toggles the host command entry mode on and off.

Remarks

To toggle the host command entry mode on and off,

Press: **Alt H**

or

Type: **H**

Press: **Enter**

An H appears on the status line whenever the ProNET or asynchronous communications encounters a connect condition.

Most commands will execute on the host when the H key is toggled on. Some commands, primarily loop controls and enhancement commands, are either intercepted by the PC or reflected by the host and run on the PC.

The system automatically inserts a period before any command that you manually enter while in the host mode.

While in the local mode, with no H on the status line, precede any host command with a period or it will attempt to run locally.

You must enter a period (.) before all commands in the scheduler or string table that will run on the host.

HELP

Lists the on-line help for McIDAS-OS2 commands.

Formats

HELP *command*
HELP *'McBASI command'*

Default

HELP
This entry lists the currently supported McIDAS-OS2 commands.

Parameters

command the McIDAS-OS2 command name

'McBASI command' a McBASI command name preceded by a single quote

Remarks

To list mainframe command documentation, precede **HELP** with a period, e.g., **.HELP LA**.

McBASI programs are assumed stored in the \MCIDAS\DATA subdirectory.

The **HELP** command can be invoked while entering a command from the keyboard. After you type the command name,

Press: ALT ?

An abbreviated help is displayed on the window; the full text is displayed on window 5.

See Also

For more information about commands, see the *McIDAS Reference Manual* or the *McIDAS Applications Guide*.

Examples

HELP CUR
This entry lists the on-line documentation for McIDAS-OS2 command **CUR**.

HELP 'WHO
This entry lists the help for the McBASI program **WHO**.

IGG

Grid utility.

Formats

IGG DEL *bgrid egrid [keywords]*
 IGG LIST *bgrid egrid [keywords]*
 IGG GET *sgridf bgrid egrid dgridf bgrid*
 IGG MAKE *grid1 option1 ... gridn optionn [keywords]*

Defaults

IGG LIST

This entry lists all the grids in your workstation's default grid file.

IGG DEL

This entry deletes grid one in the default grid file.

Parameters

DEL deletes grids

LIST lists grids

GET moves grids from one file to another or within the same file

MAKE arithmetic operations performed on the grids; see *option* below

bgrid beginning grid number

egrid ending grid number

sgridf source grid file number (default=terminal number, or from IGU SET *gridf*)

dgridf destination grid file number

grid1..n a grid number

option1..n **ABV** creates a grid of vorticity when the grid is u-comp (grid + 1 = v - comp) with the coriolis force; the second grid in the command is not used; units are 10^{-5} sec^{-1}

ADD adds grids on a point-by-point basis

ADV advects the parameter specified as the second grid by the wind of the first grid (u-comp assumes grid + 1 = v - comp)

AVG averages grids

CHGT changes the values greater than the value of the second grid

CHLT changes the values that are less than the value of the second grid

COM compares two grids for overlapping values; for a threat score, the second grid should be followed by two numbers that specify the range of values to include, e.g., **MAK 12 COM 18 -500 500**

COR creates a grid of the coriolis force using the boundaries of *grid1*

DIV divides grids

DSH for deformation shear when the grid is u-comp (grid + 1 = v - comp); the second grid is not used

DST for deformation stretch when the grid is u-comp (grid + 1 = v - comp); the second grid is not used

DVG creates a grid of divergence when the grid is u-comp (grid + 1 = v - comp); units are 10^{-6} sec^{-1} ; if you specify a second grid, the divergence of that parameter is computed; if the second grid is 0, type **ZERO** for that grid

FIL creates a grid with the specifications of the first grid but fills it with the value specified for the second grid, e.g., **MAK 12**

GEO creates u and v component grids of the geostrophic wind; *grid1* must be a height grid

MPY multiplies points by a value

RMS computes RMS and bias differences of two named grids

SPD creates a grid of wind speed; grid input is u-comp (grid + 1 = v - comp); the second grid is not used; it is not linked to u and v grids; it can be used with any two successive grids to reproduce a grid of the square root of the sum of the squares

SQR square root; applies to the first grid only

SUB subtracts values from each point

VOR creates a grid of vorticity when the grid is u-comp (grid + 1 = v - comp); units are 10^{-6} sec^{-1} ; the second grid in the command is not used

Keywords	ADD=	YES	includes an additional term for divergence (default)
		NO	does not include an additional term for divergence
	DGRID=		destination grid number for MAKE parameter (default=next available grid)
	GRIDF=		grid file number to work on (default is from IGU SET gridf)
	LAB=		labels the resulting grid (default depends on operation)
	PLANET=		planet name (default=earth)
	SMO=	YES	smooths the resulting grid (default)
	NO	does not smooth the resulting grid	
	V=		number of the v grid to input if it does not follow the u grid (default=u grid + 1)

Remarks For arithmetic functions (ADD, SUB, MPY, DIV), the second named grid may be negative. The absolute value is treated as a constant, not as a grid.

To plot grid points on a line printer, enter: *IGTV grid X map 3.*

The CRT format of the grid directory is as follows.

Column	Format
1	grid number
2	year, Julian day
3	hours, minutes, seconds of the grid
4	name of the gridded parameter
5	description of the atmospheric level and units
6	name of the program that generates the grid
7	hours that the forecast grid is valid after generation
8	number of rows in the grid
9	number of columns in the grid
10	latitude and longitude of the upper-left corner; it will be PS if polar stereographic
11	row grid spacing in degrees
12	column grid spacing in degrees

Examples

IGG GET 10 5 7 20 1

This entry moves grids 5, 6 & 7 from grid file 10 into grid file 20, starting at grid 1.

IGG LIST 1 20

This entry lists all grids from 1 to 20 from the default grid file.

IGG MAKE 2 SUB 1

This entry creates a new grid by subtracting grid 1 from grid 2.

IGG MAKE 2 MPY 4 ADD 5 DIV 60

This entry creates a new grid by multiplying each grid point in grid 2 by 4, adding them to grid 5 and dividing by 60.

IGTV

Generates contours and streamlines from grids.

Format	IGTV <i>grid interval map output [keywords]</i>	
Default	IGTV <i>grid</i> This entry contours <i>grid</i> and displays it with a contour interval of 2.	
Parameters	<i>grid</i>	u-grid component grid number to contour
	<i>interval</i>	contour interval; intervals must be factors of ten, e.g., 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30 . . . (default=2) enter a string name with up to 64 values
	<i>map</i>	DEF defines your own boundaries; use LAT and LON keywords (default) MID Midwest USA map NA North American map NONE does not draw a map SAT satellite projection USA USA map <i>Post Office Abbreviation</i>
	<i>output</i>	if DEV=C or P, use 1 to display contours, 2 to display the grid and contours, 3 to display grid points on the CRT or printer
Keywords	CMAP= map color level; the range is 1-7 (default=1) COLOR= graphics contour color level; the range is 1-7 for solid lines, -1 to -7 for dashed lines; no map is drawn with negative numbers (default=2) DASH= NEG dash negative contours only POS dash positive contours only ALL dash all contours DEV= C displays grid points to the CRT P displays grid points to the printer ELE= graphics TV element bounds FRA= image frame number (default=current) GRA= graphics frame to display the plot (default=current)	

GRIDF= grid file number (default=current)
LAT= *min max* minimum and maximum latitude extents
LIN= graphics TV line bounds
LINT= contour label interval (default=labels each contour)
LON= *min max* minimum and maximum longitude extents
LSIZE= height of the contour labels in pixels (default=7)
MAG= magnifies the data values (default=0)
PAN= panel number; the range is 1-4
PRO= **CONF** conformal projection
 MERC Mercator projection (default)
SCALE= scale for conformal projection, maximum of 10^8 (a ratio, e.g., 30); multiply values under 1,000 by 1,000,000
SF= **YES** displays image/graphics frame (VGA only)
SLAT= *lat1 lat2* standard latitude; for polar stereographic specify *lat1*; for Lambert conformal specify *lat1 lat2* (default=60)
SLON= *lon* normal longitude; for polar stereographic specify longitude and Lambert conformal, e.g., **PRO=CONF** (default=center longitude of the map limits)
UNIT= contour units; depends on the contoured parameters
V= v-grid component if the v-grid doesn't follow the u-grid (default=u-grid + 1)

Remarks

IGTV does not generate gridded data. Use commands MDX, SC, UC, etc., to generate the grids. Use commands IGG and IGU to manipulate grids and grid files.

IGTV allows for scaling up to 10^8 . Entered values should be integers less than 1000. The scale value is the integer multiplied by 1,000,000. For example, **SCALE=33** gives a 33,000,000 to 1 scale.

To view the wind's u-grid component, assign the v-grid component (keyword V) a nonexistent grid value such as **V=0**.

Examples

IGTV 5 X X 3 DEV=P

This entry prints the grid points from grid 5.

IGTV 2 X MID 2 DEV=C

This entry displays the grid points and contours from grid 2 over the Midwest.

IGTV 3 10 USA DASH=NEG GRIDF=14

This entry displays the contours from grid 3 in grid file 14 on a USA Mercator projection. It uses a contour interval of 10 with dashed negative values.

IGTV 17 4 USA PRO=CONF SLAT=25 50 SCALE=10

This entry displays the contours from grid 17 with a contour interval of 4. The map is a Lambert conformal projection of the USA with standard latitudes of 25° N and 50° N. The map is scaled 10,000,000 to 1.

Create the following string called LEV:

TE LEV "30 50 60 65 80

Then use IGTV to contour the grid:

IGTV 1 LEV MID UNIT=F

This entry contours only the 30, 50, 60, 65 and 80 degree isotherms.

Note that in this special feature of IGTV, there is no pound sign before the string name, i.e., #LEV.

IGU

Grid file utility.

Formats

```
IGU LIST  bgridf  egridf  [keywords]
IGU DEL   bgridf  egridf
IGU SET   gridf
IGU COPY  sgridf  dgridf  RENUMBER
IGU MAKE  gridf  maxgrd  "text
IGU DIR   gridf  date  project  "text
```

Default

No default; you must specify a group of parameters.

Parameters

LIST	lists a directory on the CRT
DEL	deletes a grid file
SET	points at a grid file number
COPY	copies a grid file
MAKE	generates a grid file
DIR	creates a directory for a grid file
RENUMBER	renumbers grids after copying a file
<i>bgridf</i>	beginning grid file number
<i>egridf</i>	ending grid file number
<i>gridf</i>	grid file number
<i>sgridf</i>	source grid file number
<i>dgridf</i>	destination grid file number
<i>maxgrd</i>	maximum number of grids in the grid file
<i>date</i>	date the grid file was generated
<i>project</i>	your project number
<i>"text</i>	identification text for your grid file; quotes are mandatory

Keywords

DAY= lists the grid files with this date, YYDDD

PROJ= lists the grid files with this project number

Examples

IGU LIST 1000 1020 DAY=79100

This entry lists the grid files from 1000 to 1020 for day 100 in 1979.

IGU COPY 1000 2000 RENUMBER

This entry copies grid file 1000 into grid file 2000 renumbering the grids to compact the file.

IGU SET 2000

This entry points at grid file 2000. All subsequent grid operations are performed on file 2000 until you execute another IGU SET command.

IMGPRO

Generates satellite image products.

Format	IMGPRO <i>sarea darea [keywords] "text</i>	
Default	No default; you must specify the areas.	
Parameters	<i>sarea</i>	source area number; keyword AREA overrides this entry (no default)
	<i>darea</i>	destination area number (no default)
	<i>"text</i>	text to attach to the destination area directory; 32 characters maximum
Keywords	AREA=	single or multiple source area numbers (default= <i>sarea</i>)
	BAND=	single or multiple band numbers (default=lowest band number)
	COEF=	coefficients for each term in the equation (default=+1.0)
	CONST=	constant for the equation (default=0.0)
	FACTOR=	internal source and destination integer scaling factors (default=1.0)
	FORM=	ADD adds each term in the equation (default) MULT multiplies each term in the equation
	FUNC=	allows a transcendental function operation on the additive or multiplicative expression, i.e., LOG, ALOG, LN, EXP (default=NONE)
	LLMT=	lower limit thresholds, inclusive, for each term in the equation (no default)
	NAME=	derived imagery product name; up to 4 characters (default=PROD)
	OFF=	offsets for each term in the equation (default=0.0)
	POW=	powers for each term in the equation (default=+1.0)

QA= YES quits the output area if it already exists
 NO does not quit the output area (default)

SCALE= *prodlo prodhi britlo brithi*
 minimum and maximum product and brightness values
 for the calibration (default=none for the product values;
 0-255 for the brightness counts)

SIGN= P plus the band values relative to their offsets for
 each term in the equation (default)
 M minus the band values relative to their offsets

ULMT= upper limit thresholds, inclusive, for each term in the
 equation (no default)

UNIT= calibration types for each term in the equation
 (default=BRIT)

ZERO= DATA assigns zero pixel values as data and includes
 them in the analysis
 MISS assigns zero pixel values as missing and excludes
 them from the analysis (default)
 a nonzero numeric value identifies that pixel value to
 represent the missing value flag

Remarks IMGPRO has no line limit, but has a 4000 element maximum.

This program assumes all areas have equivalent navigation. If this is not the case, use the REMAP or AA command.

Zero pixel values can be treated as missing value codes or as real data values. Nonzero numeric values can be substituted to specify a different missing value code other than zero.

The equation formats are:

Output = Constant + FORMat [Coef * (Off+Sign*Band) * * Pow]
 Output = FUNCtion [Output]

Example

IMGPRO 2048 2049 BAND=8 10 COEF=+1 -1 SCALE=-10 +10
 NAME=DIFF UNIT=TEMP

This entry calculates the difference between 11 and 6.7 micron GOES brightness temperatures from the multibanded area 2048, storing the temperature difference in area 2049 with a linear stretch between 0 and 255 brightness counts for the temperature range -10 to +10 degK, and naming it DIFF.

ISENT

Calculates theta surface levels for all RAOB stations.

Format	ISENT <i>smdf dmdf day time btha etha inctha</i> [<i>keyword</i>]
Default	ISENT <i>smdf dmdf</i> This entry calculates the theta surface levels for all data in <i>smdf</i> and stores the results in <i>dmdf</i> .
Parameters	<i>smdf</i> source MD file (default=current mandatory RAOB file) <i>dmdf</i> destination MD file; must not exist before running ISENT (no default) <i>day</i> year and day of the RAOB data, YYDDD (default=current) <i>time</i> time of the RAOB observation, HHMM (default=0Z if the current time is less than 13:30Z, else 12Z) <i>btha</i> beginning theta value (default=280 K) <i>etha</i> ending theta value (default=350 K) <i>inctha</i> increment of the theta value (default=10 K)
Keyword	SIG= history MD file for significant data
Remarks	A maximum of 18 theta levels can be calculated. Theta levels contain pressure, missing ratio, u and v components, delta pressure, Montgomery streamfunction and the theta value. When using history data, the significant data file should follow the mandatory data file or be specified by keyword SIG. To view data from the created MD file, use command MDX with a sort condition like the following: SORT=TIME 12 THA 300. This sort condition is for data at 12Z; the isentropic surface is 300K. See MDX for more information.
Example	ISENT X 1000 X 0 290 340 This entry calculates the theta surface levels between 290 and 340 for 0Z on the current day, and files this information into MD file 1000.

J

Toggles graphics frames to and from the loop control system.

Remarks

To toggle graphics frames to and from the loop control system on tower workstations,

Press: **Alt J**

or

Type: **J**

Press: **Enter**

The loop control system consists of the A, B, L, J, Y and LB commands.

You can connect or disconnect graphics frames from the loop control keys independently of the image frames.

K

Toggles image frames on and off.

Remarks

To toggle image frames on and off,

Press: **Alt K**

or

Type: **K**

Press: **Enter**

On VGA workstations, this is simulated by setting the thirteen image levels (0 and 4 to 15) to black.

See Also

Command W toggles the graphics frame on and off.

L

Toggles frame looping on and off.

Remarks

To start automatic frame looping in a forward mode,

Press: **Alt L**

or

Type: **L**

Press: **Enter**

Pressing L a second time stops the looping at the first frame of the loop.

The L command works only if the loop control system is connected to the frame system.

See Also

The Y command connects the loop controls to the image frame system.

The J command connects the graphics frames.

Refer to the Introduction section of this manual for more information about the McIDAS-OS2 Loop Control System.

LA

Lists the digital area directory.

Format	LA <i>barea larea</i> [<i>keywords</i>]
Default	LA <i>barea larea</i> This entry lists a single line directory for all areas between the beginning and last areas.
Parameters	<i>barea</i> the beginning area directory to list <i>larea</i> the last area directory to list (default= <i>barea</i>)
Keywords	DAY= lists the area for the current day and year only, YYDDD or YY/MM/DD; if DDD=0, all days for YY are listed FORM= ALL lists the entire area directory AUDIT lists the entire directory with its audit trail EXP lists an expanded version of the area directory SS= lists the areas with this sensor source only TIME= lists the areas with this time only, HH:MM:SS
Remarks	If you use FORM=ALL with POES, be sure to check the MEMO line in the directory information. The signal will be HRPT (LAC or GAC). The product will be MULT (multiple) or SIG (single) band. The ground station will be Wallops Island (W) or Gilmore Creek (G). The A or D in the line represents Ascending or Descending display. If D appears on the line, the image is upside down.
Examples	LA 101 120 TIME=21:01 This entry lists the areas between 101 and 120 with time 2101 GMT. LA 101 This entry lists area 101 only.

LB

Sets image or graphics frame loop bounds.

Formats	LB <i>bframe eframe</i> LB G <i>bframe eframe</i>
Default	LB This entry lists the current loop bounds.
Parameters	<i>bframe</i> beginning frame of the loop (no default) <i>eframe</i> ending frame of the loop; this number must be larger than <i>bframe</i> (default=half the highest frame number on the terminal for image frames; the highest frame number on the terminal for graphics frames) MAX is the highest frame number on the terminal G sets the graphics loop bounds; not entering a parameter sets the image frame loop bounds (not valid on VGA workstations)
Remarks	When you log on to McIDAS, image frame loop bounds are set at a lower bound of 1, with the upper bound being half the highest frame number on your terminal. Use the F, L, Y and J keys to manipulate the loop control system. F lists the loop bound status, L loops the frames, Y locks and unlocks the image frames (tower workstations only), and J locks and unlocks the graphics frames (tower workstations only).
See Also	See command LS for information about random frame looping. Refer to the Introduction section of this manual for more information about the McIDAS-OS2 Loop Control System.
Examples	LB 1 6 This entry sets images to loop from frames 1 through 6. LB G 8 11 This entry sets graphics to loop from frames 8 through 11. LB 6 MAX This entry sets the image frame loop bounds beginning on frame 6 and ending on the highest frame number.

LF

Lists an image frame directory.

Format	LF <i>bframe eframe</i> [<i>keyword</i>]
Default	LF This entry lists the current image frame directory on the CRT.
Parameters	<i>bframe</i> beginning image frame number to list (default=current) ALL lists all the image frames <i>eframe</i> ending image frame number to list (default= <i>bframe</i>)
Keyword	FORM= ALL lists an expanded directory STN lists the standard directory (default)
Examples	LF 2 6 This entry lists the image frame directory for frames 2 through 6. LF 5 FORM=ALL This entry lists an expanded image frame directory for frame 5.

LOGOFF

Logs you off the system and workstation.

Remarks

This command logs you off the host and PC.

LOGON

Logs you onto the system.

Formats	LOGON <i>initials project I</i> LOGON <i>initials project string PC</i> LOGON <i>initials project string password</i>
Default	LOGON <i>initials project</i> This entry logs you onto the PC and mainframe host. It resets the loop bounds to one and one-half the maximum image frame number, sets the image and graphics frames to one, and leaves the rest of the workstation in its current state.
Parameters	<i>initials</i> your initials <i>project</i> your 4-digit project number <i>string</i> name of the PC and host string table and string to execute, if any; PC strings are executed first, followed by host strings <i>password</i> password as required by sites; appears as dashes (- - -) on the screen as you type it I initializes the workstation PC logs on to the PC workstation only, if specified
Remarks	When you log on to a host, one of two things may happen depending on the SETUP of your workstation. First, the LOGON command may attempt to connect you to a host via dialup or TCP. This is not true for ProNET-connected workstations. Second, the LOGON command will send the text of the LOGON command to the host along with important information about the configuration of the workstation. When you log on to McIDAS, the workstation is initialized. It lists: • your workstation identification • the message of the day • the + LOGON COMPLETE + message • a MAIL WAITING message (when applicable) If there is no response, type the LOGON command again.

If a Communications Timeout, Comm Link Error or ProNET Contact Lost message appears on the screen, it means your workstation is down. Contact your computer operator. To view the logon message during a work session,

Type: **.SEE LOGON**

McIDAS has several logon procedures. Review the six procedures below and select one that is suitable for you.

1. To initialize your workstation,

Type: **LOGON initials project I**

Example: **LOGON ABC 1234 I**

This entry:

- clears the string table
- sets the current MD file number
- displays image and graphics frames one on tower workstations
- sets image frame loop bounds 1-1/2 times the number of image frames on the terminal; EGA/VGA workstations are set to the maximum
- connects image frame looping
- sets graphics frame loop bounds to one and the total number of graphics frames on your terminal
- disconnects graphics frame looping
- sets image and graphics frame dwell rates to 9/15 second for the first frame and 6/15 second for the remaining frames
- sets the graphics line width to one pixel
- initializes graphics color levels
- displays a red 30 x 30 pixel crosshair cursor (tower workstation only)
- unlocks the cursor control
- sets the enhancement table with command:
EU MAKE 0 255 0 255 0 255 0 255
- turns off the pictel interlace switch (N key)

2. To leave your workstation in its current state,

Type: LOGON *initials project*

Example: LOGON ABC 1234

This entry leaves your workstation in its present state, except it checks for valid loop bounds, resetting to one and one-half the total image frame number, if necessary. It also sets the image/graphics frames to the lowest loop bound frame

3. To load a string table in the host mode,

Type: LOGON *initials project .*

Example: LOGON ABC 1234 .

This example initializes the workstation and loads the string table named with your initials on the PC and host. It loads the PC string table and executes its strings prior to the host's. After the PC string table named ABC is loaded, any string name beginning with ABC (e.g., ABCXXXX, ABCYYYY) is executed. In the PC mode, the PC string table named ABC is loaded. Any string beginning with ABC in the PC string table is executed.

4. To load a PC string table while in the host mode,

Type: LOGON *initials project string*

Example: LOGON ABC 1234 STR

This example initializes the workstation and loads the string table named STR in the host. It also loads the PC string table STR in the PC. Any string in the table beginning with STR (e.g., STRCOLOR, STRERASE) is executed. The same procedure is followed for a host string table named STR. In the PC mode, only the PC string table named STR is loaded. Any string beginning with STR in the PC string table will be executed.

5. To log on with a password to a host,

Type: LOGON *initials project X password*

Example: LOGON ABC 1234 X PASSWORD

Because passwords are displayed as dashes on the screen when you type them, the example line will look like this:

LOGON ABC 1234 X -----

LS

Creates random loop sequences for image and graphics frames.

Formats	LS <i>frame1 frame2 frame3 ... frameN [keywords]</i> LS G <i>frame1 frame2 frame3 ... frameN [keywords]</i> LS O <i>frame1 frame2 frame3 ... frameN [keywords]</i>
Default	LS This entry lists the current loop sequences.
Parameters	<i>frame1 ... n</i> frame numbers to include in the loop G sets the graphics frame loop sequence; it is not valid on VGA workstations O sets the opposite frame loop sequence
Keywords	DIR= B steps through the frame list backward F steps through the frame list forward (default) UPDATE= Y automatically updates the loop when a new frame is displayed using command DF N doesn't update the loop (default)
Remarks	Use <i>frame-frame</i> for a sequential range of frames. See the examples. When you set the frame loop, the opposite frame loop is automatically set in the following manner. If frame <i>N</i> is less than or equal to $(\text{max frames})/2$, it corresponds to the opposite frame $N + (\text{max frames})/2$. If frame <i>N</i> is greater than $(\text{max frames})/2$, it corresponds to the opposite frame $N - (\text{max frame})/2$. To override the opposite frame loop default, use the LS O command. Refer to the Introduction section of this manual for more information about the McIDAS-OS2 Loop Control System.

Examples**LS 1 4 2 5**

This entry loops from image frames 1 to 4, to 2 to 5.

LS 1-16

This entry loops frames 1 through 16.

LS 1 16

This entry loops frames 1 and 16 only.

LS 0 1-4 8 9 3-1

This entry loops opposite frames 1, 2, 3, 4, 8, 9, 3, 2, 1.

LS G 1-5 5-1

This entry loops through graphics frames 1 to 5, then 5 to 1.

LSCHE

Lists an MD file schema.

Formats	LSCHE <i>schema version</i> HED LSCHE FIND <i>key</i>
Default	LSCHE This entry lists all registered MD file schemas.
Parameters	<i>schema</i> name of an MD file schema to list; the name is system dependent ALL lists all file schemas (default) <i>version</i> schema version number to list ALL lists all schema version numbers (default=latest version) <i>key</i> name of a schema key; a schema entry point descriptor HED lists the file header only (default=lists header and keys) FIND lists the schemas that contain the specified <i>key</i>
Remarks	Before using command LSCHE, initialize the MD files using the SCHE command. Use LSCHE to list the schema header and keys.
Examples	LSCHE IRAB This entry lists the IRAB file schema. LSCHE ISFC ALL This entry lists all versions of the ISFC file schema. LSCHE ISHP X HED This entry lists the file header only for the ISHP file schema. LSCHE FIND IDN This entry lists all schemas that contain the key IDN (station ID number).

LWF

Lists virtual frame files.

Remarks

Command LWF lists the VGA workstation virtual frame files saved with the SVF command. Files are saved in the \MCIDAS\DATA subdirectory with extension .VIF.

LWTODOS

Converts LW format files to DOS format files.

Format	LWTODOS <i>sfile dfile</i> R
Default	No default; you must specify the files.
Parameters	<i>sfile</i> source LW file name <i>dfile</i> destination DOS file name; it must be different than <i>sfile</i> R replaces the destination file if it already exists
Remarks	The LW file format is an 80-character card image, blank padded as needed, with no carriage returns.
Example	LWTODOS SFCPLT SFCPLT.TXT This entry converts the LW file named SFCPLT to a DOS file named SFCPLT.TXT.

LWU

LW file utility.

Formats

LWU COPY *sfile dfile*
LWU DEL *file*
LWU LIST *file first last*
LWU MAKE *file*

Default

No default; you must specify the parameters.

Parameters

COPY copies a file

DEL deletes a file

LIST lists words, the range is 0-8 million (default=0-39)

MAKE creates a file

sfile source file name

dfile destination file name

file name of the file

first first word number to list

last last word number to list (default=next 39 words)

Remarks

LW files reside in the \MCIDAS\DATA subdirectory.

Use DMAP to determine the size of your file before transferring it to a diskette.

Examples

LWU MAKE CLOUDS

This entry creates an LW file named CLOUDS.

LWU COPY CLOUDS NEWONE

This entry copies LW file CLOUDS into file NEWONE.

LWU DEL CLOUDS

This entry deletes LW file CLOUDS.

MA

Modifies a digital area.

Format	MA sarea darea frame option p1 p2 p3 p4 [keyword]			
Default	No default; you must specify a group of parameters.			
Parameters	sarea	source area number		
	darea	destination area number		
	frame	image frame number for the modified area; you may use zero for no TV display		
	option	A	automatic enhancement	
		C	contrast stretching	
		E	lookup table enhancement	
		F	data fill	
		G	gradient	
		H	high pass filter	
		L	low pass filter	
		N	shot noise filter	
		S	digital stretching	
		ADD	adds a parameter to the data	
		BAD	removes buffer flakes and bad lines; places the average in all bad lines	
		CLN	removes buffer flakes and bad lines; places zeros in the bad lines	
		FLX	converts the IR counts to flux in W/M*M/2	
LIN	converts the square root digitization to a linear scale			
SCA	scales the data			
TEM	converts the IR counts to Kelvin - 100			
	p1 - p4	these parameters vary with the selected option; see the Remarks below		
Keywords	BAND=	band number to process; if it is a single band image it defaults to the single band; if you use multiband data, place keyword BAND at the end of the MA command sequence to clarify the desired band		
	DBAND=	destination band number in darea (default=BAND)		

Remarks

MA modifies the brightness values in a digital area by applying a data operator, transferring the result to another digital area, and displaying the data on an image frame. *sarea* specifies the input area; *darea* specifies the output area. If *darea*=0, the modified area is written into *sarea*. *frame* specifies the frame number if the digital area is displayed following modification; otherwise, *frame*=0.

The maximum number of elements in a line is 5000.

option indicates one of the data operators which may require the use of *p1* to *p4* for control parameters. Below is a further explanation of each *option*.

Option	Description
A	A means automatic enhancement. It makes a histogram of the occurrence of the values for the input area. The output area is an enhancement of the input area where the range of digital values is proportional to the occurrence of the histogram values, i.e., if there are many digital values in a small brightness range on the area input, they are stretched to a wider range of brightnesses in the enhanced output. Values <i>p1</i> and <i>p2</i> are ignored.
ADD	This option adds the constant <i>p1</i> to the digital data. $J(I) = J(I) + p1$. The overflow is set to 255; the underflow is set to 0. <i>p1</i> =constant added to the data; - 255 < <i>p1</i> < 255 (no default)
BAD	This option locates bad lines and replaces them with the average of the lines on either side. It also removes buffer flakes with a shot noise filter. The program finds bad lines by correlating each line with the last good line. Lines with averages of 255 or 0 are automatically defined as bad. <i>p1</i> =shot noise window; 0 < <i>p1</i> < 255 (default=40) <i>p2</i> =first good line of the area (default=1) <i>p3</i> =last line to be cleaned up (default=last line) <i>p4</i> =correlation criteria between lines (default=20)
C	C is an enhancement that stretches the values between <i>p1</i> and <i>p2</i> to range between 0 and 255. <i>p1</i> =lower digital value (default=8) <i>p2</i> =upper digital value (default=240) - positive stretch - negative stretch (<i>p1</i> =255, <i>p2</i> =0) - compress stretch (<i>p1</i> =-300, <i>p2</i> =600) - real numbers (<i>p1</i> =26.8, <i>p2</i> =150.2)

Option	Description
CLN	CLN performs the same function as the BAD option except that zeros replace the bad lines if there is more than one bad line in a row. The maximum number of elements in a line is 1680. $p1$ =shot noise window; $0 < p1 < 255$ (default=40) $p2$ =first good line (default=1) $p3$ =last line to clean up (default=last line) $p4$ =correlation criteria between lines (default=20)
E	This option applies the enhancement from the video lookup tables to the digital data. $p1$ =B (blue), G (green) or R (red) lookup table (default=B)
F	This option fills in the holes along a remapped data line. The holes have values between $p1$ and $p2$. The average value of the data on either side of the hole is placed in the hole. $p1$ =lower value that defines the hole; $0 < p1 < 255$ (default=0) $p2$ =upper value that defines the hole; $0 < p2 < 255$ (default=0)
FLX	FLX converts the infrared image into an image of longwave flux divided by 2 in units of watts/m ² . The formula is $J(I) = 0.543 \cdot (5.66 \times 10^{-8}) \cdot J(I)^4 + 44.538$.
G	This option applies a gradient operator (IABS [J(I) - J(I+1)] along each line. $p1$ and $p2$ are not used.
H	This option applies a high pass filter (suppressing a low frequency of broad features) along a line. $p1$ =filter radius; $1 < p1 < 500$ (default=50 pixels) $p2$ =filter efficiency; $1 < p2 < 100$ (default=100%)
L	This option applies a low pass filter (suppressing high frequency or small features) along a line. $p1$ =filter radius; $1 < p1 < 500$ (default=30 pixels) $p2$ =filter efficiency; $1 < p2 < 100$ (default=100%)
LIN	This option converts the SMS square root digitization to a linear scale in which the visible image brightness values are proportional to the radiance measured by the satellite. $J(I) = p2 \cdot (J(I) \cdot J(I)/16 - p1/4) / 3969$ $p1$ =calibration offset; space view (default=8) $p2$ =scaling factor (default=200)

Option	Description
N	This option applies a shot noise filter to remove spikes along a data line. The shot noise pixel is replaced by the average value of the pixels, one to the left and two to the right. $p1$ =shot noise window (default=40 pixels)
S	This option takes an enhancement of the digital area which throws away the lower $p1\%$ and $p2\%$ of the data and stretches the remaining data to fit between 0 and 255. $p1$ =lower cutoff percentage; $1 < p1 < 100$ (default=3) $p2$ =upper cutoff percentage; $1 < p2 < 100$ (default=3)
SCA	This option scales the data by multiplying by $p1$. The $J(I) * p1$ overflow is set to 255. $p1$ =multiplying factor; it can be an integer or real number (default=1)
TEM	This option converts the infrared counts into an image of temperature - 100 (in Kelvin - 100). $p1$ and $p2$ are not used.

Examples**MA 6512 6513 2 CLN**

This entry cleans up the data in area 6512, places the new data in area 6513 and displays the new image on frame 2.

MA 6513 6514 10 C 150 200

This entry contrast stretches area 6513 into area 6514 and displays the image on frame 10. It stretches the digital values 150 to 200 between 0 and 255.

MA 1000 2500 X ADD 100

This entry adds the constant 100 to each digital value in area 1000. The destination area is 2500. It does not display the image. Any new values greater than 255 become 255.

MA 8011 8010 BAD BAND=4 DBAND=6

This entry removes bad lines and buffer flakes from area 8011 band 4 and stores the result in area 8010 band 6.

MAKMNU

Creates a menu file from text orders.

Format	MAKMNU <i>file</i> [<i>keywords</i>]		
Default	No default; you must specify the file name.		
Parameter	<i>file</i>	file name where the text orders exist	
Keywords	INIT=	YES	initializes the menu file before adding a specified menu; does not merge menus (default)
		NO	does not initialize the menu file; use to merge menus
	LIST=	YES	lists the input file text as it's processed
		NO	does not list the input file text (default)
	TYPE=	NEW	input file is written using the new character format (default)
		OLD	input file is written using the old character format
Remarks	The file containing text orders must reside in the \MCIDAS\DATA subdirectory. See the McIDAS-OS2 F Key Menu System chapter in this manual for further details. If you do not specify an extension for the file name, the system assumes the .MNU extension. If you no longer want a menu on your system, Type: LWU DEL MENU Press: Enter No menu will come up automatically when you enter McIDAS or press the Escape key.		
Example	MAKMNU SFCTR TYPE=OLD This entry creates the menu file SFCTR from the text orders specified using the old character format.		

MAP

Outlines map and latitude/longitude lines on a graphics frame.

Format **MAP** *map color1 LALO color2 [keywords]*

Default **MAP**

This entry draws a map on a satellite image.

Parameters	<i>map</i> DEF draws a map in Mercator projection with latitude/longitude ranges that you specify; the map file is selected as in SAT below EURB Europe's political boundaries; latitude=20 80, longitude=- 60 30; map file OUTLHPOL EURO Europe; latitude=20 80, longitude=- 60 30; map file OUTLSUPW H North America; medium resolution; map file OUTLUSAM L world coastal outlines; used with satellite projection; map file OUTLSUPW LALO no map; latitude/longitude lines only MID Midwest; latitude=34 50, longitude=83 104; map file OUTLUSAM NA North America; latitude=25 80, longitude=55 179; map file OUTLUSAM OUTLHPOL world political outlines OUTLHRES world coastal outlines; high resolution OUTLSUPU continental USA; high resolution OUTLSUPW world coastal outlines; medium resolution OUTLUSAM North America; medium resolution <i>PO Abbreviation</i> Post Office abbreviation; map file OUTLUSAM POLI world political boundaries; map file OUTLHPOL PRC China; latitude=15 55, longitude=- 145 -65; map file OUTLSUPW PRCB China's political boundaries; latitude=15 55; longitude=- 145 - 65; map file OUTLHPOL SAT draws a map in satellite projection using the OUTLUSAM map file for North America and OUTLSUPW for all other areas (default) USA continental USA; latitude=23 56, longitude=66 126; map file OUTLUSAM
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	VH	continental USA; high resolution; map file OUTLSUPU
	WORL	world coastal outlines; used with Mercator projection; map file OUTLSUPW
	WIS	Wisconsin; latitude=41 48, longitude=85 95; map file OUTLUSAM
	color1	graphics color level for the map; the range is 1-7 (default=1)
	LALO	draws latitude/longitude lines with a map (default=does not draw lines)
	color2	graphics color level for latitude/longitude lines; the range is 1-7 (default=2)
Keywords	ACC=	accuracy for the latitude/longitude lines; the range is 1-10 (default=4)
	BOX=	YES color draws a box around a graphics panel in a specified color (default for all except SAT; default color=1)
	NO	does not draw a box (default for SAT projection)
	ELE=	<i>min max</i> TV element extents (default taken from User Common)
	GRA=	graphics frame number (default=current)
	IMA=	image frame number (default=current)
	INT=	<i>lat lon</i> intervals for latitude/longitude lines (default=computed)
	LABEL=	NO does not add a label
	YES	<i>clat clon</i> adds latitude/longitude line labels (default) specify the color levels for latitude and longitude (default for both is level 3); see the Labels information
	LAT=	<i>lat1 lat2</i> latitudes of the points at the lower-right and upper-left corners of the TV screen
	LIN=	<i>min max</i> TV line extents (default from User Common)

LON= *lon1 lon2* longitudes of the points at the lower-right and upper-left corners of the TV screen; if you choose a CONF projection and specify SCALE, the map is centered at the specified coordinates if only *lat1* and *lon1* are entered; in other cases, the point with coordinate *lat2*, *lon2* is placed in the upper-left corner of the TV screen; the other point is shifted on the screen (or removed from it) to create a map with a given scale; defaults for SAT projections are the range taken from the image or map geographical limits; for CONF and MERC projections, defaults are latitude -90 to +90, longitude -180 to +180

NAME= map file name; it overwrites the default map file

PAN= panel number; the range is 0-4 (default=0, whole screen)

PRO= **CONF** conformal projection; see the Projections information below

MERC Mercator projection (default for all maps except H, VH, L or LALO)

SAT satellite projection (default if map and projection are not specified, or map is H, VH, L or LALO and the projection is not specified)

SCALE= map scale for a CONF projection; scale values in the range up to 1000 are multiplied by 1,000,000 (default=no scale)

SLAT= standard latitude(s) for a CONF projection only; one value for a polar stereographic projection (default=60°) two values for a general Lambert conformal projection

SLON= standard longitude for a CONF projection only (default is computed)

Remarks

To plot a map on a satellite image, use L, H, VH or SAT (or X, since SAT is the default) as the map parameter.

When plotting a map on a satellite image on a VGA display, use color levels 1-7 if no image is displayed on the current frame. Use only color levels 1-3 if an image is displayed.

Projections

The MERC (pseudo-Mercator) projection has equidistant latitude lines. Otherwise it is the same as a true Mercator projection. The CONF (Lambert conformal) projection includes polar stereographic projection as a special case. If you enter only one positive SLAT value or if you accept the default of 60°, the projection is polar stereographic with the North Pole as the origin of projection. If you enter only one negative value for SLAT, the origin of the polar stereographic projection is the South Pole. You must enter two SLAT values to obtain a general Lambert conformal projection.

If $SLAT1 + SLAT2 > 0$, the North Pole is the origin of projection. If $SLAT1 + SLAT2 < 0$, the South Pole is the origin of projection.

For some values of keywords LAT, LON, SLON and SLAT, the area defined cannot be found. If this happens, an error message is displayed and the program aborts. Use SLON for CONF projections only. The default value is computed by assuming that the standard meridian is located in the middle of a box set by two points and is parallel to the left and right edges of the TV screen. If a map is centered, the default SLON is equal to LON.

Labels

In some cases, labels overlap. You can usually fix this by changing the latitude/longitude line intervals and/or the accuracy.

Examples

The examples below are divided into four groups that include satellite projection, Mercator projection, polar stereographic and general Lambert conformal projection. Command lines that won't fit on one line have a second line that is indented.

Satellite Projection

MAP X 5 LALO 6 INT=5 10

This entry draws a map on a satellite image in color level 5. It draws latitude/longitude lines in color level 6 and labels them. The interval for latitude lines is 5°. The interval for longitude lines is 10°.

MAP VH X LALO LABEL=NO

This entry draws a high resolution USA map and latitude/longitude lines without labels.

Mercator Projection

MAP AK X LALO

This entry draws a map of Alaska and latitude/longitude lines with labels.

MAP EURO 2; MAP EURB X LALO

This entry draws a map of Europe with coastal and political boundaries.

Polar Stereographic**MAP WI PRO=CONF**

This entry draws a Wisconsin map in conformal projection.

MAP LALO PRO=CONF LAT=0 70 LON=90 - 90

This entry draws latitude/longitude lines and labels for the specified North American region.

**MAP OUTLSUPU X LALO PRO=CONF LAT=30 45
LON=90 110 SLON=100**

This entry draws a map and latitude/longitude lines for a region with the specified latitude/longitude range and standard longitude. The map is taken from the OUTLSUPU high resolution map file. In this case, the map file name can be abbreviated as VH.

MAP X X LALO PRO=CONF LAT=- 20 - 20 LON=0 180

This entry draws a map of the northern hemisphere with the North Pole as the origin of projection.

**MAP X X LALO PRO=CONF LAT=20 20 LON=0 180
SLAT=- 60**

This entry draws a map of the southern hemisphere with the South Pole as the origin of projection.

**MAP X X LALO PRO=CONF LAT=- 10 60 LON=- 10 20
SCALE=20**

This entry draws a map of the latitude/longitude range specified in 1:20000000 scale. The point with latitude 60 and longitude 20 is located in the upper-left corner of the TV screen.

MAP PRO=CONF LAT=- 90 LON=0 SLAT=- 60 SCALE=35

This entry draws a map centered at the South Pole, with the origin of the projection at the South Pole and a standard latitude of 60°. The point with latitude -90 and longitude 0 is in the middle of the TV screen. The standard longitude is 0° and the scale is 1:35000000.

**MAP X X LALO PRO=CONF LAT=- 5 - 35 LON=- 115 - 170
SLAT=- 60**

This entry draws a map of Australia with latitude/longitude lines and labels in the projection centered at the South Pole.

**MAP X X LALO PRO=CONF LAT=0 - 60 LON=- 145 - 70
SLAT=- 60 SLON=- 40**

This entry is the same as the one above but with the South Pole at the left of the TV screen.

**MAP X X LALO PRO=CONF LAT=- 60 0 LON=- 70 - 145
SLAT=- 60 SLON=- 40**

This entry produces the same map of Australia but rotates it by 180°, with the South Pole at the right of the screen.

Lambert Conformal

MAP PRO=CONF LAT=20 60 LON=70 165 SLAT=40 60

This entry draws a Lambert conformal map of the United States.

**MAP X X LALO PRO=CONF LAT=40 70 LON=150 - 150
SLAT=40 60**

This entry draws a map of the Alaska region. In the Lambert conformal projection, the map splits but the information is complete.

**MAP X X LALO PRO=CONF LAT=- 15 LON=- 135 SLON=180
SCALE=25 SLAT=- 60 - 40**

This entry draws a map of Australia with latitude/longitude lines.

**MAP X X LALO PRO=CONF LAT=- 80 LON=15 SLON=10
SLAT=- 70 10 SCALE=40**

This entry draws a map of Antarctica.

MC

Combines two areas to produce a new output area.

Format MC *sarea1 sarea2 darea option p1 p2 p3 p4 p5 [keywords]*

Default No default; you must specify a group of parameters.

Parameters *sarea1-2* source area numbers to combine

darea destination area number to store the combined results

<i>option</i>	AVE	averages the brightness values
	CLD	clouds
	COR	cloud cores
	DIS	discriminate
	DIV	divides images by a constant
	MAX	saves the maximum brightness values
	MIN	saves the minimum brightness values
	MPY	multiplies the images by a constant
	RAT	ratio
	RMS	root mean square
	SPL	generates a split screen image
	SUB	subtracts brightness values
	WAV	weighted average

p1 - p5 these parameters vary with the selected *option*; see the Remarks below

Keywords BAND= *a1- a2* band numbers corresponding to the area numbers

IMA= image frame number; displays *darea*

Remarks Command MC does a pixel-by-pixel combination of two areas to produce a new output area. The focal point of the areas must be aligned. The output area is given an area directory equal to the directory for the first input area, plus the appropriate message code. All areas must be the same size. The functions presently available are listed in the table below.

Option	Description	Function
AVE	Averages 2 areas.	$darea = \frac{a1 + a2}{\text{number of areas}}$ <i>p1</i> and <i>p2</i> are threshold limits. A pixel is included in the average if $p1 < a < p2$. (default=0 for <i>p1</i>; 255 for <i>p2</i>)
CLD	Creates an area of only clouds (using the minimum brightness composite from the MIN option) in <i>sarea2</i> as background brightness. <i>p1</i> defines the brightness threshold.	$darea = a1$ (if $a1 > a2 + p1$) Otherwise, $darea = p2$. (default=0 for both <i>p1</i> and <i>p2</i>)
COR	Selects cloud cores by comparing the brightness values defined by <i>p1</i> and <i>p2</i> and placing the results in <i>darea</i> .	If brightness $a1 > p1$ and brightness $a2 < p2$, then $darea = p3$. Otherwise, $darea = p4$.
DIS	Discriminates the values of one area against the values in a second area.	$darea = a1$ if $p1 < a1 < p2$ and $p3 < a2 < p4$. Otherwise, $darea = p5$. (default=0 for <i>p5</i>)
DIV	Normalizes the area ratio of two areas and, if desired, changes the brightness value. <i>p2</i> cannot equal zero.	$darea = 100 * (a1/a2) * p1/100 + p2$ <i>p1</i> =normalization factor <i>p2</i> =factor to increase or decrease the baseline brightness
MAX	Selects the maximum brightness value from 2 areas.	$darea = \text{MIN}(\text{MAX}(a1, a2), p1)$ (default=255 for <i>p1</i>)
MIN	Selects the minimum brightness value from 2 areas.	$darea = \text{MAX}(\text{MIN}(a1, a2), p1)$ (default=0 for <i>p1</i>)
MPY	Multiplies two areas together.	$darea = \frac{(a1 * a2) + p1}{(256)}$ (default=0 for <i>p1</i>)

Option	Description	Function
RAT	Creates the color ratios of two areas.	$darea = \frac{(p1 * a1 - p2 * a2) * p3 + p4}{a1 \text{ and } a2}$ (default=100 for $p1$, $p2$ and $p3$; 0 for $p4$)
RMS	Provides the root mean square of two areas.	$darea = \frac{(a1^2 + a2^2 + \dots)^{1/2}}{\text{(number of areas)}}$ $p1$ and $p2$ are threshold limits. A pixel is included in the average if $p1 < a_i < p2$. (default=0 for $p1$; 255 for $p2$)

SPL Combines 2 areas to create a split image. For 2 vertically split images, enter:

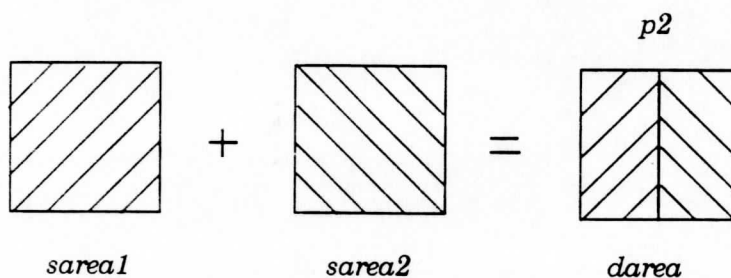
MC *sarea1 sarea2 darea SPL p1 p2*

sarea1 and *sarea2* the area numbers to combine

darea destination area of the split image

p1 integer whose value exceeds the number of lines in *sarea1* and *sarea2*

p2 TV element where the split occurs



Notice that the left side of *sarea1* and the left side of *sarea2* comprise the final image. You may need to do several AA commands to obtain the desired result. For two horizontally split images, *p1* defines the line number where the split occurs and *p2* must be larger than either area's line number.

Option	Description	Function
SUB	Subtracts two areas. You may change the base level and range.	$darea = p1 * (a1 - a2 + p2)$ (default=1 for $p1$; 0 for $p2$)
WAV	WAV is the weighted average of two areas. $p1$ must be greater than zero.	$darea = \frac{\sum a1 * p1}{\sum p1}$ $a1=1$ $N=2$ (default=1 for $p1$)

Examples**MC 9 10 16 AVE IMA=5**

This entry averages areas 9 and 10. It places the average in area 16 and displays it on image frame 5.

MC 13 6 2 SUB 10

This entry subtracts area 6 from area 13 and stores the results in area 2. The new image is not displayed. The brightness range is stretched using $p1=10$.

MC 6512 6513 6520 SPL 1000 300 IMA=10

This entry combines areas 6512 and 6513 into a vertically split image. The output area is 6520. The image is displayed on frame 10. Since the source areas are all less than 1000 lines, the image is vertically split on TV pictel 300.



MDE

Edits MD files.

Formats	MDE <i>mdfile</i> KEYS=LIST MDE <i>mdfile</i> KEYS=DEL <i>conditions</i> MDE <i>mdfile</i> KEYS=REST <i>conditions</i> MDE <i>mdfile</i> KEYS= UNIT= VALU= <i>conditions</i>
Default	No default; you must specify a group of parameters.
Parameter	<i>mdfile</i> MD file number to edit (default is set by MDU SET or by the previously executed MDU or MDE command)
Keywords	KEYS= keys in the MD file to edit DEL deletes the records that meet the search conditions LIST lists the keywords in the MD file schema by row and column headers and data REST restores a deleted record; specify ROW= and COL= (see the <i>conditions</i> below) UNIT= units in which the new key values are entered; specify this keyword if the units are different from those native to the MD file VALU= new value for the keys MISS enters missing data values <i>conditions</i> search conditions to meet when searching for a record to edit; use any or all of the following options: ROW= <i>min max</i> row number or range of numbers COL= <i>min max</i> column number or range of numbers <i>schema keyword=low high units</i> range and units of the schema keyword that you are searching for; units are necessary if the range is specified in units other than those native to the MD file
Remarks	Use command MDE to edit or restore MD files. Before you edit system MD files, move them into your assigned file numbers with command MDU COPY. If you delete a record accidentally, you can recover it with KEYS=REST provided you have not repacked the file.

Example

In the following example you will edit a ship observation in MD file 31. Before editing the data, move MD file 31 into your assigned file numbers (file 6512 in this example).

1. MDU SET 6512

This entry sets the MD file pointer to 6512. All subsequent MD file commands will be performed on MD file 6512.

2. MDE KEYS=T UNIT=C VALU=20 ID=KWPR TIME=12

The search conditions are ID=KWPR and TIME=12. MDE will locate ship ID KWPR at 12 GMT and change its temperature to 20° C.

3. MDE KEYS=DEL ROW=5 COL=10 15

This entry deletes the records at row 5 and columns 10 to 15.

4. MDE KEYS=REST ROW=5 COL=10

This entry restores the record at row 5 and column 10.

More Examples**MDE KEYS=DEL ROW=1 5 COL=15 20**

This entry deletes columns 15 to 20 in rows 1 through 5.

MDE 6514 KEYS=LIST

This entry lists the keys for MD file 6514.

MDE KEYS=T TD VALU=MISS ID=MSN TIME=12

This entry flags the temperature (T) and dew point (TD) as missing for Madison, WI, at 12 GMT.

MDL

Lists the MD file data.

Format	MDL <i>mdfile</i> ALL INI SAVE KEYS= UNIT= <i>conditions</i>
Default	MDL This entry lists the first record of the current MD file on the CRT.
Parameters	<i>mdfile</i> MD file number (default is set by MDU SET or by the previously executed MDL or MDE command) ALL lists all occurrences of the search <i>conditions</i> (default=the first occurrence) INI initializes the string table entries used by MDL (default=does not initialize) SAVE saves the MDL keywords in the string table (default=does not save)
Keywords	KEYS= keys to list from the MD file schema LIST lists the keys in the MD file schema; the keys are listed as row and/or column header keys and data keys UNIT= units in which to list the value of the keys selected with keyword KEYS; specify this keyword if the units are different than those native to the MD file <i>conditions</i> conditions to meet when searching for a record to list; use any or all of the following options: ROW= <i>min max</i> row number or range of numbers COL= <i>min max</i> column number or range of numbers <i>schema keyword=low high units</i> range and units of the schema keyword that you are searching for; units are necessary if the range is specified in units other than those native to the MD file

Remarks

Position the parameters for keyword UNIT in the same order as those listed in keyword KEYS. Use the letter X as a place holder to list a key in its default unit. You may store keys, units and search conditions in your string table (see parameters INI and SAVE). It is not necessary to type them for each MDL command.

Examples

MDL 3 KEYS=ID TIME T TD ID=MSN TIME=12

This entry lists the station ID, time, temperature and dew point for Madison, WI, at 12 GMT from MD file 3.

**MDL 33 ALL KEYS=ID T TD TIME LAT LON T=20 21 C
UNIT=X C C TIME=12**

This entry lists the station ID, temperature, dew point, time, latitude and longitude from all reports in MD file 33 meeting the conditions TIME=12 GMT and the temperature is between 20° and 21° C.

**MDL INI SAVE KEYS=Z T TD DIR SPD UNIT=FT F F X
KT ROW=1 COL=5**

This entry lists the height (FT), temperature (F), dew point (F), wind direction and wind speed (KT) for row 1, column 5.

MDU

MD file utility.

Formats

```
MDU COPY smdfile dmdfile
MDU DEL bmdfile emdfile
MDU DIR mdfile id "comments"
MDU LIST bmdfile emdfile [keyword]
MDU MAKE mdfile schema version nrows ncols id "comments"
MDU SET mdfile
```

Default

No default; you must specify a group of parameters.

Parameters

COPY	copies the contents of the MD file
DEL	deletes an MD file
DIR	changes a file identification number and comments
LIST	lists the file directory headers
MAKE	makes a new MD file
SET	sets the current MD file number
<i>smdfile</i>	source MD file number
<i>dmdfile</i>	destination MD file number
<i>bmdfile</i>	beginning MD file number
<i>emdfile</i>	ending MD file number (default= <i>bmdfile</i>)
<i>mdfile</i>	MD file number
<i>id</i>	identification number, YYDDD (default=current)
<i>"comments"</i>	comments added to the file; quotes are mandatory
<i>schema</i>	MD file schema name, e.g., IRAB, VRET
<i>version</i>	version number; 0 or X to use schema defaults
<i>nrows</i>	number of rows; 0 or X to use schema defaults
<i>ncols</i>	number of columns; 0 or X to use schema defaults

Keyword **DAY=** Julian day to list, YYDDD

Examples**MDU COPY 1 10**

This entry copies MD file 1 into MD file 10.

MDU DEL 2 6

This entry deletes MD files 2 through 6.

MDU DIR 1 91290 "SHIP AND BUOY DATA"

This entry changes the directory of MD file 1 so the ID is 91290 and the comment is SHIP AND BUOY DATA.

MDU LIST 1 40

This entry lists the MD file directory headers from MD files 1 to 40.

MDU MAKE 1 ISHP 2 X X 91300 "SHIP DATA"

This entry creates MD file 1 of schema ISHP, version 2. It uses row and column defaults. It also uses the ID of 91300 labeled SHIP DATA.

MDU SET 5

This entry sets the current MD file number to 5. All subsequent MD file commands are performed on MD file 5.

MDX

Plots or grids data from MD files or grids.

Formats	MDX <i>option</i> PREFIX = MDX <i>parm</i> [<i>keywords</i>]
Default	MDX This entry executes the current information in the context table with PREFIX=\$.
Parameters	<i>option</i> CLE clears the MDX context file and sets the defaults LIST lists the MDX context table PLT plots more than one parameter The only valid keyword is PREFIX= (default=\$). <i>parm</i> any parameter in an MD file, e.g., ABV, STR, SPD, VOR, DVG, ADV, THAE, THA, MIX, WNV, WIN (see the examples); command MDL lists the parameters
Keywords	Because command MDX displays data from any MD file, there are many keywords you can use to fetch and display data. Consequently, the keywords are divided into five groups for discussion. • PARAMETER keywords control the display characteristics for individual parameters, e.g., color, size, units, scaling. • OUTPUT device keywords control the size of the display and set the output device. • GRID/CONTOUR keywords change the grid size, smoothing and contour interval. • MAP keywords specify maps and projections. • MISCELLANEOUS keywords perform various functions.
Parameter Keywords	COLOR= color level of the plotted data graphics; use keyword GCOLOR for contours (default=3) DIVIDE= divides the data values before plotting; to multiply, use a number from 0 to 1 (default=1) FORMAT= FORTRAN format specification for the output (default=I12; character data default=A4)

	LSIZE=	label height in pixels; if LSIZE=5, all data is plotted; the numbers are allowed to overwrite each other (default=8) <i>u v</i> if parameter WNV is specified, a negative LSIZE plots vectors of constant length; if parameter WIN is specified, a positive LSIZE defines a relative length of the wind barb; specify <i>u</i> and <i>v</i> lengths with the same value
	MISS=	missing data code (default=Z80808080)
	OFFSET=	operates on the data before output (default is DIVIDE=1, OFFSET=0); value = (data - OFFSET)/DIVIDE; the UNIT keyword uses the DIVIDE and OFFSET
	PLACE=	place to plot the data relative to the actual station location; the station is located at 41 in a 9 x 9 matrix starting at 1 in the upper-left corner, increasing along a row; use PLACE= when plotting more than one parameter (default=41)
	UNIT=	units to plot the parameter (default=the MD file original units); the possible conversions are: K to C, F MB to INHG MPS, MPH, KT (any) KM, M, CM, MM, MI, NMI, YD, FT, IN (any) SYMB plots weather symbols (default=CHAR)
	Output Keywords	DEV= C displays the output on the CRT (default is device dependent) G displays output on the graphics P displays output on the line printer
		GELE= <i>beg end</i> graphics element extents (default=20 620)
		GLINE= <i>beg end</i> graphics line extents (default=20 430)
		GRA= graphics frame number (default=current)
		IMA= image frame number (default=current)
	OUT=	PLO plot (default) CON grid and contour
	PANEL=	graphics panel quadrant, the range is 0-4 (default=0, full screen)

Grid/Contour Keywords	PELE=	<i>beg end</i>	CRT/printer element extents (default=1 60 for the CRT; 1 120 for the printer)
	PLIN=	<i>beg end</i>	CRT/printer line extents (default=1 19 for the CRT; 1 60 for the printer)
	CINT=		grid contour interval (default=2)
	DER=	WNV	plots wind vectors from the grid file data
	DRAW=	YES	draws contours after gridding (default for graphics terminals)
		NO	does not draw contours (default for all other terminals)
	GCOLOR=		contour graphics color level (default=2)
	GRIDF=		destination grid file to store grids (default from IGU SET)
	GUESS=		grid to use as first guess (default=none)
	INC=		grid increment in degrees (default=1.0)
Map Keywords	SMOOTH=		smoothing parameter (default=40)
	LAT=	<i>min max</i>	minimum and maximum latitude extents
	LON=	<i>min max</i>	minimum and maximum longitude extents
	MAP=	NA	North America
		USA	USA
		MID	Midwest USA
			Post Office Abbreviation
	MCHAR=		map character for the CRT/printer output (default=...)
	MCOLOR=		graphics map color level (default=1)
		0	for no map
	PRO=	CONF	conformal projection for polar stereographic or Lambert conformal
		MERC	Mercator projection (default)
		SAT	satellite projection
	SCALE=		map scale ration for PRO=CONF (default=not true to scale)

Miscellaneous Keywords	SLAT=	<i>lat1 lat2</i> standard latitude(s); for polar stereographics specify <i>lat1</i> ; for Lambert conformal specify <i>lat1 lat2</i> (default=60, polar projection)
	SLON=	<i>lon</i> normal longitude; for polar stereographic specify <i>lon1</i> and keyword PRO=CONF (default=centers the longitude of the map limits)
	DERIVE=	use DERIVE=temp dewpoint pressure (elevation) if THAE, THA or MIX is displayed when the parameter does not appear in the MD file (it will be calculated); use <i>elevation</i> with sea level pressure; for an SVCA file use: DERIVE=T TD PSL ZS for a RAOB or VRET file use: DERIVE=T TD P
	GRIDF=	grid file number to read (default is from IGU SET)
	MDF=	MD file number to read (default is from MDU SET); you can combine up to six MD files using keyword PREFIX
	PREFIX=	MDX stores options and defaults in the system context file with a special prefix at the beginning of the string name; the prefix can be any character except numeric or # (default=\$)
		If you set up two context files using keyword PREFIX, you can execute these arithmetic operations:
		- subtract * multiply + add / divide : catenate
		For all operations, except catenate, the MD file must have the same schema; if LAT/LON is not contained in the column header, only one row can be operated on, for example: PREFIX=\$ -!
	SORT=	of the form <i>keyword 1 loval 1 [hival 1] keyword 2</i> , etc., selects data from the MD file that meets its conditions; in the SORT= keyword list, do not use an equals sign (=) between keywords and <i>loval</i> , <i>hival</i> ; <i>hival</i> is optional if <i>loval</i> is numeric; do not specify <i>hival</i> if <i>loval</i> is alphabetic; <i>keyword</i> is any parameter from an MD file or a ROW and COL number (e.g.,: SORT=TIME 12 13 ST WI)

SOU= **MDF** data source is an MD file (default)
 GRID data source is a grid file

Remarks

When the plus sign (+) is the last positional parameter, the information is filed but not plotted.

The most basic command to display data is:

MDX *parameter*

where *parameter* is any parameter found in an MD file. The command plots all of this parameter from the current MD file (from **MDU SET**) on the current graphics frame on a map as determined by the limits of the data. To do anything more with MDX, you must know something about the type of data in the MD file. For example, if you want to plot 500 mb heights for day 84190 at 12Z over the Midwest, you must know that the height, day and time are referenced through parameters **Z**, **DAY** and **TIME** in the MD file.

The command to enter (with RAOB data in MD file 5000) is:

**MDX Z MAP=MID MDF=5000 SORT=P 500 DAY 84190
 TIME 12**

Keyword **SORT** provides a way of limiting the data to a specific subset of interest. This is probably the most used keyword with a map specification keyword (**MAP=** or **LAT=** **LON=**) not far behind.

MDX is the general MD file plotter/gridder. It is intended for use in macros, not entered directly.

Keywords **LAT** and **LON** default to limits which guarantee complete coverage of the data distribution, rounded to the nearest whole degree.

Example

Before using this example, enter **MDX CLE** to clear and initialize the string entries that MDX uses. The example below is numbered as it requires you to follow a specific order.

1. To plot the weather data from MD file 4000 at 18 GMT, enter:

MDX WX1 MDF=4000 SORT=TIME 18

2. Contour the temperature advection from MD file 3020 over the Midwest at 15 GMT:

**MDX T ADV MDF=3020 MAP=MID OUT=CON
 SORT=TIME 15**

3. Plot T in degrees Fahrenheit for MD file 4050, for Wisconsin:

MDX T + MDF=4050 UNIT=F MAP=WI

This command does not plot because the + is inserted as the last positional parameter. Now plot in color 2 (MDF, UNIT and MAP remain the same):

MDX T COLOR=2

4. Plot the temperature from the current SVCA data for 15Z for a lat/lon box. The MD file is the last digit of the Julian day (if zero, MD=10); today is 83242:

MDX T MDF=2 LAT=30 50 LON=90 105 SORT=TIME 15

We forgot to specify only the hourlies (no specials) and degrees C. When MDX is done plotting, enter:

EG; MDX T SORT=TIME 15 TYPE 0 UNIT=C

5. To plot 1000-500 mb thickness over the USA, 12Z, MD file 1030, enter the following command sequences:

MDX CLEAR

**MDX Z + SORT=P 500 TIME 12 MAP=USA MDF=1030
PREFIX=\$**

MDX CLEAR PREFIX=!

**MDX Z + SORT=P 1000 TIME 12 MAP=USA MDF=1030
PREFIX=!**

MDX PREFIX=\$ -!

6. Take the winds from MD files 2020 and 2045 and grid them for streamlines:

MDX STR + MDF=2020 PREFIX=\$

MDX STR + MDF=2045 PREFIX=!

MDX PREFIX=\$:!

7. Use THAE, THA and MIX. It is easier to use the macros (SP, UP, etc.) to display these derived parameters. When using MDX, an extra keyword, DERIVE, is necessary:

**MDX MIX MDF=3 MAP=MID DERIVE=T TD PSL ZS
SORT=TIME 17 DAY 84170 TYPE 0**

This entry plots a mixing ratio from an SVCA file.

8. Plot the grid points on the graphics for grid 10, grid file 6512, which contains temperature data:

MDX 10 SOU=GRID GRIDF=6512 MAP=MID UNIT=C

9. Plot the wind flags at the grid points for u grid 1 and v grid 2 at 12 GMT:

MDX PLT 1 2 SOU=GRID PRO=SAT SORT=TIME 12

10. Plot parameters T and TD from MD file 4000 at 12Z over Wisconsin. Position the temperature above the dew points with the PLACE keyword. First, set it up with no plot:

**MDX T TD + MDF=4000 SORT=TIME 12 MAP=WI
PLACE=41 50**

Now use plot:

MDX PLT

11. Plot the u and v component vectors on the graphics from grids 1 and 2:

MDX PLT 1 2 SOU=GRID DER=WNV MAP=MID

12. To plot the weather symbols for day 88101:

**MDX WX1 UNIT=SYMB MDF=1 MAP=MID SORT=TIME 18
TYPE 0 DAY 88101**

MG

Plots a 24-hour surface meteorogram.

Format *MG station time day [keywords]*

Default *MG station*

This entry plots a surface meteorogram using the current day and time. It initializes the color levels and erases the graphics before plotting.

Parameters *station* 3-letter station ID

time hour of the last data plotted on the graph; the range is 0-23 (default=current)

day year and day, YYDDD (default=current)

Keywords *GRA=* graphics frame number

INIT= YES initializes the graphics colors (default)
 NO does not initialize the graphics colors

MDF= history MD file number; specify parameter *day* with this keyword (default=real-time MD file)

SF= YES displays the graphics frame when completed
 NO does not display the graphics frame (default)

Remarks

A meteorogram plots temperature, dew point, pressure, wind speed and direction, weather, and cloud cover for a 24-hour period of the specified station. Cloud cover symbols include: scattered (1 small cloud), broken (2 clouds), overcast (1 large cloud) and clear (no clouds). Wind speed and direction indicators are: direction (short barb with angle), speed (length of the barb) and calm (diamond shaped symbol). Pressure range labels depend on the minimum and maximum pressure for a given day and time period.

Examples

MG MSN

This entry plots data for the past 24 hours for Madison, WI. The day and time default to the current data.

MG MSN X 85131

This entry plots data from 85130 0 GMT to 85131 0 GMT for Madison, WI.

MOVIE

Displays a sequence of loops.

Format	MOVIE <i>l1 d1 l2 d2 ... ln dn</i> [<i>keyword</i>]	
Default	MOVIE This entry cancels the active movie on the specified channel.	
Parameters	<i>l1,l2 ... ln</i>	the loop to display; the range for the main display on a McIDAS-OS2 workstation is 1-79; the range for channel 2 on a WWW is 1-9 (no default)
	<i>d1,d2 ... dn</i>	the number of minutes to display the loop (default=.1 minute)
Keyword	CH= 1	displays the loop on the main display (default)
	2	displays the loop on WWW channel 2
Remarks	To cancel an active movie process on channel 1, which is the main display, enter command MOVIE with no parameters. Use MOVIE CH=2 to cancel an active movie process on channel 2. To stop the looping after the movie process is canceled, use the L command for channel 1, or press the 0 (zero) key on the ASCII keypad for channel 2.	
Example	MOVIE 2 0.5 1 1 3 2 This entry displays loop 2 for one-half minute, loop 1 for 1 minute, loop 3 for 2 minutes and then repeats the sequence. This movie sequence runs continuously on the main display until you enter another MOVIE command to cancel it.	

MOVIT

Copies areas and updates an image frame loop.

Formats

MOVIT *bsarea esarea bdarea edarea f1 f2 locate y-coord x-coord*
mag line ele [keywords]

MOVIT *bsarea esarea bdarea edarea f1 f2 locate station mag*
line ele [keywords]

Default

MOVIT *bsarea esarea bdarea edarea*

This entry searches *bsarea* through *esarea* for the most recent time and copies the most recent image into the area following the latest time in *bdarea* to *edarea*; it does not display the image.

Parameters

bsarea beginning source area number of the data searched

esarea ending source area number of the data searched

bdarea beginning destination area number searched; must be
different than *bsarea*

edarea ending destination area number of the data searched

f1 first image frame number searched
0 does not display the images

f2 last image frame number searched
0 does not display the images

locate type of coordinate the area transfers and TV load use as a
reference point; use one of these coordinate systems:

A area

E earth

I image

T TV

followed by one of these locations:

C centered

D lower-right corner

U upper-left corner

(default=AU)

y-coord y-axis coordinate (default=upper-left corner)

x-coord x-axis coordinate (default=upper-left corner)

station 3-letter station ID; must be preceded by EU, EC or ED

mag image resolution blowup (positive numbers) or blowdown (negative numbers); blowups repeat data values while blowdowns sample data (default=1)

line line number dimension defining *bdarea* and *edarea* (default=500)

ele element number dimension defining *bdarea* and *edarea* (default=640)

Keywords

ASIZE= ALL moves an entire area including all bands

BAND= band number to move

IR= 1 moves IR or sounder imagery documentation

MOVE= ALL moves all areas
TEST lists the AA commands generated to update the sequence

MOVIT locates and displays the area in the range *bsarea* to *esarea* with the most recent time and copies it into *bdarea*. It moves areas with the AA command. To sort *bsarea* through *esarea* by time, copying all areas, attach the keyword **MOVE=ALL** to the command. Keyword **MOVE=TEST** displays the AA commands without executing them.

The size of one TV frame is 500 lines by 640 elements.

Location Reference	Y-coord	X-coord	Format
A	line	element	0 to 3 digits
E	latitude	longitude	DDD:MM:SS
I	line	element	0 to 5 digits
T	raster	pictel	0 to 3 digits

Examples

MOVIT 1000 1010 3300 3310 MOVE=TEST

This entry displays the AA commands for copying the area with the most recent time between the range of 3300 to 3310.

MOVIT 1000 1010 3300 3310 10 20

This entry locates the most recent time in areas 1000 to 1010 and copies it into the area following the latest time in 3300 to 3310. It also displays the image after the latest image frame from 10 to 20.

MSL

Lists information from the international master weather station list.

Formats	MSL <i>station</i> [<i>keywords</i>] MSL [<i>keywords</i>] " <i>matchstring</i> "	
Default	MSL <i>station</i> This entry lists the <i>station</i> location information from the master station list.	
Parameters	<i>station</i>	3- or 4-character station ID 5- or 6-digit station ID
	" <i>matchstring</i> "	an alphanumeric string to match; maximum of 20 characters
Keywords	CO=	2-letter country code
	FORM=	ALL lists all information about a station
	LAT=	<i>min max</i> latitude bounds to search
	LON=	<i>min max</i> longitude bounds to search
	ST=	2-letter state (PO abbreviation) or international regional code
	TYPE=	RADAR lists radar stations RAOB lists RAOB stations SURF lists surface hourly stations SYNOP lists synoptic stations
Remarks	The MSL command searches the international master weather station list for station identifications, latitude, longitude, station elevation, type of station and regional areas. Station and runway elevations are given in meters.	

The codes under DATA TYPE in the output from MSL are:

Code	Meaning
A	TAF forecast
B	coastal/SMARS

Code	Meaning
C	short range terminal forecast
D	radar
I	3-hourly synoptic
L	PLATF forecast
M	6-hourly synoptic
N	off-hour synoptic
O	AERO
P	PIBAL
R	RAOB
T	METAR
W	service airways

Examples**MSL TAP**

This entry lists the location information for Tapachula, Mexico.

MSL ST=WI

This entry lists all stations in Wisconsin.

MSL ST=WI TYPE=RADAR

This entry lists all radar stations in Wisconsin.

MSL CO=US "AFB

This entry lists all Air Force bases in the United States.

MSL LAT=-40 -10 LON=-160 -110 TYPE=RAOB

This entry lists all RAOB stations between 40° S and 10° S latitude, and 160° E and 110° E longitude, i.e., the Australian continent.

MSL CO=SP "AIRPORT

This entry lists all airport stations in Spain.

N

Toggles the dual channel enhancement in and out of the video refresh data path.

Remarks

To use the N command,

Press: **Alt N**

or

Type: **N**

Press: **Enter**

The N command works only on tower and WIDE WORD workstations.

When the system moves the pseudocoloring table in and out of the video refresh data path, the current and opposite frame images are combined pixel by pixel. The combination is displayed on the TV monitor.

O

Switches the image frame position to the opposite frame.

Remarks

Since graphics frames have no opposites, their frame numbers do not change.

To use the O command,

Press: **Alt O**

or

Type: **O**

Press: **Enter**

See Also

Use command **LS** to assign opposite frame numbers.

OD

Lists the digital area inside the cursor.

Format *OD mode data a b c [keyword]*

Default *OD*

This entry lists the data for the area inside the cursor. The data type is the type stored in the area and depends on the sensor source.

Parameters

mode **C** contours data
 E enhances data (levels 0-63)
 F data frequency distribution
 I data interval percentage
 L lists data (default)
 S lists data by sensor source; GOES visible only

data **A** values stored in an area (default)
 B gray scale brightness conversion (levels 0-255)
 R VAS or AVHRR radiance
 T temperature conversion, Kelvin x 10

a, b, c for mode I, specify *a* and *b* as the data range; for mode C, specify *a* as the contour interval, and *b* and *c* as the horizontal and vertical replicators

Keyword **BAND=** band number (default=from the frame directory)

Remarks The output is the same resolution as the digital area. Use keyword **DEV** to send output to the line printer.

Use command **CUR** or the left mouse button to set the cursor size. It is limited to 51 x 51, except for the **L** (list) mode.

Use the **D** key to determine the available data types in the area.

Command **OD** lists blocks of data by "sets" and "parts." A set is 50 or less lines of data. A part is the amount of data that fits on one line of the text screen or printer. This number varies depending on the data's field width and the output device. The set and part numbers are the x and y coordinates, respectively, of the data blocks in relation to the upper-left corner of the cursor. See the last example.

The default *data* parameter is the calibration type. To determine the calibration type, use: **LA area FORM=ALL**.

Examples

OD F

This entry lists a histogram of the data inside the cursor. It is linearly scaled so that a small peak in the distribution is less than one level on the graph. Consequently, the peak is not displayed.

Suppose you've displayed a GOES VIS image and you want to list the default values in the cursor area. To do this, enter:

OD L

This entry lists the digital brightness values in the cursor area on the image, as the default calibration type for a GOES VIS image is BRIT.

OD L T

This entry lists the data for the area inside the cursor on the CRT, converting it to Kelvin. Use this entry with IR data.

OD L B 100 150

This entry lists the digital brightness values inside the cursor. The values are on a scale from 100 to 150.

Suppose you've displayed a GOES IR area at full resolution (4 km). If the cursor size is 115 lines by 15 elements and you want to list digital radiance data on the text screen, enter:

OD L R

This entry lists 6 blocks of data, for a 115 x 15 pixels cursor, by sets and parts like this:

Block	Set, Part
1	1, 1
2	1, 2
3	2, 1
4	2, 2
5	3, 1
6	3, 2

Since there are 115 lines of data to list, OD breaks the data into 3 sets. Sets 1 and 2 have 50 lines each; set 3 has 15 lines. Because there are 15 radiance values to list per line and the screen can only display 9, OD displays each set in 2 parts. Part 1 shows the first 9 values; part 2 shows the last 6 values.

To determine where the data blocks lie in relation to the cursor, paste the parts together sequentially from left to right for each set. Then paste the sets together sequentially from top to bottom. The result looks like this:

	Part 1	Part 2
Set 1	Block 1	Block 2
Set 2	Block 3	Block 4
Set 3	Block 5	Block 6

OS

Sends a command to the OS/2 operating system.

Format	OS " <i>command</i>
Default	No default; you must specify the command.
Parameter	" <i>command</i> OS/2 command to be performed
Remarks	The command string should include the correct path, if needed. It should not invoke a program that attempts to take control of the screen group, since McIDAS-OS2 assumes it is in control.
Example	OS "COPY A:STUFF.DAT C:\MCIDAS\DATA This entry copies the file STUFF.DAT from the A drive to the \McIDAS\DATA subdirectory.

P

Locks and unlocks the cursor in its present position.

Remarks

The P key engages and disengages the mouse as a cursor position control.

Press: Alt P

or

Type: P

Press: Enter

Some commands, like PC, move the cursor and lock its position. When the cursor is locked, the letter P appears on the status line.

PC

Positions the cursor at a desired point on the frame.

Formats

PC C
PC L *station*
PC E *lat lon*
PC I *line ele*
PC T *raster pictel*

Default

No default; you must specify a group of parameters.

Parameters

C positions the cursor at the center of the frame

L positions the cursor at the station ID or synoptic ID

E positions the cursor at the latitude and longitude earth
 coordinates

I positions the cursor at the line and element image
 coordinates

T positions the cursor at the raster and pictel TV coordinates

station station ID or synoptic ID

lat latitude of the location

lon longitude of the location

line image or graphics line of the location

ele image or graphics element of the location

raster TV raster of the location

pictel TV pictel of the location

Remarks

When you execute command PC, it disconnects the mouse from the cursor control. Use command P to regain cursor control.

Examples**PC E 36 - 98**

This entry positions the cursor at 36° North and 98° East.

PC I 3300 1200

This entry positions the cursor at image coordinate line 3300 and element 1200.

PC L MSN

This entry positions the cursor over station MSN (Madison, WI).

PC T 100 356

This entry positions the cursor at TV raster 100, pictel 356.

PID

Lists the names and Process IDs for each task running in McIDAS-OS2.

Remarks The OS/2 operating system assigns a unique Process ID (PID) to each active task. Because some McIDAS-OS2 commands invoke other commands, the question mark (?) command does not always list all programs running. Rather, "?" returns the PIDs for tasks started directly from the keyboard.

To list all PIDs,

Type: **PID**
Press: **Enter**

You can use the Process ID with the slash (/) command to stop an active program. Any process appearing with an asterisk by its name should NEVER be terminated with the slash command. These are system programs that are required when running McIDAS-OS2.

PROMPT

Edits command text and then executes it.

Format	PROMPT <i>"command"</i>
Default	No default; you must specify the command.
Parameter	<i>"command"</i> the command text to edit and execute; quotes are mandatory
Remarks	Use normal command line keyboard characters for editing. Command PROMPT is commonly used in string tables. PROMPT executed through a mainframe string table returns Xs in place of the default parameters. Ignore them. PROMPT in a mainframe string table automatically appends a period.
Example	TE A "PROMPT "MDU LIST This entry places PROMPT "MDU LIST in the string table under #A. Typing #A prompts you with MDU LIST.

PSB

Displays a PLEASE STAND BY message on the text window.

Format PSB window

Default	No default; you must specify a window number.
----------------	---

Parameter	<i>window</i>	the text window number on which to display the message; the range is 5-9 (default=8)
------------------	---------------	--

Remarks	Command PSB is useful when the system invokes a McIDAS command that takes a long time to run and does not give you any apparent feedback.
----------------	---

Example **PSB 5**
This entry displays a PLEASE STAND BY message on text window 5.

QA

Deletes digital areas.

Format	QA <i>barea larea</i>
Default	QA <i>area</i> This entry deletes <i>area</i> only.
Parameters	<i>barea</i> beginning area to delete <i>larea</i> last area to delete (default= <i>barea</i>)
Remarks	Store areas in the C:\MCIDAS\DATA subdirectory so that other McIDAS commands can access them.
Examples	QA 101 120 This entry deletes areas 101 to 120. QA 101 This entry deletes area 101 only.

REDIRECT

Writes the LW file path redirection memory block.

Formats

REDIRECT ADD *file* "*path*"
REDIRECT CLEAR *type*
REDIRECT LIST *type*
REDIRECT MAKE
REDIRECT REST *rfile*
REDIRECT SAVE *rfile*

Default

REDIRECT

This entry places the redirected files and paths from LWPATH.NAM into dynamic memory.

Parameters

ADD adds a redirection entry to the active redirection file (LWPATH.NAM) and dynamic memory

CLEAR clears the redirection entries

LIST lists the file redirection entries

MAKE writes the redirection entries from LWPATH.NAM into dynamic memory (default)

REST restores a saved redirection file into file LWPATH.NAM and dynamic memory

SAVE saves a redirection file

type

- FILE** the file LWPATH.NAM
- MEM** the dynamic memory (default for the **LIST** parameter)
- ALL** both LWPATH.NAM and dynamic memory; use this option with **CLEAR** only (default for **CLEAR**)

file file to redirect, e.g., MDXX3074, AREA011*; maximum of 12 characters including the extension

"path" desired path; the quote is mandatory; maximum of 19 characters

rfile redirection file name with extension, e.g., TSTVL1.NAM, TSTVL2.PTH; contains the files and paths that are redirected (default extension=.NAM)

Remarks

REDIRECT can be used to redirect files such as MD, grid, area and virtual graphics. See Appendix G for more information.

Caution!

Redirection of these files will cause problems with your system. Do not redirect the files listed below.

ALLOC.WWW	NUM.FRM
CONTEXT.SLT	REDIRECT
EXPORT	SKEDFILE
FRAMED	STARTUP.SYS
FRAMENAV	STRTABLE
HELP.DAT	SYSIMAGE.VIF
HOST.PTR	VERSION.TXT
MENU	WINQUFIL

Do not redirect files with the extensions .MNU and .TAB. Also, the DOSTOLW command cannot be redirected.

Use an editor to add a comment line to a redirection file. Start the line with a quote, e.g., "This is a comment line.

The maximum length of a redirection path is 32 characters (12 character maximum for the file name and 19 character maximum for the path redirection). Two examples are:

```
AREA0001 A:\TEST\VOL1
IMAGES90.VIF A:\VOLUME\MDXX\SUBD
```

If your workstation is hung and you suspect file redirection is causing it, first EXIT McIDAS, then delete the file LWPATH.NAM in C:\MCIDAS\DATA. Now boot your system. If McIDAS doesn't come up, you may have redirected a McIDAS system file. In this case, you may need to reinstall McIDAS.

Examples**REDIRECT LIST FILE**

This entry lists the redirections that are in the file LWPATH.NAM.

REDIRECT CLEAR

This entry clears the file LWPATH.NAM and the dynamic memory.

REDIRECT ADD AREA137* "A:\VOLUME\AREAS

This entry adds redirection path A:\VOLUME\AREAS\AREA137* to the LWPATH.NAM and the dynamic memory.

REDIRECT REST TSTVL1

This entry brings file TSTVL1.NAM into both the dynamic memory and the redirection file LWPATH.NAM.

REMAP

Remaps an area into a different projection.

Format	REMAP <i>sarea darea spline [keywords]</i>
Default	REMAP <i>sarea darea</i> This entry remaps <i>sarea</i> into the <i>darea</i> projection.
Parameters	<i>sarea</i> source area number to remap <i>darea</i> destination area number for the remapped image; <i>darea</i> contains the projection that <i>sarea</i> is remapped into <i>spline</i> spline function (default=20 pixels)
Keywords	BAND= band number (default=lowest band number) MERGE= YES merges the data in <i>sarea</i> with the data in <i>darea</i> NO overwrites the data in <i>darea</i> (default) SMO= YES smooths the image NO does not smooth the image (default)
Remarks	Navigation must be on disk before you can remap images. Display the new image with command DF. The default for REMAP zeros out the destination area before remapping the source area into the new projection. The MERGE=YES keyword does not zero out the destination area. In this case, the source area data overwrites the destination area data.
Example	REMAP 1 2 This entry remaps area 1 into area 2 where area 1 is a GOES East image and area 2 is a GOES West image. After execution, area 2 contains the remapped GOES East image. REMAP 710 6000 MERGE=Y BAND=4 This entry remaps the POES data in area 710, band 4, into area 6000, overwriting the area coverage that overlaps.

REPEAT

Repeats a McIDAS-OS2 command using a string table.

Format	REPEAT <i>string</i> <i>start</i> TO <i>end</i> BY <i>inc</i> <i>start</i> BY <i>inc</i> . . . <i>start</i> BY <i>inc</i> [<i>keyword</i>]
Default	No default; you must specify the parameters.
Parameters	<i>string</i> string table prefix of the command(s) to execute; 1 to 12 characters <i>start</i> starting parameter value <i>end</i> ending parameter value <i>inc</i> values of the command parameters which are incremented during the execution of REPEAT TO mandatory parameter indicating the range between <i>start</i> and <i>end</i> BY mandatory parameter indicating the increment between <i>start</i> and <i>end</i> (default=1)
Keyword	MAXN= maximum number of commands to execute (default=200)
Remarks	Before executing command REPEAT, set up your string table using <i>! number</i> for each parameter to be incremented. <i>number</i> must begin at 1 and increment by 1. An exclamation point (!) followed by an integer in a string will increment the parameter on each execution. Parameters may be decremented using a minus sign (-). REPEAT is a PC command; command DUO repeats host commands.
Example	If the string table contains the following string: LOAD := DF !1 !2 EC 45 90 Then entering the command, REPEAT LOAD 2000 TO 2010 BY 2 1 TO 6 will load area 2000 to frame 1, 2002 to frame 2, 2004 to frame 3 . . . and 2010 to frame 6.

ROUTE

Routing table utility.

Formats

```
ROUTE INIT
ROUTE ADD code type beg end file [keyword] "text
ROUTE DEL code1...coden
ROUTE LIST code1...coden
ROUTE REL code1...coden
ROUTE SUS code1...coden
```

Default

ROUTE
This entry lists all routing table entries.

Parameters

INIT	initializes a routing table								
ADD	adds an entry to capture area, MD, grid or text data								
DEL	deletes routing table entries								
LIST	lists routing table entries (default)								
REL	releases routing table entries; begins capturing product								
SUS	suspends routing table entries; stops capturing product								
<i>code (1...n)</i>	product code or the first letter of the product code; you must use a 2-letter code with the ADD option, as using a single-letter code will match all product codes that start with that letter								
<i>type</i>	<table><tbody><tr><td>AREA</td><td>captures area data</td></tr><tr><td>MD</td><td>captures MD data</td></tr><tr><td>GRID</td><td>captures grid data</td></tr><tr><td>TEXT</td><td>captures text data</td></tr></tbody></table>	AREA	captures area data	MD	captures MD data	GRID	captures grid data	TEXT	captures text data
AREA	captures area data								
MD	captures MD data								
GRID	captures grid data								
TEXT	captures text data								
<i>beg</i>	beginning area, MD, grid or text file number to store the captured data								
<i>end</i>	ending area, MD, grid or text file number to store the captured data								
<i>file</i>	file name to store captured data; it cannot include an extension; use only with the TEXT option								
<i>"text</i>	text describing the data								

Keyword **PP=** posts a process batch file to run after the product is captured

Remarks The INIT option initializes and creates the product file. You must run it before adding any entries to the routing table.

To receive a current list of UNIDATA product codes, contact SSEC operations.

Examples

ROUTE INIT

This entry initializes the routing table.

ROUTE ADD U3 AREA 400 405 "MDR Radar Areas

This entry routes the UNIDATA MDR radar areas with the product code U3 to areas 400 to 405 on the workstation, adding the description "MDR Radar Areas" to the entry listing.

ROUTE ADD RM MD 20 29 "Upper-Air - Mandatory Levels

This entry routes the UNIDATA mandatory upper-air MD files with the product code RM to MD files 20 to 29 on the workstation.

ROUTE DEL U3

This entry deletes from the routing table the entry that captures product code U3.

ROUTE DEL U

This entry deletes from the routing table all entries that capture product codes beginning with the letter U.

ROUTE LIST

This entry lists all entries in the routing table.

ROUTE LIST R

This entry lists all entries that capture product codes beginning with the letter R.

ROUTE SUS U3

This entry suspends the entry in the routing table that captures product code U3.

ROUTE SUS U3 RM

This entry suspends the entries in the routing table that capture product codes U3 and RM.

ROUTE REL M

This entry releases all entries in the routing table that capture product codes beginning with the letter M.

RUN

Runs a McBASI program.

Formats

RUN *p1...pn* **FILE=** [*keywords*]
'filename p1...pn [keywords]
RUN "*statement*"
'statement

Default

No default; you must specify a *filename* to run or a *statement* to execute.

Parameters

p1...pn positional parameters read by the INPUT statement

filename name of the McBASI program to run; the extension defaults to .MCB

statement McBASI statement to execute immediately

Keywords

CLEAR= **YES** resets the values of the variables to zero or null before starting the program (default)

NO variables retain the values from the previous RUN

FILE= name of the McBASI program to run; the extension defaults to .MCB. This keyword is required when using RUN, but is invalid when using the single quote format (').

VAR= name of the LW file to store the variable values in after running a program; the file contents are used to initialize the variables unless **CLEAR=Y** is specified (default=BASICVV00)

Remarks

RUN will execute a tiny BASIC language program prepared using an ASCII editor. The BASIC reserved words are: KEYIN, PRINT, INPUT, LET, GOTO, GOSUB, RETURN, STOP, IF, LPRINT, OPEN, CLOSE, REM, LOCATE, PTABLE and POKE.

These are the available functions and pseudofunctions: CHR\$, SIN, COS, TAN, ASIN, ACOS, ATAN, EXP, LOG, LOG10, INDEX, LEN, VAL, STR\$, MID\$(STRING, BEG, NUMBR), TIME\$, DATE\$, EOF\$, TFILE\$, TAB, TFILE\$, TFILEC\$, TFILEB\$, TFILEA\$, MOD, NINT, INT, SORT, PEEK, PEEK\$, KSYS\$, KSYS and TABLE\$.

The arithmetic operators are: +, -, *, /, **

See Also

See *Appendix H, McBASI Interpreter for McIDAS-OS2* in this manual for more information on McBASI interpreter commands, functions and sample programs.

Examples

RUN "?SQRT (5.7)

This entry calculates and prints the value of the square root of 5.7. The question mark (?) is a substitute for PRINT.

'MYPROG 27 #H

This entry runs the program in \MCIDAS\DATA\MYPROG.MCB and passes the value 27 and the current time (the string #H) to the INPUT statement(s) in the program.

RUN 27 #H FILE=MYPROG

This entry performs the same function as the previous one. Use this format for programs started from the system scheduler.

'MYPROG CLEAR=NO VAR=MYVARS.VAR

This entry runs the program in \MCIDAS\DATA\MYPROG.MCB but recovers the values for all variables from the file MYVARS.VAR. The values are written back to this file when the program terminates.

RUN VAR=MYVARS.VAR FILE=MYPROG

This entry runs MYPROG.MCB, initializes all variables to zero, and writes the values of the variables into the file MYVARS.VAR when the program stops.

RVF

Restores virtual frames saved with command SVF.

Format	RVF <i>bframe eframe name</i> [<i>keyword</i>]		
Default	No default; you must specify the parameters.		
Parameters	<i>bframe</i>	beginning virtual frame number to load (default=1)	
	<i>eframe</i>	ending virtual frame number to load (default= <i>bframe</i>)	
	<i>name</i>	the name and extension used to save the frames with the SVF command	
Keyword	FORMAT=	OLD	old format; no NAV or frame directory
		NEW	new format; saved with NAV and frame directory (default)
Remark	Use command RVF with VGA workstations only.		
Example	RVF 1 5 PICTURE FORMAT=NEW		
	This entry reloads frames 1 through 5 starting from file PICTURE.VIF.		

SC

Grids and contours surface data.

Format	SC <i>parm map time [keywords]</i>		
	SC <i>p1-p2 map t1-t2 [keywords]</i>		
Default	SC <i>parm map</i>		
	This entry contours <i>parm</i> on <i>map</i> in graphics color level 2 using the current day and time.		
Parameters	<i>parm</i>	ABV	absolute vorticity
		ADV	advection
		DVG	divergence (10^{-6} sec^{-1})
		GUS	wind gust (meters/second)
		MIX	mixing ratio (g/kg)
		PCP	precipitation (inches)
		PSL	pressure at sea level
		SNO	snow cover (inches)
		SPD	wind speed (meters/second)
		STR	streamline
		T	temperature ($^{\circ} \text{C}$)
		TD	dew point ($^{\circ} \text{C}$)
		THA	theta (K)
		THAE	theta E (K)
		VIS	visibility (miles)
		VOR	vorticity (10^{-6} sec^{-1})
		ZCH	height of the second cloud deck (100 feet)
		ZCL	height of the ceiling (100 feet)
		ZCM	height of the first cloud deck (100 feet)
		ZS	station elevation (meters)
	<i>map</i>	MID	Midwest USA
		NA	North America
		SAT	satellite projection
		USA	USA
		Post Office abbreviation	
	<i>time</i>	hour or HH:MM:SS; <i>time</i> defaults to the previous hour if the current time is less than 10 minutes past the hour (default=current)	
	<i>p1 - p2</i>	parameter difference used in contouring; subtract <i>p2</i> from <i>p1</i>	
	<i>t1 - t2</i>	time difference used in contouring; subtract <i>t2</i> from <i>t1</i>	

Keywords

CINT= contour interval (default is parameter dependent)

COLOR= graphics color level; the range is -1 to -7 for dashed lines, 1-7 for solid lines (default=2)

DAY= *d1 d2* year and day; use two values when contouring differences, YYDDD (default=current)

GRA= graphics frame number

GRIDF= grid file number (default=current grid file)

LAT= *min max* minimum and maximum latitude extents

LON= *min max* minimum and maximum longitude extents

MDF= *f1 f2* surface history file number; use two values when contouring differences (default=last digit of the current Julian day)

UNIT= **A** plots values in American units
M plots values in metric units
 This keyword only works for temperature and dew point.

Remarks

If you do not specify keywords COLOR, CINT, LAT, LON and MDF in the command, the string table is searched for the keywords. If the results are unexpected, use command TL to list the string table. The grid file is generated and the pointer is set the same as the terminal number.

Parameter advection (ADV) or divergence (DVG) is done by appending ADV or DVG, e.g., TADV, PSLDVG.

The day and time default to the current day and time, not the last available data on the PC.

Examples

SC STR SAT 12 MDF=1000

This entry contours streamlines at 12Z from history file 1000 in a satellite projection.

SC T MID

This entry contours the temperature over the Midwest for the current day and time.

SC PCP GRA=5 COLOR=7 LAT=20 40 LON=85 105

This entry contours precipitation in color level 7 on graphics frame 5. It uses a map with latitudes of 20° and 40° N and longitudes of 85° and 105° W.

SC PSL MID 18-18 MDF=7500-7501 DAY=90010-90009

This entry contours the 24-hour sea level pressure change from 18 GMT, day 009, to 18 GMT, day 010, 1990.

To generate derived parameters such as vorticity advection (VORADV), first create a vorticity grid as follows:

SC VOR USA

Watch the text screen for the location of the U and VOR grids, then enter:

IGG MAKE *u-grid* ADV *vor-grid*

substituting the correct grid numbers for *u-grid* and *vor-grid*.

SCHE

Adds a schema to the schema file.

Format	SCHE <i>name</i>
Default	No default; you must specify <i>name</i> .
Parameter	<i>name</i> the member name of the schema LW file
Remarks	To see an example of a schema file, enter LSCHE <i>name</i> on the host. New schema files for the PC should have the same format. You can create them on a word processor and then place them in the \MCIDAS\DATA subdirectory. Before registering the new schema, use command DOSTOLW to create an LW file containing the schema text. Then use command SCHE to register the new schema in the PC schema file. See "Registering MD File Schemas" in the Installation Procedure section of this manual for more information.
Examples	SCHE DCISFC This entry adds schema ISFC, which is the schema named in LW file DCISFC, to the PC schema file. The current version of this schema is included with each McIDAS-OS2 upgrade. SCHE MYSC This entry adds the schema named in the LW file MYSC to the PC schema file.

SCRDMP

Writes graphics frames to a graphics printer.

Format	SCRDMP <i>mode</i>		
Default	No default; you must specify the <i>mode</i> .		
Parameter	<i>mode</i>		
	0	provides tiny, quick output of a VGA display on an HP Think Jet printer	
	1	produces double height, quick output of a VGA display on an HP Think Jet printer	
	-1	prints good proportion, slow output of a VGA display on an HP Think Jet printer	
	OKI	sends the current graphics frame to an OKIDATA printer (VGA display)	
	OKS	sends the current graphics frame to an OKIDATA printer for a sideways/expanded output (VGA display)	
	PJ	sends the current graphics frame to an HP Paint Jet printer; it takes 1 minute to print	
	EPJ	sends the current graphics frame to an expanded HP Paint Jet printer; it takes 3 minutes to print; 6 gray levels are available	
	SPJ	sends the current graphics frame to a sideways HP Paint Jet printer; it takes 10 minutes to print; 16 gray levels are available	

Remarks This command only works with HP Think Jet, HP Paint Jet and OKIDATA graphics printers.

Make sure the image frame is blank before you display the graphics to be printed. To erase the image frame, enter the command: EG I.

Example **SCRDMP OKI**
This entry sends the current graphics frame to an OKIDATA printer.

SEE

Lists the text in an LW file.

Format	SEE <i>file</i> <i>nchars</i> [<i>keywords</i>]
Default	SEE <i>file</i> This entry lists the contents of the named LW file on the screen.
Parameters	<i>file</i> name of the LW file to list <i>nchars</i> number of characters per card image (default=80)
Keywords	BEGIN= first line number to list; if negative, the number of the first word to list (default=0) LAST= number of lines from the end of the file to list (default=ALL) NCA= number of lines to list (default=ALL) STEP= number of lines skipped between the lines listed; if negative, it steps backwards; this keyword only works on 80-character ASCII LW files (default=1)
Remarks	Command SEE attempts to list both LW files (80-character records with no carriage returns) and text format (up to 80 characters with imbedded carriage returns). As a result, keyword LAST may not work properly with the text format.
Examples	SEE LOGON This entry lists file LOGON starting at card image zero (i.e., the beginning) stepping forward 1 card image until it reaches the end of the file. SEE MYFILE BEGIN=25 This entry lists the text in LW file MYFILE beginning with line 25. SEE SCHEMA BEGIN=99 NCA=15 STEP=-1 This entry lists file SCHEMA starting at card image 99, stepping backwards by 1 card image for 15 card images.

SENAA

Copies digital data from McIDAS-OS2 to McIDAS-MVS.

Formats SENAA *sarea darea locate y-coord x-coord mag line ele [keywords]*
 SENAA *sarea darea locate station mag line ele [keywords]*

Default SENAA *sarea darea locate station*
 This entry copies the digital data from *sarea* to McIDAS-MVS *darea* using the *locate* coordinate type.

Parameters

<i>sarea</i>	source area number of the data (no default)
<i>darea</i>	destination area number (no default)
<i>locate</i>	coordinate type used to load images; use one of these coordinate systems: E earth I image followed by one of these locations: U upper-left corner C centered D lower-right corner
<i>y-coord</i>	y-axis coordinate (default=first element)
<i>x-coord</i>	x-axis coordinate (default=first line)
<i>station</i>	3-letter station ID; must be preceded by EU, EC or ED
<i>mag</i>	blowup or blowdown factor of the image (default=1)
<i>line</i>	number of lines in <i>darea</i> (default=500)
<i>ele</i>	number of elements in <i>darea</i> (default=640)

Keywords

ASIZE=	ALL moves the entire area including all bands; specify only <i>sarea</i> and <i>darea</i> when using ASIZE=ALL
BAND=	band number to move (default=8 for VAS, 4 for AVHRR) ALL moves all bands
DODF=	frame number for automatic TV loads on PC workstations
EMAG=	element only blowup or blowdown factor (default=1)

LMAG= line only blowup or blowdown factor (default=1)

MODE= PACK sends data in compressed form (default for
async connections unless sending 2-byte data;
otherwise, default=UNPACK)
UNPACK sends data in uncompressed form

PAKSIZ= number of bits per pixel to send when packing data, 6 or 8;
see the Remarks (default=8)

PROD= sends a 2-character product code to the PC

STYPE= VISR reduces 2-byte data to 1-byte; see the Remarks

Remarks

The Z column in the area directory indicates the number of bytes per pixel in the area. Visible data is 1-byte, while most IR data is 2-byte. The 2-byte data is usually a raw value which can be operated on with calibration coefficients to convert the data to radiance, temperature or brightness. Keyword **STYPE=VISR** converts the original data to brightness data.

SENAA can extract single bands from multibanded data and retain full calibration when the area is being sent to the mainframe. The PC must be running version 5.0 or later. Note that multibyte data can only be sent in uncompressed form (**MODE=UNPACK**).

When sending visible data, you can reduce the transmission time by specifying **PAKSIZ=6**. SENAA ignores the two bits that are not useful for image display. IR data requires all eight bits of data.

Examples

SENAA 1 101 EC MSN X 500 640

This entry transfers area 1 from the PC to mainframe area 101. The image, with earth coordinates, is centered on Madison, WI. It is 500 lines by 640 elements.

SENAA 2 109 EC 43 89 X 350 640 STYPE=VISR

This entry transfers area 2 from the PC to mainframe area 109. The image, with earth coordinates, is centered over Madison, WI., and is 350 lines by 640 elements. **STYPE=VISR** reduces the 2-byte data to 1-byte data. This speeds up the transfer, but the resulting area will not contain radiance information from the PC area.

SENGRD

Sends grids to the mainframe.

Formats	SENGRD <i>sgridf</i> ALL <i>dgridf</i> <i>dgrid</i> SENGRD <i>sgridf</i> <i>bgrid</i> <i>egrid</i> <i>dgridf</i> <i>dgrid</i>
Default	SENGRD <i>sgridf</i> ALL <i>dgridf</i> This entry sends all the grids in the PC grid file <i>sgridf</i> to the mainframe grid file <i>dgridf</i> .
Parameters	<i>sgridf</i> source grid file number (no default) ALL sends all grids in the grid file <i>bgrid</i> beginning grid to send (no default) <i>egrid</i> ending grid to send (default=<i>bgrid</i>) <i>dgridf</i> destination grid file number on the mainframe (no default) <i>dgrid</i> destination grid number in the mainframe grid file (default=first available)
Remarks	This command sends grids from a PC grid file to a mainframe grid file. If the destination grid file already exists, it adds the grids to this grid file. If no grid file exists, it creates one with the same specifications as the source grid file. Check the maximum number of grids allowed in the mainframe's grid file before using SENGRD. The default maximum is 159 grids, but no practical limit exists. Use IGU MAKE to create large grid files before transferring data.
Examples	SENGRD 1 ALL 7200 This entry sends all the grids in PC grid file 1 to the mainframe grid file 7200. If grid file 7200 exists, it appends the grids to the file. If the grid file does not exist, it creates one before sending the grids. SENGRD 1200 20 X 1205 30 This entry sends grid 20 from the PC grid file 1200 to the mainframe grid file 1205, grid 30.

SEN LW

Sends an LW file to the host.

Format	SEN LW <i>slwfile dlwfile [keywords]</i>
Default	No default; you must specify the parameters.
Parameters	<i>slwfile</i> name of the source LW file on the PC, up to 12 characters for drive+path+name; use <i>drive name:dlwfile</i> to send a file from the specified drive to the host, e.g., A:MYFILE (default=drive C) <i>dlwfile</i> name of the destination LW file on the host
Keywords	BEGIN= begins sending at the specified word; do not use this keyword with keywords RANGE and PAGE FLIP= YES flips bytes of 32-bit words NO does not flip bytes (default) RANGE= <i>beg end</i> beginning and ending pages to send; they must be LW file page numbers; 1024 words per page TRANS= A translates ASCII to EBCDIC; the source LW file must contain only ASCII characters
Remarks	On the PC, the term 'LW file' ordinarily means a file in the C:\MCIDAS\DATA subdirectory. To send an LW file from the host to the PC while in the PC mode, precede SEN LW with a period (.).
Example	SEN LW PCFILE HOSTFILE This entry sends the LW file PCFILE to the host, renaming it HOSTFILE.

SENST

Sends the current string table to the host.

Format	SENST HOST <i>name initials</i>
Default	No default; you must specify the parameters.
Parameters	HOST string table destination; you must enter HOST (no default) <i>name</i> name on the mainframe <i>initials</i> author's initials (default=current initials)
Remarks	The current string table is the default string table on a workstation. Use the command .TU REST to restore the string table once it is on the host. Use host command SENST to send string tables to the PC.
Example	SENST HOST DEMO This entry sends the current string table to the mainframe and stores it with the name DEMO under the current user's initials.

SF

Displays an image frame.

Format	SF <i>frame</i>
Default	SF This entry displays image frame one.
Parameter	<i>frame</i> the image frame number to display (default=1)
Remarks	Press the F key to list the current frame number. On EGA and VGA workstations, this changes to the frame number regardless of content as there is no distinction between images and graphics.
Example	SF 12 This entry displays image frame 12.

SG

Displays a graphics frame.

Format	SG <i>frame</i>
Default	SG This entry displays graphics frame one.
Parameter	<i>frame</i> the graphics frame number to display (default=1)
Remarks	Use command SG on tower and WIDE WORD workstations only. On EGA and VGA workstations, use the SF command to display a different frame. Press the F key to list the current frame number.
Example	SG 4 This entry displays graphics frame 4.

SHOMNU

A debugging tool for the F Key Menu System.

Format	SHOMNU <i>menu</i>
Default	No default; you must specify the menu number.
Parameter	<i>menu</i> the menu number to debug (default=0)
Remarks	Window 9 displays the user menu. Window 8 displays the command strings. Windows 7, 6 and 5 (in this sequence) display the command strings if extra space is needed. See the McIDAS-OS2 F Key Menu System chapter in this document for further details.
Example	SHOMNU 1 This entry displays the interface screen for menu 1 in window 9. Window 8 displays the command string.

SHOWVG

Displays virtual graphics.

Format	SHOWVG <i>virt bframe eframe [keywords]</i>
Default	No default; you must specify a set of parameters.
Parameters	<i>virt</i> virtual graphics number; the range is 1-9999 <i>bframe</i> beginning graphics frame number <i>eframe</i> ending graphics frame number (default= <i>bframe</i>)
Keywords	ELE= offsets the graphic by the specified number of elements (default=0) LINE= offsets the graphic by the specified number of lines (default=0)
Remarks	Command SHOWVG restores a virtual graphic saved on the PC. You create virtual graphics by appending keyword VIRT to any program that creates graphical output. To list the virtual graphics saved on the PC, use PC command DMAP. DMAP VIRT lists all the virtual graphics files saved on the PC. Virtual graphics files are named VIRTnnnn where nnnn is the virtual graphics number. Use keywords LINE and ELE to reposition the graphic. The specified values are constants that are added to the line and element coordinates when displaying the graphic.
Examples	SHOWVG 1000 1 2 This entry displays virtual graphic 1000 on frames 1 and 2. SHOWVG 1000 1 2 LINE=80 ELE=100 This entry is the same as the one above except it displays the virtual graphic 80 lines lower and 100 elements to the right of the original position.

SKE

Enters a McIDAS-OS2 command in the system command scheduler.

Format	SKE <i>day time repeat interval [keywords]</i> "command"	
Default	SKE <i>day</i> "command" This entry executes the McIDAS-OS2 <i>command</i> on the <i>day</i> specified. The start time is 0Z; the repetition is 1; the interval is 1 hour.	
Parameters	<i>day</i>	day to initiate the command, YYDDD
	<i>time</i>	time to initiate the command, HH:MM:SS; use colons when specifying the time (default=1 hour)
	<i>repeat</i>	number of command executions; if you enter 999999, the word MANY replaces it in the header (default=1)
	<i>interval</i>	time interval between command executions, DDDHH:MM:SS; use colons when specifying the time; for one day enter 24:00:00 or 100:00:00 (default=1 hour)
	"command"	command to execute; the command length may be up to 160 characters (including spaces) minus the preceding positional parameters; to run the command on the host, precede it with a period (.)
Keywords	ID=	4-digit number to identify the command in the scheduler (default=system assigned number)
	NAME=	user ID to use for host commands
	PROJ=	project number charged when you execute the command (default=current)
	TOL=	late tolerance, HH:MM:SS; if the PC is down or too busy for the command to run, the late tolerance determines how much time can pass before the command is skipped; if 10 to 24 hours are specified, the word BIG appears in the header; three seconds (:00:03) is the minimum acceptable time (default=1 hour)

Remarks

Keyword ID must be a 4-digit number (or omitted). Use it to refer to a schedule entry for listing, suspension and deletion.

To enter a # command from the PC string table,

Type: `##command`

Press: **Enter**

To enter a # command from the host string table,

Type: `##### command`

Press: **Enter**

If you schedule a command from the host, schedule a LOGON first or the command will not execute.

Place a period (.) in front of any command run from the host.

Examples

SKE 82340 13:30: 2 24:00: ID=3003 "LA 1 10

This entry runs PC command LA at 1330 GMT on each of two consecutive days (82340, 82341). The assigned ID for reference is 3003.

SKE 85100 00:00:01 999999 PROJ=7777 "DF 101 1 EC MSN

This entry runs command DF once an hour every day (999999 is listed as MANY by SKL), beginning with day 85100 at one second after 0 GMT.

SKE 89137 14:40 1 ".SENAA 109 5 X X X 1 350 640

This entry runs command SENAA from the host at 1440 GMT on 89137. The computer time is charged to the default project number, which is the one used in the LOGON command scheduled just prior to the execution of this command.

SKEWT

Plots a sounding on a skew T thermodynamic diagram.

Formats	SKEWT <i>station time</i> [<i>keywords</i>] SKEWT OUTL [<i>keywords</i>]
Default	SKEWT <i>station</i> This entry plots a skew T of <i>station</i> for the current day and time, erasing the graphics before plotting.
Parameters	<i>station</i> 5-digit station identification number (e.g., 72645 is Green Bay) or a sequence number in a satellite retrieval file <i>time</i> RAOB time; enter 0, 03, 06, 09, 12, 15, 18 or 21 GMT (default=0 or 12) OUTL displays a skew T diagram without sounding
Keywords	COLOR= color level of the skew T diagram/overlay; the range is 1-7 DAY= year and Julian day, YYDDD (default=current) GRA= graphics frame number (default=current) MDF= MD file number for RAOB (default=current) MIX= NO omits mixing ratio lines OLAY= YES 1 draws an overlay on an existing skew T diagram in yellow YES 2 draws an overlay on an existing skew T diagram in blue NO does not draw an overlay; erases the plot first (default) PTOP= top pressure level on the diagram rounded to multiples of 50 mb RANGE= <i>min max</i> minimum and maximum Centigrade temperature range of the diagram ROW= row number of the data in the RAWI schema (default=first occurrence of the data)

SIG= significant MD file number (default=current)

TYPE= **RAWI** uses rawinsonde schema
VAS uses VAS created data

UNIT= **FT** plots height in feet on the left axis
M plots height in meters on the left axis
MB plots pressure in millibars on the left axis (default)

VDEV= **YES** displays an error message
NO does not display an error message (default)

Remarks

Graphics are automatically erased before each plot.

Heights are recomputed for hydrostatic consistency.

Any number of overlays may be plotted, but successive wind barbs and headers will overwrite the previous overlay's wind barbs and headers due to space limitations.

Dew point temperature is not plotted when dew point depression (temperature minus dew point temperature) rounds to a whole number that exceeds 30.

Examples

SKEWT 72645 12 PTOP=300

This entry plots a skew T diagram for station 72645 at 12Z. The highest pressure plotted is 300 mb.

SKEWT OUTL RANGE=- 40 25

This entry plots a skew T diagram without the station plot, from -40° to 25° Centigrade.

To plot two soundings on one diagram, enter these two commands:

SKEWT 72655

This entry plots a skew T diagram for station 72655 at the current time.

SKEWT 72655 3 OLAY=Y COLOR=5

This entry plots a skew T diagram for station 72655 at 3 GMT on the same diagram in red.

SKL

Lists the entries in the command scheduler file.

Format SKL *bid eid [keywords] "matchstring*

Default SKL

This entry lists all the schedule entries for your terminal.

Parameters

bid beginning ID number to list; the range is 1-9999
(default=lists all entries)

eid ending ID number to list (default=*bid*)

"matchstring lists only the entries containing this string;
40 characters maximum (default=no match performed)

Keywords

FORM= ALL uses as many lines of output as needed to list
the entire command

PROJ= *min max* project number or range of numbers in the
scheduler to list (default=1000 9999)

SORT= ID sorts entries by ID number (default)
PROJ sorts entries by project number
RAW lists in the order of occurrence in the schedule
(unsorted)

TIME lists entries and sorts times in ascending order

Remarks

If you omit the beginning and ending ID numbers, all entries are
listed. The output is described below.

Column	Output	Description
1	T	terminal number
2	ID	command identification number
3	X/S	S suspends the scheduled command; X disables the terminal's schedule
4	Next Executn	next day and time to execute a command
5	#REM	number of remaining commands; if SKE repetitions is a 6-digit number, this will say MANY

Column	Output	Description
6	Interval	day and time interval between executions; the format is DDHH:MM:SS, entered by SKE <i>interval</i> where <i>interval</i> is 1 hour; if <i>interval</i> is 24, this output is listed as 1000000 (1 day)
7	TOL	late tolerance time, HH:MM:SS; any entry over 9 hours is listed as BIG
8	NAME:	initials used to log on
9	PROJ:	project number used to log on
10	Command:	command string to execute

Example**SKL 420 430 PROJ=7000**

This entry lists the scheduled commands on the current terminal for project 7000 between 420 and 430.

SKU

Command scheduler utility function.

Formats

SKU *option bid eid [keywords]*
 SKU MSG *device*
 SKU CHA *bid eid [keywords] "command*
 SKU DOIT *bid eid*
 SKU ON
 SKU OFF

Default

SKU *option bid*
 This entry performs *option* on *bid*, affecting the current terminal number only.

Parameters

<i>option</i>	DEL	deletes the entry for the schedule
	REL	releases the entry so the command executes at the next scheduled time
	SUS	suspends the entry so the command will not execute; this does not delete the entry from the scheduler
MSG		device specified for the scheduler text output
CHA		changes the entry; it depends on the keyword used
DOIT		executes a schedule entry without decrementing the counters
ON		turns the scheduler on
OFF		turns the scheduler off
<i>bid</i>		beginning ID number
<i>eid</i>		ending ID number (default= <i>bid</i>)
<i>device</i>	C	sends output to the CRT
	N	does not list the output
<i>"command</i>		new command or text to replace the current command

Keywords **NAME=** *old new* changes the old user ID to the new user ID
PROJ= *old new* replaces the old project number with the new project number

Remarks To change a schedule entry, you must be logged on to the project number listed in the entry.

Use parameter DOIT to test the schedule entries.

Examples **SKU SUS 1001 1009**
This entry suspends the schedule entries with IDs 1001 to 1009.

SKU CHA 1001 1009 PROJ=7000 5630
This entry changes the schedule entries with IDs 1001 to 1009 running at your terminal under project 7000 to run under project 5630.

SKU DOIT 5
This entry executes the command scheduled in ID number 5. It does not change the execution time or decrease the counter.

SL

Lists surface station data.

Formats

SL *units station btime etime inc [keywords]*

SL *btime etime inc*

SL *btime etime*

SL SET MDF= DAY=

SL RESET

Default

SL

This entry lists the current time's data availability.

Parameters

units A lists values in American units
 M lists values in metric units (default); if you enter A, American units will be listed until you reenter M; the value is stored in the string table

station 3-letter identification or state Post Office abbreviation; this can be one or more stations

btime beginning observation time of the listed station (default=current)
 or, the beginning time of the available data information listed (default=lists the current time's data availability)

etime ending observation time of the listed station, or the ending time of the available data information listed (default=*btime*)

inc time increment for the time range, HH (default=1)

SET directs all listings to a history MD file

RESET resets the MD file to the terminal number MD file; do this after using a history MD file

Keywords

CCH= high cloud coverage

CCL= low cloud coverage

CCM= middle cloud coverage

DAY= year and Julian day, YYDDD (default=current)

DIR= wind direction

GUS= wind gusts
MDF= surface history MD file number (default=current)
PCP= 6-hour precipitation total
PSL= surface pressure
SNO= snow cover
SPD= wind speed
T= temperature
TD= dew point
VIS= visibility
WX= weather, 1 to 8 characters
ZCH= high cloud height
ZCL= low cloud height
ZCM= middle cloud height

Remarks

If command SL does not work on your terminal, clear your string table by entering: **TD ALL** or **MDX CLE**.

To obtain information on history files and output, enter: **SL HELP**.

The day and time default to the current day and time, not the last available data on the PC. If you are not sure that your data is still current, use the time parameters.

Real-time surface files on the PC are the same as on the mainframe (1-10), with the last digit of the Julian day corresponding to the MD file.

The output units of the parameters are shown below.

Parameters	American	Metric
wind speed	knots	m/s
wind gusts	knots	m/s
visibility	miles	km
cloud height	feet	meters
precipitation, snow	inches	cm
temperature	degrees F	C
dew point	degrees F	C

Examples**SL MSN 12 18 2**

This entry lists surface station data for Madison, WI, from 12 to 18Z at 2-hour increments.

SL SET MDF=1000 DAY=91300

This entry points to history MD file 1000 and lists its data for day 91300.

SL RESET

When the above process is finished, this entry prompts the system to reset the MD file number to the terminal default.

SL ORD 15 10 DAY=92001 92002

This entry lists surface data from 15 GMT on day 92001 to 10 GMT on day 92002.

SL A WI 0

This entry lists surface data in American units for all Wisconsin stations for 0 GMT.

SL 12 23 WX=TRW

This entry lists all stations for the current day with thunderstorms between 12 and 23 GMT.

SL M MSN DSM 12 15

This entry lists the reports for Madison and Des Moines between 12 and 15 GMT in metric units.

SL 12 15

This entry lists surface data availability from 12 to 15 GMT.

SL 6 :

This entry lists surface data availability from 6 GMT to the current time.

SP

Plots surface data.

Formats

SP *parm map time [keywords]*

SP *p1-p2 map t1-t2 [keywords]*

Default

SP *parm map*

This entry plots *parm* on *map* in graphics color level 3 using the current day and time.

Parameters

parm CLD cloud cover; the range is 0 (clear) to 3 (overcast)
 GUS wind gust (meters/second)
 ID station identification
 MIX mixing ratio (g/kg)
 PCP precipitation (inches)
 PLOT plots station model in the format: T PSL
 wx *
 T CLD

PSL pressure at sea level
 SNO snow cover (inches)
 T temperature (° C)
 TD dew point (° C)
 THA theta (K)
 THAE theta E (K)
 VIS visibility (miles)
 WIN wind, DDFF, FF (m/s) meteorological flags
 Barb = 5 ms⁻¹ (~ 10 kts)
 Flag = 25 ms⁻¹ (~ 50 kts)
 WX weather text
 WXS weather symbols
 ZCH height of high clouds (feet)
 ZCL height of low clouds (feet)
 ZCM height of middle clouds (feet)
 ZS station elevation (meters)

map MID Midwest USA
 NA North America
 SAT satellite projection
 USA USA

Post Office abbreviation

time hour or HH:MM:SS; *time* defaults to the previous hour if the current time is less than 10 minutes past the hour
 (default=current)

	<i>p1 - p2</i>	parameter difference used in plotting; subtract <i>p2</i> from <i>p1</i>
	<i>t1 - t2</i>	time difference used in plotting; subtract <i>t2</i> from <i>t1</i>
Keywords	COLOR=	graphics color level, the range is 1-7 (default=3)
	DAY=	<i>d1 - d2</i> year and day; use two values when plotting differences, YYDDD (default=current)
	GRA=	graphics frame number (default=current)
	LAT=	<i>min max</i> minimum and maximum latitude extents
	LON=	<i>min max</i> minimum and maximum longitude extents
	MDF=	<i>f1 - f2</i> surface history file number; use two values when plotting differences (default=last digit of the current Julian day)
	UNIT=	A displays values in American units M displays values in metric units (only works for temperature and dew point)

Remarks

If you do not specify keywords COLOR, LAT, LON and MDF, the string table is searched for the keywords. If the results are unexpected, use command TL to list the string table or TD ALL to delete it.

Day and time default to the current day and time, not the last available data on the PC.

Examples**SP T MID**

This entry plots temperatures over the Midwest for the current day and time. Specify the time if you have not just downloaded the current data.

SP WIN LAT=20 40 LON=80 100 COLOR=1

This entry plots winds in color level 1 with latitude bounds 20° to 40° North and longitude bounds 80° to 100° West for the current day and time.

SP PLOT SAT 18 DAY=84300

This entry plots a station model over a satellite projection at 18 GMT, day 300, 1984.

SP T-TD WI

This entry plots the current dew point depression for Wisconsin.

SP T WI 12-12 MDF=2-1 DAY=88102-88101 UNIT=A

This entry plots the 24-hour temperature change in degrees Fahrenheit from 12 GMT, day 101, to 12 GMT, day 102, 1988.

SU

Image data stretching utility.

Formats

SU **INI** *name type unit [keywords]*
 SU **MAKE** *name inlo inhi blo bhi*
 SU **MAKE** *name inlo inhi LEV=*
 SU **LIST**
 SU **TABLE** *name*

Default

SU **LIST**

This entry lists the stretch tables saved on the PC.

Parameters

INI initializes the stretch table defining the type of calibration, calibration units and initial breakpoint settings; must be done for making a new stretch table

MAKE enters breakpoints in the table using VGA or brightness levels

LIST lists the stretch tables saved on the PC

TABLE lists the breakpoints stored in a stretch table

name name of the stretch table; 8 characters maximum

type **AAA** uses 2-byte GOES data calibration for the input table
TIRO uses POES data calibration
MSAT uses METEOSAT data calibration
VISR uses 1-byte GOES data calibration
 (default=use on any calibration type)

unit **RAW** raw data calibration units of the input data
BRIT brightness
RAD radiance
ALB albedo
TEMP temperature
 user defined units; use D to list all possible units for a specific image

inlo low value of the breakpoint for input values; specify in units input with the *unit* parameter (no default)

inhi high value of the breakpoint for input values; specify in units input with the *unit* parameter (no default)

Keywords	<i>blo</i>	low value of the breakpoint for output brightness values; the range is 0-255 (no default)	
	<i>bhi</i>	high value of the breakpoint for output brightness values; the range is 0-255 (no default)	
	BAND=	band number for the input data calibration type (default=none)	
	LEV=	<i>levlo levhi</i>	low and high VGA levels of the breakpoint output value; range is 0-15; use with the MAKE option only; do not use reserved graphics levels unless NLEV>13
	NLEV=	number of output levels to use on a VGA workstation; maximum of 16 (default=13)	
	RANGE=	<i>min max</i>	minimum and maximum values of the input data; these values define the boundary of input values that can later be stretched; the range is 0-255

Remarks

Use SU to make the tables that are specified with the SU= keyword in command DF. The SU command sets up tables to stretch raw, radiance, temperature, albedo or brightness values (depending on calibration) to a user-defined brightness value or VGA level. Then you can use command EU (or GU on a VGA) to color the brightness ranges known to correspond with the new values.

When you specify the keyword RANGE=, all input values less than or equal to *min* are assigned an output value of zero; all input values greater than or equal to *max* are assigned an output value of 255. Any additional breakpoints specified with the MAKE option that fall outside of *min* and *max* are assigned 0 or 255, accordingly. If you don't specify RANGE=, the stretches' slope previous to the first breakpoint is a continuation of the line formed by the first two breakpoints. Likewise, the slope following the last breakpoint is a continuation of the line formed by the last two breakpoints.

Normally, to display an image on a VGA workstation, you will stretch values between 20 and 240 evenly over the number of VGA levels (usually 13). Brightness values less than 20 are displayed as level zero; brightness values greater than 240 are displayed as level 15. For 13 levels, level zero contains brightness values 0-37, level 4 contains brightness values 37-58, etc.

Stretch tables are general structures that can be used on any workstation. They can be transferred to the mainframe using the SENLW command or to another workstation from the mainframe with .SENLW., or by diskette.

Examples

SU INI TIORAD3 TIRO RAD BAND=3

This entry initializes the table TIORAD3 to be used on the radiance values of TIROS band 3 images. Each new stretch table must be initialized.

SU MAKE TIORAD3 0 1.2 20 220

This entry sets the breakpoint values in the above table TIORAD3. Input zero corresponds to output 20; input 1.2 corresponds to output 220.

SU TAB TIORAD3

This entry lists the breakpoints in table TIORAD3, along with information on BAND, calibration type and units.

SU INI MSATEMP1 MSAT TEMP BAND=1 NLEV=14

This entry initializes the table MSATEMP1 to contain breakpoints in temperature for METEOSAT band 1 data. Fourteen gray scale levels are displayed on a VGA; use LEVELS=14 in the DF command to display an image.

SU MAKE MSATEMP1 240 260 LEV=3 12

This entry stretches the temperature values from 240 to 260 in table MSATEMP1, over levels 3 to 12.

SU INI GENBRIT X BRIT RANGE=100 200

This entry initializes the table GENBRIT to be used on any calibration type with brightness units. The brightness values from 100 to 200 are stretched to brightness values 0 to 255. Brightness values entered with SU MAKE that are less than 100 or over 200 are assigned 0 or 255, respectively.

SVF

Saves VGA workstation virtual frames that can be restored with command RVF.

Format	SVF <i>bframe eframe file</i>
Default	No default; you must specify the parameters.
Parameters	<i>bframe</i> beginning frame number to save (default=1) <i>eframe</i> ending frame number to save (default=<i>bframe</i>) <i>file</i> the file name in which to save the frames, 12 characters; if you don't specify an extension, extension .VIF is automatically appended (no default)
Remarks	Use command SVF on VGA workstations only. SVF saves the frames, NAV and frame directory in the specified file in the \MCIDAS\DATA subdirectory.
Example	SVF 1 5 PICTURE This entry saves frames 1 through 5 in file PICTURE.VIF.

SYSKEY

Sets system values for local McIDAS workstation networks.

Format **SYSKEY** *name*

Default	SYSKEY
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This entry sets the system values to the defaults in SYSKEY.DOC.

Parameter	<i>name</i>	name of the text file in the \MCIDAS\DATA subdirectory containing the values used to create the SYSKEY.TAB file (default=SYSKEY.DOC)
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Remarks

Caution !

Creating or changing SYSKEY.TAB impacts the entire McIDAS workstation network. SYSKEY should be used by the network administrator only.

This command reads the values from text file SYSKEY.DOC into the LW file SYSKEY.TAB. The parameters defined for local McIDAS workstation networks are stored in SYSKEY.TAB. These parameters contain alphanumeric and integer values needed by workstations in the network. Words 2100-2499 are reserved for parameters unique to your network.

If your workstation is not part of a local McIDAS workstation network, SYSKEY.TAB should not be utilized. Workstation specific values should be accessed through User Common.

The SYSKEY.DOC file must be in DOS text format, i.e., lines end with a carriage return or carriage return/linefeed. To change SYSKEY.DOC, it is best to use a text editor as most text editors place a carriage return or carriage return/linefeed at the end of each line.

SYSKEY.TAB alphanumeric values are limited to 4 characters; integer values are limited to 10 characters.

Use command SYSVAL to list values directly from SYSKEY.TAB.

SYSKEY.TAB values can be placed directly into local command entries by using **#SYS(word)** to replace a parameter or keyword value. For example, **LA 1 #SYS(2100)** will list areas 1 to the value stored in SYSKEY.TAB word 2100.

SYSVAL

SYSKEY utility.

Formats	SYSVAL LIST <i>bword</i> <i>eword</i> SYSVAL CHANGE <i>word</i> <i>value</i>
Default	No default; you must specify the parameters.
Parameters	LIST lists the values stored in the LW file SYSKEY.TAB CHANGE changes the value of a SYSKEY word <i>bword</i> beginning word number to list (default=1) <i>eword</i> ending word number to list (default=<i>bword</i>) <i>word</i> SYSKEY word number <i>value</i> new value to place in SYSKEY; must be numeric

Remarks

Caution!

Creating or changing SYSKEY.TAB impacts the entire McIDAS workstation network. The SYSVAL CHANGE option should be used by the network administrator only.

The parameters defined for local McIDAS workstation networks are stored in SYSKEY.TAB. These parameters contain alphanumeric and integer values needed by workstations in the network. Words 2100-2499 are reserved for parameters unique to your network. For a description of SYSKEY.TAB, see the file SYSKEY.DOC. This file should be updated regularly by the network administrator.

If your workstation is not part of a local McIDAS workstation network, SYSKEY.TAB should not be utilized. Workstation specific values should be accessed through User Common. SYSKEY.TAB values can be placed directly into local command entries by using **#SYS(*word*)** to replace a parameter or keyword value. For example, **LA 1 #SYS(2100)** will list areas 1 to the value stored in SYSKEY.TAB word 2100.

Example

SYSVAL LIST 2000 2010

This entry lists the contents of SYSKEY.TAB words 2000-2010.

TD

Deletes one or more strings from the current string table.

Formats	TD <i>name</i> TD PREFIX <i>prefix</i> TD ALL TD ALL GLOB	
Default	No default; you must specify the parameters.	
Parameters	<i>name</i>	a single string name to delete
	<i>prefix</i>	deletes all strings that begin with the given prefix
	PREFIX	searches for the string prefix
	ALL	clears the system table, except for global strings
	GLOB	deletes all strings, including global strings
Remarks	A string name whose first character is a question mark (?) is defined as global. Global strings remain in the table unless you delete them by entering: TD ALL GLOB .	
See Also	Command TL lists strings. Command TE edits strings. Command TU is the string utility that saves the current string table. Command SENST sends string tables to the host.	
Examples	TD 9 This entry deletes the string named 9. TD PREFIX CH This entry deletes all strings that begin with CH. TD ALL This entry deletes all strings except those preceded by a question mark (?). TD ALL GLOB This entry deletes all string tables, including those preceded with a question mark.	

TE

Enters a string in the string table.

Format	TE <i>string</i> "text"
Default	TE <i>string</i> This entry assigns blanks to the <i>string</i> name.
Parameters	<i>string</i> an alphanumeric string name, 1 to 12 characters; only the first character can be numeric (no default) "text" the value, command, or text defining the string; the text may be preceded with a pound (#) sign; two #s enter a PC string named #string; use four #s to name this string on the host; quotes are mandatory
Remarks	When #<i>string</i> appears in a command, it is replaced by its definition from the string table. When #SYS(<i>word</i>) or #UC(<i>word</i>) appears in a command, it is replaced by the value stored in the specified SYSKEY.TAB or User Common word, respectively. See the SYSVAL and UCU commands for more information. The string name may contain numerals. An executable string name can have a number only as its first character. A non-executable or text string can have numbers in any position. To execute a command entered under a string name, type #<i>string</i>. See the examples on the next page. If #<i>string1</i> is included in another string (e.g., #<i>string2</i>), the value of #<i>string1</i> is used when #<i>string2</i> is executed. A string name whose first character is a question mark (?) is defined as global. Global strings remain in the table unless you delete them by entering: TD ALL GLOB.
Note	You cannot use X as a string name since McIDAS interprets the letter X as a place holder for default values. Likewise, if you have a series of strings beginning with X (e.g., XMAP), you cannot delete these strings with TD PREFIX X nor execute them with REPEAT X 1 TO 1.
See Also	Use command TEDIT to edit a string. Command TL lists string tables; command TD deletes them; command TU is the string table utility.

Examples**TE LOAD "SEQ 105 108 1 4 EC MSN**

This entry places an SEQ command in string LOAD. To execute the command, type: #LOAD.

TE NOTE "MAP OF NORTH AMERICA IN SATELLITE PROJECTION

This entry stores the text MAP OF NORTH AMERICA IN SATELLITE PROJECTION in string NOTE.

TE MAPS "MAP NA

This entry stores the command MAP NA under string MAPS. To execute the command, type: #MAPS.

TE AAA "TERM L ON

This entry stores the command TERM L ON under string AAA.

TE ABQ "SL A ABQ

This entry places string ABQ in the string table. To execute the SL A ABQ command, type: #ABQ.

In the compound string example below, remember to define the string that replaces the # value before defining the string that uses it.

TE A "120

The replacement string is #A.

TE LIST "LA 100// #A

The actual string stored under LIST is LIST=LA 100 120.

To vary the value in #A, insert two # signs in string LIST:

TE LIST "LA 100 ##A

The actual string stored is LIST=LA 100 #A.

If you change string A now, the new value will be used when LIST is executed. For example, if you entered the following change:

TE A "150

The system would use LA 100 150 the next time #LIST was executed.

Assume the following string commands exist on the system.

TE LIST "LA 100 120; ## TVLOAD**TE TVLOAD "DF 101 1 ED MSN**

When #LIST is executed, the following commands are executed.

LA 100 120**DF 101 1 ED MSN**

TEDIT

Edits a string in the string table.

Format	TEDIT <i>string</i>
Default	No default; you must specify the string name.
Parameter	<i>string</i> name of the string to edit
Remarks	The specified string is displayed on the command line at the bottom of your screen. Edit the string with the standard command line keys (e.g., right arrow, Insert, Delete, etc.). When you finish editing, press the Enter key to execute the new TE command.

Example **TEDIT LIST**
In this example the command:

TE LIST "LA 101 10000

is echoed on the command line. Change 10000 to 105 and press the Enter key to change the string named LIST.

TERM

Sets the state of the J, K, L, N, O, P, V, W, Y and Z toggles.

Format	TERM <i>toggle state</i>
Default	No default; you must specify the parameters.
Parameters	<i>toggle</i> one of the letters J, K, L, N, O, P, V, W, Y or Z <i>state</i> ON switches the toggle on (default) OFF switches the toggle off
Remarks	You will typically use command TERM when your workstation is not in a known state. For example, if you cannot predict the state of your graphics and you want them on, execute TERM W ON to guarantee they are on. TERM is commonly used in string tables, McBASI programs and macros. The valid commands and their toggles are:

Command	Function	Toggle ON	Toggle OFF
J	Toggles graphics to the loop control system	connect	disconnect
K	Toggles the image frame on/off	visible	blank
L	Toggles frame looping on/off	start	stop
N	Toggles the N key on/off	on	off
O	Displays the opposite image frame	opposite	base
P	Toggles the joystick or mouse control on/off	connect	disconnect
V	Toggles the velocity cursor on/off	on	off
W	Toggles the graphics frame on/off	visible	blank
Y	Toggles image frames to the loop control system	connect	disconnect
Z	Toggles the WWW zoom on/off	on	off

Examples	TERM L ON This entry starts the frames looping. TERM L OFF This entry stops the frames looping.
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TFILE

Sends text output to a disk file.

Format	TFILE <i>mode window "file"</i>		
Default	No default; you must specify the parameters.		
Parameters	<i>mode</i>	OPEN	opens the file for saving text
		CLOSE	closes the file (default)
		DUMP	dumps the contents of the text window to the file
		DO	dumps the current text window and then opens the file
	<i>window</i>	text window number; the range is 0-4 (default=current)	
	<i>"file"</i>	file name to write into; quotes are mandatory	
Remarks	The file name you specify must not be in use by another task, e. g., a word processor. It may be fully qualified up to 40 characters. The default path is C:\MCIDAS\DATA\. When you activate a text file, the right end of the status line displays a yellow window number on a black background.		
Example	TFILE OPEN X "SAWI" This entry opens file SAWI and places any further output directed to the current window into that file.		

TL

Lists the strings in a string table.

Formats	TL ALL	
	TL OUT	
	TL [keyword]	
	TL prefix [keyword]	
Default	TL	This entry lists the first 20 strings from the current string table.
Parameters	ALL	lists the strings that begin with 0-9 or A-Z; the maximum is 256
	OUT	lists all strings, including global strings
	prefix	lists the strings that begin with this prefix
Keyword	NUM=	number of strings to list (default=20)
Remarks		Strings in the string table are stored alphabetically with numbers 0 to 9 at the beginning of the table.
		A string whose first character is a question mark (?) is called a global string. It is listed with TL OUT or TL ?.
		You can list other strings that do not begin with 0-9 or A-Z with TL OUT.
See Also		Use command TD to delete strings and TE to enter strings. Command TU is the string table utility.
Examples	TL CH	This entry lists the strings that begin with CH.
	TL ALL	This entry lists all strings; the maximum is 256.
	TL NUM=10	This entry lists the first 10 strings in the string table.
	TL SORT NUM=15	This entry lists the first 15 strings following SORT.

TU

String table utility.

Formats	TU SAVE <i>name</i> [<i>keyword</i>] TU DEL <i>name</i> TU LIST <i>initials</i> TU REST <i>name initials</i> [<i>keyword</i>]												
Default	TU This entry lists all the string tables on the workstation.												
Parameters	<table> <tr> <td>SAVE</td><td>saves the string table</td></tr> <tr> <td>DEL</td><td>deletes the string table</td></tr> <tr> <td>LIST</td><td>lists the string tables on the workstation (default)</td></tr> <tr> <td>REST</td><td>restores a string table to your workstation and makes it the current string table</td></tr> <tr> <td><i>name</i></td><td>1- to 12-character name identifying the string table (default=the current user)</td></tr> <tr> <td><i>initials</i></td><td> 1- to 4-character name identifying the user who saved the table (default=logon initials) ALL lists all tables (default=your initials) </td></tr> </table>	SAVE	saves the string table	DEL	deletes the string table	LIST	lists the string tables on the workstation (default)	REST	restores a string table to your workstation and makes it the current string table	<i>name</i>	1- to 12-character name identifying the string table (default=the current user)	<i>initials</i>	1- to 4-character name identifying the user who saved the table (default=logon initials) ALL lists all tables (default=your initials)
SAVE	saves the string table												
DEL	deletes the string table												
LIST	lists the string tables on the workstation (default)												
REST	restores a string table to your workstation and makes it the current string table												
<i>name</i>	1- to 12-character name identifying the string table (default=the current user)												
<i>initials</i>	1- to 4-character name identifying the user who saved the table (default=logon initials) ALL lists all tables (default=your initials)												
Keyword	SAVEFILE= LW file name to store the table in or restore the table from												
Remarks	You may restore any table by entering the desired table name and author's initials. You cannot save over or delete another user's tables. There is a maximum of 512 saved tables. A string name whose first character is a question mark (?) is global and remains after each restore.												

Examples**TU SAVE DEMO**

This entry saves the current string table under the name DEMO.

TU REST DEMO

This entry restores string table DEMO to the current foreground.

TU REST COLOR

This entry restores string COLOR in your workstation, making it the current string table.

TU SAVE CLOUDS

This entry saves the current string table under the logged on initials and the name CLOUDS.

TU REST CLOUDS KJB

This entry restores the string table named CLOUDS which is stored under initials KJB.

TU DEL CLOUDS

This entry deletes the string table CLOUDS. The logged on initials must match the saved initials.

UC

Grids and contours RAOB data.

Formats

UC *parm level map time* [keywords]
 UC *p1-p2 l1-l2 map t1-t2* [keywords]

Default

UC *parm level map*
 This entry contours *parameter* for *level* on the current graphics. It contours over the map in color level 2 using the current day and time.

Parameters

<i>parm</i>	ABV	absolute vorticity
	DVG	divergence (10^{-6} sec^{-1})
	MIX	mixing ratio (g/kg)
	P	pressure (mb)
	SPD	wind speed (m/s)
	STR	streamline
	T	temperature ($^{\circ} \text{C}$)
	TD	dew point ($^{\circ} \text{C}$)
	THA	theta (K)
	THAE	theta E (K)
	VOR	vorticity (10^{-6} sec^{-1})
	Z	height (meters)
	ZS	station elevation (meters); use only with SFC level
<i>level</i>	MAXW	maximum wind
	SFC	surface
	TRO1	tropopause 1
	TRO2	tropopause 2
	1000-100	mandatory levels in mb
<i>map</i>	MID	Midwest USA
	NA	North America
	SAT	satellite projection
	USA	USA
	<i>Post Office abbreviation</i>	
<i>time</i>	hour or HH:MM:SS; <i>time</i> defaults to the previous RAOB time if the current time is less than 1-1/4 hours past the RAOB time (default=nearest RAOB time)	
<i>p1 - p2</i>	parameter difference used in contouring; subtract <i>p2</i> from <i>p1</i>	
<i>l1 - l2</i>	level difference used in contouring; subtract <i>l2</i> from <i>l1</i>	
<i>t1 - t2</i>	time difference used in contouring; subtract <i>t2</i> from <i>t1</i>	

Keywords	CINT=	grid contour interval (default is parameter dependent)
	COLOR=	graphics color level; the range is -1 to -7 for dashed lines, 1-7 for solid lines (default=2)
	DAY=	<i>d1 - d2</i> year and day; use two values to contour differences, YYDDD (default=current)
	GRA=	graphics frame number (default=current)
	LAT=	<i>min max</i> minimum and maximum latitudes
	LON=	<i>min max</i> minimum and maximum longitudes
	MDF=	<i>f1 - f2</i> RAOB history file number; use two values to contour differences (default=last digit of the current Julian day plus 10)

Remarks

If you do not specify keywords COLOR, CINT, LAT, LON and MDF in the command, the string table is searched for the keywords. If the results are unexpected, use command TL to list the string table. A grid file is generated and its pointer set to your terminal number. Parameter advection (ADV) or divergence (DVG) is done by appending the parameter with ADV or DVG (e. g., TADV, ZDVG). The day and time default to the current day and time, not the last available data on the PC.

Examples**UC STR 500 SAT 12 COLOR=1**

This entry draws streamlines at 500 mb on a satellite projection at 12 GMT in color level 1.

UC T 850 MID

This entry contours 850 mb temperatures over the Midwest for the current day and time.

Below is an example of vorticity advection.

UC VOR 500 USA 12

This entry draws contours of relative vorticity at 500 mb on a USA map for the current day at 12Z. Three grids (U, V and VOR) are filed into the current grid file. Assume U is in grid 1 and VOR is in grid 3. Enter the following two command sequences.

IGG MAKE 1 ADV 3

This entry creates a fourth grid containing vorticity advection.

IGTV 4 100 USA DASH=NEG

This entry draws vorticity advection contours on a USA map, with a contour interval of 100. Negative values are dashed.

UCU

Inspects the User Common (UC) memory block.

Formats	UCU PEEK <i>word</i> UCU POKE <i>word value</i>
Default	No default; you must specify the parameters.
Parameters	PEEK lists the current value in User Common POKE places a value in User Common <i>word</i> specific word number in User Common (default=0) <i>value</i> new value to place in User Common (default=0)
Remarks	User Common consists of workstation information that resides in memory. Programs access User Common to obtain current workstation configuration and state data. Each User Common word stores a separate piece of information, i.e., cursor line and element position, current image and graphics frame, current logon initials and project number. For a list of User Common words, see UC.DOC in the \MCIDAS\TOOLS subdirectory. User Common values can be placed directly into local command entries by using #UC(<i>word</i>) to replace a parameter or keyword value. For example, LB 1 #UC(13) sets the image loop bounds from 1 to the value stored in User Common word 13.

Caution!

Do not alter User Common. If you incorrectly modify a UC value, you may need to power down the workstation to reinitialize its state.

Example	UCU PEEK 1 This entry lists the contents of User Common 1 (project number).
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UL

Lists RAOB data.

Formats	UL AVA	<i>[keywords]</i>
	UL ANL	<i>station time [keywords]</i>
	UL LIST	<i>station time [keywords]</i>
	UL MAND	<i>station time [keywords]</i>
Default	UL	
	This entry lists the available RAOB data for the entire day.	
Parameters	AVA	lists the RAOB data availability (default)
	ANL	lists the stability indices for the station
	LIST	lists the mandatory and significant levels
	MAND	lists the mandatory levels
	<i>station</i>	5-digit station ID
	<i>time</i>	hour or HH:MM:SS (default=nearest 0 or 12Z RAOB)
Keywords	DAY=	year and day of the data, YYDDD (default=current)
	MDF=	MD file number containing the data (default=the last digit of the current Julian day plus 10)
	OPT=	0 lists the mandatory levels with parcel analysis; does not recompute heights or perform interpolations
		1 lists the mandatory and significant temperature levels; does not interpolate winds at significant temperature levels or perform parcel analysis
		3 lists mandatory and significant temperature levels and significant wind levels; recomputes all heights and computes wind pressure; does not perform parcel analysis
		5 lists mandatory and significant temperature levels; interpolates winds at significant temperature levels; does not perform parcel analysis

7 lists mandatory and significant temperature levels and significant wind levels; makes interpolations for missing data and recomputes heights; computes parcel analysis (default)

PTEMP= YES computes the potential temperature and mixing ratio for each level

NO does not compute the potential temperature and mixing ratio (default)

SIG= significant MD file number (default=file corresponding to keyword MDF)

ZMAX= lists the data levels less than or equal to ZMAX; height is in meters (default=all levels)

Remarks

The units for precipitable water are in millimeters.

Significant level winds and temperatures are never reported for the same level. Keyword OPT defaults to a full vertical interpolation. This means that when a significant level temperature is reported, the wind speed and direction at that level are interpreted. Conversely, when a significant level wind is reported, the temperature and dew point at the wind level are interpolated. For no interpolation, use OPT=3.

The three keys in the significant level MD file schema (RSIG) are P1, P2 and P3. They are used for significant wind and temperature reports. If a significant wind is reported, P1 is the direction, P2 is the speed and P3 is the height. If a significant temperature is reported, P1 is the temperature, P2 is the dew point and P3 is the pressure.

The day and time default to the current day and time, not the last available data on the PC.

Examples

UL LIST 72645 12 DAY=92010

This entry lists the mandatory and significant levels from day 92010, at 12 GMT, station 72645.

UL AVA MDF=6512 DAY=90250

This entry lists the available RAOB data in MD file 6512, day 90250.

UP

Plots RAOB data.

Formats

UP *parm level map time* [keywords]UP *p1-p2 l1-l2 map t1-t2* [keywords]

Default

UP *parm level map*

This entry plots *parm* for *level* over *map* in color level 3 using the current day and time.

Parameters

<i>parm</i>	IDN	5-digit station identification; the first 2 digits are dropped in the PLOT option; IDs are plotted only for the surface level
	MIX	mixing ratio (g/kg)
	P	pressure (mb)
	PLOT	plots station model in the format: T PSL TD
	T	temperature (° C)
	TD	dew point (° C)
	THA	theta (K)
	THAE	theta E (K)
	WIN	wind, DDFF, FF (m/s) meteorological flags Barb = 5 ms ⁻¹ (~ 10 kts) Flag = 25 ms ⁻¹ (~ 50 kts)
	Z	surface height (meters)
	ZS	station elevation (meters)
<i>level</i>	MAXW	maximum wind
	SFC	surface
	TRO1	tropopause 1
	TRO2	tropopause 2
	1000-100	mandatory levels in mb
<i>map</i>	MID	Midwest USA
	NA	North America
	SAT	satellite projection
	USA	USA
	Post Office abbreviation	
<i>time</i>	hour, HH:MM:SS; <i>time</i> defaults to the previous RAOB time if the current time is less than 1¼ hours past the RAOB time (default=nearest RAOB time)	
<i>p1 - p2</i>	parameter difference used in plotting; subtract <i>p2</i> from <i>p1</i>	

l1 - l2 level difference used in plotting; subtract *l2* from *l1*

t1 - t2 time difference used in plotting; subtract *t2* from *t1*

Keywords

COLOR= graphics color level; the range is 1-7 (default=3)

DAY= *d1 - d2* year and day; use two values to plot differences, YYDDD (default=current)

DECLUT= YES declutters the display by not plotting values that overwrite another (default)
 NO does not declutter the display; plots values that overwrite each other

GRA= graphics frame number (default=current)

LAT= *min max* minimum and maximum latitudes

LON= *min max* minimum and maximum longitudes

MDF= *f1 - f2* RAOB history file number; use two values to plot differences (default=last digit of the current Julian day plus 10)

Remarks

If you do not specify keywords COLOR, LAT, LON and MDF in the command, the string table is searched for the keywords. If the results are unexpected, use command TL to list the string table. The day and time default to the current day and time, not the last available data on the PC.

Examples

UP T 850 MID

This entry plots current temperatures at 850 mb over the Midwest.

UP IDN SFC USA COLOR=5

This entry plots station numbers over the USA in color level 5.

UP WIN 850 X 0 MDF=6512 LAT=30 45 LON=80 100

This entry plots winds at 850 mb, 0 GMT in MD file 6512. The latitude range is 30° to 45° N; the longitude range is 80° to 100° W.

UP Z 500-1000 USA

This entry plots the current 1000/500 mb thickness over the U.S.

UP T-TD 850 USA

This entry plots the current dew point depression over the U.S.

UP Z 500 USA 12-12 MDF=15-14 DAY=92025-92024

This entry plots the 24-hour 500 mb height change from 12 GMT, day 92024 to 12 GMT, day 92025.

V

Toggles the velocity cursor on/off when tracking cloud drift winds.

Remarks

The V key toggles the velocity cursor on/off. This establishes a fixed jump in the cursor for each frame in your loop bounds which helps track cloud features. You must be in a cloud tracking session to use V. When mainframe command MW is entered to start the session, the V command is turned off. A "V" is displayed on the text window status line when the velocity cursor is on.

To use this command,

Press: Alt V

or

Type: V

Press: Enter

This turns the velocity cursor on. Set the velocity increment by aligning the cursor over a cloud target on the first frame of your loop. Advance to the second frame with the left mouse button (it functions like Alt A), then align the cursor over the similar cloud feature. Doing this on the first and second frames sets the increment for all frames in the loop.

If you don't use the velocity cursor, you will be manually selecting each target which can be quite tedious, but is advisable when doing single pixel cloud tracking.

VASTBL

Creates calibration transforms for VAS (Mode AA) data.

Remarks

You only need to run this program if you use AA VAS data on your PC. To use this command,

Type: **VASTBL**

Press: **Enter**

This command generates a file called VASTBLS that is used with Mode AA VAS data. It takes several minutes to run and generate a file of about 6 megabytes.

VV

Computes the velocity vector.

Format	VV <i>[keywords]</i>
Parameters	none
Keywords	COLOR= color level of the plotted velocity vector flags (default=3) SIZE= relative size of the plotted velocity vector flags (default=10)

Remarks You must set the image and graphics frame loop bounds before running command VV. The maximum number of images in a loop is 10.

For an image loop, choosing the cloud target positions manually from two images (manual lock by pressing the right mouse button) automatically calculates (auto lock) the target positions for the rest of the images. You can manually relock any of the auto lock targets to a different position without affecting the other target positions.

When you run VV, the following message appears on the screen.

Move mouse to position the cursor on the image frame.
Press the LEFT mouse button to advance one frame in the loop.
Press the RIGHT mouse button to lock the cursor on the frame.
Press BOTH mouse buttons to compute the velocity vector.

To exit VV, press both mouse buttons immediately after computing the velocity vector, i.e., double click both buttons.

Choosing a cloud target draws a default 10 x 10 cross on the graphics frame. After the calculation, wind bars are drawn on all graphics frames starting from the second one. The calculated velocity is listed on the text screen. Speed value is in meters per second.

W

Toggles the graphics frame on and off.

Remarks To turn the graphics overlay frame on and off,

Press: Alt W

or

Type: W

Press: Enter

This entry does not alter the contents of the graphics frame.

On VGA workstations this is simulated by setting the three graphics levels (1-3) to a dark gray.

See Also Command K toggles image frames on and off.

X

Tracks cloud drift wind targets with one keystroke.

Remarks

You can use the X key in place of the right mouse button when tracking cloud drift winds. It makes one wind measurement for each pair of frames in the loop bounds without stepping through the frames.

For example, in a loop of three images, you would press the right mouse button four times to make two wind measurements. The X key will make the same measurements by reading the cursor displacement on each frame without advancing through the frames; it's handled through the software so nothing mechanical is seen. This technique is useful if you find consistent flow in a large cluster of clouds.

To use this function,

Press: **Alt X**

or

Type: **X**

Press: **Enter**

XSECT

Displays a vertical cross section.

Format	XSECT <i>bid eid [keywords] "text</i>	
Default	XSECT <i>bid eid</i> This entry displays a cross section of isentropes drawn from mandatory and significant level information contained in the current RAOB and RSIG system MD files. The reporting stations used lie within a 500 km wide corridor along the cross section axis between the beginning and ending station ID numbers.	
Parameters	<i>bid</i>	beginning station ID number
	<i>eid</i>	ending station ID number
	<i>"text</i>	cross section title; up to 42 characters (default= <i>day time</i>)
Keywords	CINT=	<i>cl ... cn</i> contour interval (default=see table)
	COLOR=	<i>l1 ... ln</i> contour color level (default=see table)
	DAY=	MD file Julian day, YYDDD (default=current)
	ERASE=	NO does not automatically erase the graphics frame YES automatically erases the graphics frame (default)
	FORM=	<i>f1 ... fn</i> see the table for the defaults
	DIR	reported wind directions, 0-360° clockwise from the north
	MIX	derived mixing ratios, g/kg
	SPD	reported wind speeds, m/s
	SPDE	derived wind speed projected normal to the cross section axis and enhanced by thermal information through the geostrophic wind equation, m/s
	SPDN	derived wind speed normal to the cross section axis, m/s; see the Remarks
	SPDS	derived wind speed tangential to the cross section axis, m/s
	SPDZ	derived vertical wind speed shear, 1/s
	T	reported temperature, C
	TD	reported dew point temperature, C
	THA	derived isentropes, K

U	derived u-component of the reported wind speed, m/s
V	derived v-component of the reported wind speed, m/s
WIN	wind barbs of the reported winds, kt
Z	reported heights, m

GCOLOR= background border and interior grid color (default=5)

GRA= graphics frame (default=current)

IDN= *id1...25* station ID numbers for the cross section

LABEL= YES displays parameter labels (default)
NO does not display parameter labels

LAT= *end beg* latitude limits for the cross section
(default=*eid bid*)

LDASH= draws dashed contours (default=see table)
-2 all values are dashed
-1 only negative values are dashed
0 no dashing

LINT= label interval of contours (default=see table)

LON= *end beg* longitude limits for the cross section
(default=*eid bid*)

LSIZE= label size of contours (default=see table)

MAP= NO does not plot a map showing the cross section location (default)
YES plots a map showing the cross section location

MDF= *mand sig* mandatory and significant level MD file numbers (default=current RAOB and RSIG). Set *sig* to 0 if only mandatory levels are needed. Giving *sig* a value is only valid when *mand* is specified.

PAN= graphics quarter panel number: 0, 1, 2, 3, 4 (default=0)
Specifying this keyword automatically sets the keyword ERASE to NO.

PBOT= bottom mandatory pressure level of the cross section
(default=1050 mb)

PTOP= top mandatory pressure level of the cross section
(default=100 mb)

SMOOTH= smoothing factor (default=see table)

TCOLOR= title and ID label color (default=3)

TIME= MD file time, HH:MM:SS (default=most current)

UNIT= units of contours (default=see table)

WIDTH= corridor half width in kilometers (default=±250 km)

Remarks

The first station specified with *bid* or the IDN keyword is always on the left edge of the display; the last station specified is on the right edge. The stations selected with the LAT/LON keywords are displayed first on the left and last on the right, based on whether the longitudinal or latitudinal extent of the cross section is larger. Consequently, if you reverse the order for selecting stations, the orientation of the cross section will be affected. Altering the order may also impact the intermediate station selections as stations are included/excluded in order from first to last.

The maximum number of stations is 25. When two stations projected along the cross section axis lie too close to each other to allow a solution for the contouring algorithm, the station farthest from the beginning of the cross section is excluded.

If more than 25 stations are selected with the IDN keyword, the program will abort. If more than 25 stations are selected using the *bid/eid* parameters and the LAT/LON keywords, the program will not abort, but will use only the first 25 stations selected and appropriate error messages are listed.

If a station report is missing a surface pressure or reports less than three levels of information, it is excluded. If a station provides a partial report, the missing levels are not included in the contouring analysis and that area of the cross section display is left blank.

The MDF keyword has two parameters. The second parameter is only valid when the first parameter refers to a RAOB MD file. The second parameter is assumed to be its corresponding RSIG MD file. When only the mandatory RAOB levels are included in the vertical contouring, the second parameter must be set to zero.

You can specify the FORM keyword options in any combination and order. However, the sequence must be maintained when invoking any of the context specific keywords, i.e., CINT, LINT, COLOR, UNIT, LDASH, LSIZE or SMOOTH.

Graphics options conform to the IGTV standards.

If you use the PAN keyword, the keyword ERASE is set to NO.

The orientation for SPDN and SPDS with respect to the cross section axis is the positive tangential direction. This direction is along the cross section axis going from the last station towards the first station with the positive perpendicular (normal) direction following a right-hand rule, i.e., positive to the right relative to the positive tangential direction. This scheme results in the mathematically appropriate sign which is appropriate for the cross section orientation but may not be equivalent to the physically intuitive sign that you may anticipate. The SPDN and SPDS signs will vary with the cross section orientation although the contour patterns are very similar.

XSECT checks for missing values and obviously bad data, e.g., negative temperatures. If the cross section output seems incorrect, run command SKEWT or UL on the suspect station soundings to check the input values.

The table below defines the defaults for the keyword FORM.

FORM	CINT	COLOR	LDASH	LINT	LSIZE	SMOOTH	UNIT
DIR	90	1	-2	1	6	20	deg
MIX	2	4	-2	1	6	20	g/kg
SPD	5	2	0	1	6	20	MPS
SPDE	5	2	-1	1	6	40	MPS
SPDN	5	2	-1	1	6	20	MPS
SPDS	5	2	-1	1	6	20	MPS
SPDZ	5	2	-1	1	6	40	1/S
T	5	5	-1	2	6	20	C
TD	5	4	-1	2	6	20	C
THA	5	5	-1	2	6	20	K
U	5	2	-1	1	6	20	MPS
V	5	2	-1	1	6	20	MPS
WIN	NA	7	NA	NA	8	NA	KT
Z	1000	1	-1	5	6	20	M

Examples

XSECT 72747 72203

This entry displays an isentropic cross section from station reports lying within a 250 km corridor along a cross section axis from station 72747 to station 72203.

XSECT 72747 72203 MAP=Y

This entry is the same as the first example, but it also displays a map in the upper-right corner which indicates the location of the cross section axis and the included stations.

XSECT 72747 72203 FORM=MIX THA SPD

This entry is the same as the first example, but it also overlays the mixing ratio, isentropic, and isotach cross sections.

XSECT 72747 72203 PTOP=400 WIDTH=150 FORM=MIX

This entry displays a mixing ratio cross section for a narrower corridor width along the same cross section axis as in the first example. It emphasizes the lower levels by limiting the top pressure level to 400 mb.

**XSECT 72747 72203 FORM=MIX THA SPD COLOR=1 2 3
CINT=X 5 10**

This entry is the same as the second example, except the color level for the mixing ratio contours is set to 1, the isentropes to 2, and isotachs to 3. It uses the default contour interval for the mixing ratios. The isentropic contour interval is set at 5 degK, while the isotach contour interval is set at 10 m/s.

**XSECT LAT=30 55 LON=100 FORM=SPD WIN UNIT=KT
PBOT=500 PTOP=100 MAP=Y**

This entry displays a cross section of wind speed in knots from 500 to 100 mb along 100 W from 30° to 55° N. Wind barbs are also displayed. Station selection occurs automatically.

**XSECT FORM=SPDZ SMOOTH=100 COLOR=4 IDN=72694
72681 72576 72562 MAP=Y LSIZE=10**

This entry draws a cross section of vertical wind speed shear from Salem, Oregon, to North Platte, Nebraska, using the IDN keyword to specify the stations to include. The graphic displays a small map of the cross section location. The contours are in color level 4; the label size for the contours is 10 pixels. This entry also smooths the analysis by a factor of 100.

Y

Toggles image frames to and from the loop control system.

Remarks

To toggle image frames to and from the loop control system,

Press: **Alt Y**

or

Type: **Y**

Press: **Enter**

The loop control system consists of the A, B, L, O, J and LB commands.

You can connect or disconnect the image frames from the loop control keys independently of the graphics frames.

Use command Y on tower and WIDE WORD workstations only.

Z

Toggles the zoom and roam functions on and off on a WWW.

Remarks

To turn the zoom and roam function on and off,

Press: **Alt Z**

or

Type: **Z**

Press: **Enter**

The Z command provides a 2-times blowup of the currently displayed image that can be roamed by moving the mouse.

See Also

See command ZM to set a zoom factor other than 2.

ZA

Places an annotation on the current graphics frame at the cursor position.

Format

ZA *color height justify [keywords] "text*

Default

ZA "text

This entry writes the *text* on the current frame in color level 1, 10 pixels high.

Parameters

color graphics color level; the range is 1-7 (default=1)

height letter height in pixels (default=10)

justify

- L** left justify the text; the upper-left corner of the first letter of the text or symbol is placed at the center of the cursor (default)
- R** right justify the text; the upper-right corner of the last letter of the text or symbol is placed at the center of the cursor
- C** centers the text; the top of the center letter of the text or symbol is placed at the center of the cursor; consecutive letters are written below the previous letter
- V** vertical justification of the text; the upper-left corner of the text or symbol is placed at the center of the cursor; consecutive letters are written below the previous letter
- M** mouse; see the Remarks below
- N** numerous plots of the same text or symbol; the center letter of the text or the center of the symbol is placed at the center of the cursor

"text text to write on the graphics frame; you may use uppercase and/or lowercase letters; quotes are mandatory

"\$text displays weather symbols or arrows on the graphics; enter a dollar sign (\$) before any of the alphanumeric characters below to plot the corresponding weather symbols

T	thunderstorm		S	snow	*
W	rain shower		F	fog	
X	snow shower		C	clear	
R	rain		Q	partly cloudy	

B	mostly cloudy		1	
O	overcast		2	
D	drizzle	,	3	
H	haze		4	
Z	freezing rain		5	
\$\$ \$			6	
0			7	

Keywords

GRA= graphics frame number (default=current)

ENCL= C draws a circle around the text in the N mode
E draws an ellipse around the text

TC= *color hemisphere*
color plots a hurricane symbol with the specified color level; the range is 1-7
X plots a tropical cyclone symbol
hemisphere determines the direction of spirals
S southern hemisphere (default)
N northern hemisphere

WID= line width

Remarks

Release the Caps Lock key on the keyboard to write lowercase letters. Remember to press it again before entering the next command. MCIDAS does not accept lowercase input for any other command.

When you choose the M(ouse) option, the position of the mouse and the clicking of its buttons control the location of the cursor text. Clicking the left mouse button repositions the start of the text at the cursor location. Clicking the right mouse button repositions the end of the text at the cursor location. The height is scaled as needed.

Tropical cyclone and hurricane symbols are always plotted at the center of the cursor, regardless of the justification specified.

Examples**ZA 3 15 "MCIDAS**

This entry writes the word MCIDAS in uppercase letters in color level 3 on the current graphics frame. The entry is 15 pixels high and left justified.

ZA 2 20 C GRA=2 "streamlines

This entry writes the word streamlines in lowercase letters in color level 2 on graphics frame 2. The entry is 20 pixels high and centered under the cursor's center.

ZA 5 7 V "Nevada

This entry writes the word Nevada vertically on the current graphics frame in color level 5. The upper-left corner of the N is at the cursor's center. The letters are 7 pixels high.

ZLM

Permits freehand drawing using the mouse.

Formats	ZLM BOX <i>color</i> ZLM CIRCLE <i>color</i> ZLM DRAW <i>color [keyword]</i> ZLM FILL <i>color height width</i> ZLM FREE <i>color</i>																
Default	ZLM This entry draws a line in color level 3.																
Parameters	<table border="0"> <tr> <td>BOX</td><td>draws a box the same size and shape as the cursor</td></tr> <tr> <td>CIRCLE</td><td>draws a circle or ellipse within the cursor</td></tr> <tr> <td>DRAW</td><td>permits smooth freehand drawing</td></tr> <tr> <td>FILL</td><td>draws and fills a box the same size and shape as the cursor</td></tr> <tr> <td>FREE</td><td>permits straight-line freehand drawing (default)</td></tr> <tr> <td><i>color</i></td><td>graphics color level; the range is 1-7 (default=3) 0 erases the graphics within the cursor when used with FILL</td></tr> <tr> <td><i>height</i></td><td>height of the area to erase, in pixels (default=cursor height)</td></tr> <tr> <td><i>width</i></td><td>width of the area to erase, in pixels (default=cursor width)</td></tr> </table>	BOX	draws a box the same size and shape as the cursor	CIRCLE	draws a circle or ellipse within the cursor	DRAW	permits smooth freehand drawing	FILL	draws and fills a box the same size and shape as the cursor	FREE	permits straight-line freehand drawing (default)	<i>color</i>	graphics color level; the range is 1-7 (default=3) 0 erases the graphics within the cursor when used with FILL	<i>height</i>	height of the area to erase, in pixels (default=cursor height)	<i>width</i>	width of the area to erase, in pixels (default=cursor width)
BOX	draws a box the same size and shape as the cursor																
CIRCLE	draws a circle or ellipse within the cursor																
DRAW	permits smooth freehand drawing																
FILL	draws and fills a box the same size and shape as the cursor																
FREE	permits straight-line freehand drawing (default)																
<i>color</i>	graphics color level; the range is 1-7 (default=3) 0 erases the graphics within the cursor when used with FILL																
<i>height</i>	height of the area to erase, in pixels (default=cursor height)																
<i>width</i>	width of the area to erase, in pixels (default=cursor width)																
Keyword	SMOOTH= number of samples to take for running the average; use with the DRAW option; larger numbers produce smoother lines; maximum is 50 (default=3)																

Examples

ZLM

This entry displays the response below on the screen.

Move mouse to position the cursor on the image frame.
 Press the LEFT mouse button to select point for option.
 Press the RIGHT mouse button to end option.
 Press BOTH mouse buttons to end ZLM.

ZLM BOX

This entry displays the response below on the screen.

Move mouse to position the cursor on the image frame.
Press the LEFT mouse button to size the cursor.
Press the RIGHT mouse button to draw the box.
Press BOTH mouse buttons to end ZLM.

ZLM DRAW 4 SMOOTH=10

This entry displays the response below on the screen.

Move mouse to position the cursor on the image frame.
Press the LEFT mouse button and hold, while
moving the cursor wherever on the screen you want to draw.
Press the RIGHT mouse button to end option.
Press BOTH mouse buttons to end ZLM.

Following the above directions produces a smooth line drawing in
color level 4 with a running average of 10.

ZM

Sets the zoom factor for a WWW.

Format	ZM <i>zoom</i>
Default	ZM This entry sets the zoom factor to one.
Parameter	<i>zoom</i> the blowup factor for the currently displayed image; the range is 1-16 (default=1)
Remarks	Command ZM provides up to a 16-times blowup of the currently displayed image, which can be roamed using the mouse.
See Also	Alt Z toggles the zoom function on and off. For more information, see the Z command.
Example	ZM 10 This entry blows up the image 10 times.

Example	ZM 10 This entry blows up the image 10 times.
See Also	Alt Z toggles the zoom function on and off. For more information, see the Z command.
Remarks	Command ZM provides up to a 16-times blowup of the currently displayed image, which can be zoomed using the mouse.
Parameter	zoom: the blowup factor for the currently displayed image; the range is 1-16 (default=1)
Default	ZM This entry sets the zoom factor to one.
Format	ZM zoom
Sets the zoom factor for a WWW.	

F Key Menu System

Introduction

This chapter describes how to create and test a Menu template file. The Menu system in McIDAS-OS2 is useful for creating command execution menus to simplify the user interface. By creating a Menu template file, you can predefine function keys with user commands and format display screens with menus. An auxiliary command, ASK, allows the system to solicit information from you when necessary. See the ASK User Interface chapter that begins on page 5-1.

Menus are displayed in color text on the workstation's IBM EGA (Enhanced Graphics Adapter) or VGA (Video Graphics Array) screen. The text content, color and format are completely flexible. To select a menu item, simply press one of the function keys (F1 through F12) on the workstation keyboard. Use these 12 function keys alone or with one of the Ctrl, Shift or Alt keys, giving 48 combinations. You can also define the Esc key, allowing each menu to contain up to 48 items.

More than a thousand menus may be on line at one time. The only limitation is disk space. Only one menu is displayed at a time; window 9 of the McIDAS-OS2 text user interface displays the menu. Menus may be nested, displaying a different menu (a submenu) on the screen. Typically, a Main Menu refers to various submenus that deal with a cluster of related workstation functions.

To access the Main Menu, press the Esc key while in any other menu. You can redefine the Main Menu within a submenu. Once a menu is defined, you can invoke the menuing subsystem by pressing the Esc key after McIDAS has started.

To create menus, you must supply a series of "templates" for each menu. All Menu templates must reside in the C:\MCIDAS\DATA subdirectory and have .MNU as their file name extension. Use the operating system editor or another editor to modify or create a new menu.

A Menu template is an ordinary ASCII text file with a carriage return at the end of each line. The following section describes its format.

A sample Menu template is provided at the end of this chapter. You may find it helpful to refer to it while working through the Menu template file description that follows.

Creating a Menu Template File

To create a menu, define both the menu text and the commands associated with the function key combinations. A file that defines a menu or set of menus is called a Menu template. It is an ASCII text file containing instructions for the McIDAS-OS2 Menu system. These instructions obey certain format rules, i.e., the instructions need specific character positions. The first character in an instruction line defines the type of instruction. These characters include the following.

Character	Instruction
M or W	Menu or Window defines the menu number described by subsequent instructions. M is the preferred character, but W is also allowed since it was used in the old menu definition.
I	Initialization defines a McIDAS-OS2 command sequence to run when the menu is accessed.
T	Text defines the screen row and column where a string of text begins, the color and the text itself.
F	The function key defines a McIDAS-OS2 command or sequence of commands to execute when a specified function key is pressed.
A	Alt + Function key defines a McIDAS-OS2 command or sequence of commands to execute when you press Alt and the specified function key simultaneously.
C	Ctrl + Function key defines a McIDAS-OS2 command or sequence of commands to execute when you simultaneously press Ctrl and the specified function key.
S	Shift + Function key defines a McIDAS-OS2 command or sequence of commands to execute when you press Shift and the function key simultaneously.
U	User Common Pokes define values to poke into User Common whenever this menu is displayed.
+	+ means a line is continued from the previous line (for A, C, F, I and S characters only).

If the first character in an instruction line is not one of those listed above, the system treats the line as a comment line and ignores it. Each of the characters is described in more detail below.

Instruction Characters

Each of the following instruction character descriptions contains a character definition, its format, parameter descriptions and example. The old character formats are also listed as you may be using some menu templates previously created with these formats.

M (or W)

M is the menu number described by the subsequent instructions.

Format	M <i>number</i>	
Parameter	<i>number</i>	is the number of the menu being defined; the range is 0-9999
Remarks	All Menu template file instructions following an M instruction refer to the specified menu (window) until the system encounters another M instruction or reaches the end of the template file. Always define menu zero in any Menu template file. Since the W character was used in the previous menu definition, you may use it in place of the M character. However, M is the preferred character. See the following example.	
Examples	M 7	This entry defines menu 7 using all subsequent instructions up to the next M or W instruction.
	W 7	This entry defines menu 7 using all subsequent instructions up to the next M or W instruction. W 7 functions identically to M 7 and was retained for compatibility with the previous version.
Old Format	columns 2-5	the menu number; the range is 0-9999

I

I means initialization. It defines the McIDAS-OS2 commands executed each time this menu is displayed.

Format

I "commands

Parameter

"commands

the series of McIDAS-OS2 commands to run when the menu is invoked

Remarks

No more than one I line, with no more than one continuation (+) line, may occur in any single menu. The I line is usually placed at the beginning of the Menu definition.

Examples

Below are some useful McIDAS-OS2 commands.

IGU SET 1

This entry sets the workstation's local grid file number to 1, which is the default.

MDU SET 14

This entry sets the default MD file number to 14.

LB 1 4; DR 5 1 1 1

This entry sets the loop bounds to frames 1-4 and defines dwell rates.

To execute these three command lines each time this menu is displayed, enter:

I"IGU SET 1; MDU SET 14; LB 1 4; DR 5 1 1 1

Old Format

columns 2-80

the McIDAS-OS2 commands to execute separated by semicolons

T

T defines the row and column where a string of text will begin, the text color and the text itself.

Format

T row column color "text"

Parameters

row screen row number; the range is 0-21
 column screen column number; the range is 0-79
 color color number; the range is 0-15 (see below)
 "text" text to display starting at row and column

Remarks

Row and column numbers are zero based, i.e., the upper-left corner of the screen is row 0, column 0. The McIDAS-OS2 color numbers are:

Number	Color
0	blue
1	black
2	green
3	cyan
4	red
5	magenta
6	brown
7	gray
8	dark gray
9	bright blue
10	bright green
11	bright cyan
12	bright red
13	bright magenta
14	yellow
15	white

Text is displayed as it appears in columns 8-80. Leading blanks are significant; trailing blanks aren't. Leave at least 1 character between columns 8-80. Blank lines are not allowed. Don't use rows 23-24.

Example

T 13 21 15 "Radar Loop"

This entry displays the words Radar Loop on row 13, starting in column 21, with white characters.

Old Format

columns 2-3 screen row number; the range is 0-21
 columns 4-5 screen column number; the range is 0-79
 columns 6-7 color number; the range is 0-15
 columns 8-80 text to display starting at the specified row/column

F

F is a function key definition that defines a McIDAS-OS2 command or sequence of commands to execute when you press a specified function key.

Format: F key "command"

Parameters

key	function key number; the range is 0-12
"command"	McIDAS-OS2 commands to execute separated by semicolons, or a string in the form @nnn (which means switch to window nnn)

Remarks

A function key definition pertains only to a given menu. Since you can redefine function key F1 in each menu window, the commands that are executed by pressing F1 depend on the currently displayed window. For example, if you press F1 when window 7 is displayed, the commands executed are those defined for F1 in window 7.

You can use two digits for the function key number.

McIDAS-OS2 commands must start in column 4.

The function key zero (00) is a special case, and actually refers to the Esc key. Use it only when redefining the Main Menu number. The default for the "F0" or Esc key is zero. If it is not defined, menu zero is displayed when you press the Esc key.

Examples

F 1 "DF 127 2 EC MSN

This entry executes the command DF 127 2 EC MSN when you press F1.

F 0 "@15

This entry displays menu 15 when you press the Esc key. Define the F0 key in each menu, as the default is zero. Menu 0 is displayed unless F0 is explicitly defined in the currently displayed menu.

Old Format

columns 2-3	function key number; the range is 00-12
columns 4-80	McIDAS-OS2 commands to execute separated by semicolons, or a string in the form @nnn (which means switch to window nnn)

A

A is the Alt + Function key definition. It defines a McIDAS-OS2 command or sequence of commands to execute when you press a specified function key and the Alt key simultaneously.

Format	A <i>key</i> "command"	
Parameters	<i>key</i> "command"	function key number; the range is 1-12 McIDAS-OS2 commands to execute separated by semicolons
Example	A 4 "ASK1 10 10 5 STATE "Enter state ID: This entry executes the ASK1 command when you press the F4 and Alt keys simultaneously.	
Old Format	columns 2-3 columns 4-80	function key number; the range is 1-12 McIDAS-OS2 commands to execute separated by semicolons

C

C is the Ctrl + Function key definition. It defines a McIDAS-OS2 command or sequence of commands to execute when you press a specified function key while pressing the Ctrl key.

Format	C <i>key</i> "command"	
Parameters	<i>key</i> "command"	function key number; the range is 1-12 McIDAS-OS2 commands to execute separated by semicolons
Example	C 5 "@83 This entry displays menu 83 when you press the F5 and Ctrl keys simultaneously.	
Old Format	columns 2-3 columns 4-80	function key number; the range is 1-12 McIDAS-OS2 commands to execute separated by semicolons

S

S is the Shift + Function key definition. It defines a McIDAS-OS2 command or sequence of commands to execute when you press a specified function key while pressing the Shift key.

Format

S *key* "*command*"

Parameters

key

function key number; the range is 1-12

"command"

McIDAS-OS2 commands to execute separated by semicolons

Example

S 3 ".SF 4; MG CLE

This entry sends the SF and MG commands from McIDAS-OS2 to the mainframe when you press the F3 and Shift keys simultaneously.

Old Format

columns 2-3

function key number; the range is 1-12

columns 4-80

McIDAS-OS2 commands to execute separated by semicolons

U

U defines the values to poke into User Common whenever this menu is displayed.

Format

U *number value*

Parameters

*number
value*

User Common word number
value to poke

Remarks

The maximum number of U commands allowed per menu is 36.

Example

U 200 1

This entry pokes the value 1 into User Common word 200 and displays user interface window one. This command execution is preferred over the UCU POKE MCIDAS command since it is performed directly by the menu subsystem and is more efficient. See the User Common documentation before using this option.

Old Format

columns 2-4
columns 5-7

User Common word number
value to poke

+

+ continues text from the previous line. Use it with A, C, F, I and S character lines.

Format

+ "text

Parameter

"text

the text continued from the previous line

Remarks

The continuation line (starting in column 2) is concatenated to the previous line, following the last non-blank character of that line.

Be careful with McIDAS-OS2 commands and parameters that require blank spaces. See the first and second examples below.

Each command line can have only one continuation line. If you need more, create an ASCII text file in the C:\MCIDAS\DATA subdirectory. Enter the desired McIDAS commands (one command per line of text) in this text file and append the extension .RUN to it. Then convert the ASCII text file to an LW file format using command DOSTOLW, which is documented in the Commands section of this manual. Use the McIDAS-OS2 RUN command in the menus to fetch the commands from this text file. See the third example below.

Examples

F 3 "LB 1 5; SEQ 105 120 1 5 EC

+ "cle

This entry generates the McIDAS-OS2 commands LB 1 5 and SEQ 105 120 1 5 ECcle, which is an error, since ECcle is not a legal value. Instead, enter:

F 3 "LB 1 5; SEQ 105 120 1 5 EC

+ " cle

This entry places a space between " and cle. Consequently, it generates LB 1 5 and SEQ 105 120 1 5 EC cle as desired.

F 3 "RUN MYSTUFF

This entry prompts the text from file C:\MCIDAS\DATA\MYSTUFF to execute as a sequence of McIDAS-OS2 commands when you press the F3 key.

Old Format

columns 2-80

text continued from the previous line

Pseudo and Other Special Commands

Pseudocommands

There are seven F Key pseudocommands:

- **@nnnn** switches to menu *nnnn*. See the examples on pages 4-6, 4-7, 4-13, 4-15 and 4-16.
- ***Snn** saves the current loop state (bounds, rates, etc.) under the interface *nn*. See the example on page 4-13.
- ***Rnn** recalls the loop state *nn*. See the example on page 4-13.
- ***G eee zzz** simultaneously enables graphics bit plane *eee* and erases bit plane *zzz* on WIDE WORD workstations. See the example on pages 4-15 and 4-16.
- ***T mmm** performs an exclusive-OR logical operation on the bit plane enable mask for WIDE WORD workstations.
- **@EXIT** prompts McIDAS to perform an EXIT command. It removes all McIDAS-OS2 resident programs from memory and leaves you at the OS/2 session level. Use this command on rare occasions only.
- **@RET** invokes the previous menu. For example, if menu 1 switches to menu 4 using the @4 command, and menu 4 switches to menu 23 using @23, then performing an @RET pseudocommand in menu 23 invokes menu 4 just as if an @4 was done. Consequently, performing an @RET in menu 4 invokes menu 1, not menu 23.

The pseudocommand syntax allows multiple commands on a line separated by semicolons (;). There are two restrictions:

- @ must always be the last pseudocommand on the line
- * pseudocommands must always precede other "normal" McIDAS commands in the line; for example,
F7 "**S02; *R27; DF 101 1 ED MSN; @09

PSB Command

Command PSB displays a PLEASE STAND BY message on the text window. It is useful when the system invokes a McIDAS command that takes a long time to run and does not give any apparent feedback. See the PSB command in the Commands section of this manual for more information.

Defining Loops

Use the F Key Menu System to define a sequence of frames with their dwell rates as a loop. Then you can invoke that loop using a function key. Use command DR to set the dwell rates; use command LS or LB to define the loop bounds including graphics and dwell rates. Have available an F Key Menu that contains the internal instruction **Snn* for one of the keys. This saves the state of the workstation under the label *nn*. You can do this for up to 99 loops, although there are only 48 possible combinations of F Keys.

To quickly recall the loop, define an F Key with the internal command **Rnn*. The only restriction is **R* or **S* must be the first command on a line.

An example of a predefined loop is provided on the adjacent page.

Example

```

M 0
U 208 0
T 2 20 7 "McIDAS Loop control
T 4 10 7 "F1 - Go to Loop #1
T 6 10 7 "F2 - Go to Loop #2
T 8 10 7 "F3 - Go to Loop #3
T 20 10 7 "Press 0 on numeric keypad to return to Command Mode
F 1 "**R01; @01
F 2 "**R02; @02
F 3 "**R03; @03
M 1
T 2 20 7 "Current Loop is #1
T 4 10 7 "F1 - SAVE current context as Loop #1
T 6 10 7 "F2 - Go to Loop #2
T 8 10 7 "F3 - Go to Loop #3
T 20 10 7 "Press 0 on numeric keypad to return to Command Mode
F 0 "@01
F 1 "**S01
F 2 "**R02; @02
F 3 "**R03; @03
M 2
T 2 20 7 "Current Loop is #2
T 4 10 7 "F1 - Go to Loop #1
T 6 10 7 "F2 - SAVE current context as Loop #2
T 8 10 7 "F3 - Go to Loop #3
T 20 10 7 "Press 0 on numeric keypad to return to Command Mode
F 0 "@02
F 1 "**R01; @01
F 2 "**S02
F 3 "**R03; @03
M 3
T 2 20 7 "Current Loop is #3
T 4 10 7 "F1 - Go to Loop #1
T 6 10 7 "F2 - Go to Loop #2
T 8 10 7 "F3 - SAVE current context as Loop #3
T 20 10 7 "Press 0 on numeric keypad to return to Command Mode
F 0 "@03
F 1 "**R01; @01
F 2 "**R02; @02
F 3 "**S03

```

Testing a Menu Template File

After creating or modifying a Menu template, check the appearance of the menu windows and verify that the McIDAS-OS2 commands associated with the function and control key combinations work properly. Use the instructions below to perform these procedures.

After using the text editor, switch to McIDAS-OS2. Be sure the template file resides in the \MCIDAS\DATA subdirectory. Then, depending on whether you're using the old or new character format, enter one of the following commands.

Type: **MAKMNU** *file* **TYPE=NEW**

Press: **Enter**

or

Type: **MAKMNU** *file* **TYPE=OLD**

Press: **Enter**

The system recreates its menu file. When it's done,

Type: **SHOMNU** *menu*

Press: **Enter**

where *menu* is the menu number to debug. The system displays the menu on User Interface Window 9; it displays a list of Initialization commands, User Common pokes and F Key commands starting on window 8. You can also use windows 7, 6 and 5. To make quick changes, switch to the operating system editor (or a word processor) in another partition by pressing Alt+Esc.

You can hang the system while developing a menu. For instance, if menu zero locks the keyboard and an error is encountered such that you cannot select the option that unlocks it, you are hung. Use Alt+Esc to enter OS/2. Delete the file \MCIDAS\DATA\MENU which was created when you ran MAKMNU. If this file is present when booting, the system automatically goes into the menu mode. Therefore, you must delete this file before booting.

Example

Below is an example using the new format. Commands are on the left; comments are on the right. Blank lines are not part of the file.

M 0	Defines menu zero.
F 0 "@01	The Esc key is aimed at menu 1.
T 00 00 07 "Esc to enter menu system	Defines the display for line zero, column zero, using color level 7.
U 208 1	Pokes User Common word 208 to a value of 1 and locks out the keyboard except for the F keys.
M 1	Defines menu 1.
T 2 10 14 "F1	Displays F1 on line 2, starting in column 10 in color level 14.
T 2 14 7 "Receive latest satellite image	Displays this message after the F1 above.
T 4 10 14 "F2	
T 4 14 7 "Receive current MG	
T 6 10 14 "F3	
T 6 14 7 "See satellite image	
T 8 10 14 "F4	
T 8 14 7 "See MG	
T 10 10 7 "F9 - Show special graphic	
T 12 10 14 "F5	
T 12 14 7 "Return to window 0	
F 0 "@01	Redefines the Esc key to go to menu 1.
F 1 ".SEQ 101 104 1 1 EC 43 89	Command for F1. The period (.) must be used to send the command to the host.
F 2 ".MG MSN	Command for F2
F 3 "@2	F3 takes you to menu 2, etc.
F 4 "@3	
F 5 "@4	

F 9 "G 254 004	Level 1 of the current graphic is invisible but not erased since the 1 bit is off in the enable mask. Level 3 is erased (bitweight 4). The erase mask is 004, with leading zeros.
U 51 2	Sets the graphics loop bounds 2-2; sets the current frame to 2.
U 52 2	
U 53 2	
M 2	Defines menu 2.
T 10 10 7 "Esc to return to menu	
U 51 1	Sets the graphics to frame 1.
U 52 1	
U 53 1	
U 200 -1	Shows the image (EGA/VGA only).
F 0 "@01	Redefines the Esc key to go to menu 1.
M 3	Defines menu 3.
T 10 10 7 "Esc to return to menu	
U 51 2	
U 52 2	
U 53 2	
U 200 -1	Shows the image (EGA/VGA only).
F 0 "@01	Redefines the Esc key to go to menu 1.
M 4	Defines menu 4, returning to the normal user interface.
U 200 0	Shows window zero.
U 201 57	Resets the text pointer on window zero to show lines 57-80.
U 208 0	Unlocks the keyboard to allow normal entries.

ASK User Interface

Introduction

This section of the manual describes the ASK user interface. ASK solicits F Key Menu responses from the keyboard and stores them in a string table, allowing any McIDAS-OS2 command to fetch them. This is how it works. First, the function key invokes the ASK command. Then ASK reads a user created text file containing instructions similar in form to the menu instructions. ASK uses these instructions to manipulate text on the screen, describe attributes of the text, and solicit a response from the keyboard. Each response is stored in the string table under the string name specified on the instruction line in the text file.

Suppose you want to create a McIDAS-OS2 menu interface to list surface hourly (SAO) station data for several regions of the United States. One of the instruction lines displayed on the screen could ask what stations to list. The ASK program would wait for your response from the keyboard and store it in the string table. Other responses, such as the beginning and ending time periods to list, could also be solicited. The instruction line containing the McIDAS-OS2 command would fetch the appropriate string(s) from the string table just updated. The final instruction could be a McIDAS-OS2 command or string of commands that uses the information stored in the string table.

A command sequence is executed either synchronously or asynchronously. You can use multiple command instruction lines appearing anywhere in a sequence of instruction lines.

ASK uses window 8 as its display screen. It contains 25 rows (0-24) and 80 columns (0-79). When ASK completes execution, window 8 is erased.

Text output produced by a McIDAS command initiated during an ASK session defaults its text display to window zero unless otherwise specified by keyword TWIN. Appending TWIN to a McIDAS command line displays the text output on one of the five (0-4) text scrolling windows. For example, appending TWIN=3 directs text output to window 3.

Invoking ASK

To invoke the ASK user interface, use the McIDAS-OS2 ASK command or press a predefined F key (function key). Both methods are described below.

ASK Command

To invoke the ASK user interface with the McIDAS-OS2 ASK command,

Type: **ASK** *file*

Press: **Enter**

file is the name of the instruction text file. It cannot be more than 12 characters long and must be specified. There is no default.

The text file must reside in the \McIDAS\DATA subdirectory. Use the operating system editor or another word processor to create this ASCII text file. The file name must contain an .ASK extension. You don't have to type the extension when entering the ASK command as the program automatically appends it.

Function Key

You can also invoke the ASK user interface by pressing a predefined F key. If you need information about the F Key Menu System, see Chapter 4.

The example below shows three ASK command lines in a sample F Key Menu file.

```
F 1 "ASK LIST.ASK
F 2 "ASK CONTOUR.ASK
F 3 "ASK IMAGES.ASK
```

In this example, function keys F1 - F3 are used for a particular window in the menu. Pressing F1 invokes the ASK command, which reads its instructions from the text file LIST.ASK. LIST.ASK may contain instructions to solicit responses for the station and time periods for the listing. Other text files contour gridded data and display satellite images using F Keys 2 and 3.

Terminating ASK

Press the Esc key to terminate ASK. The main menu window 9 is displayed.

Creating an .ASK Text File

Because the ASK program reads the .ASK text file one line at a time, posted text and command line sequences must be less than 80 characters per line. Each line must end with a carriage return. Since each line contains an instruction for ASK to perform, the first character must be one of the instruction characters listed below.

Character	Instruction
D	describes text attributes
W	determines the exit window
V	determines the string table value substitution toggle
P	posts a line of text on the screen
R	posts text on the screen and waits for a response
E	posts text, waits for a response and echoes the response
B	blanks out a line or lines of text on the screen
S	runs a command or sequence of commands synchronously
A	runs a command or sequence of commands asynchronously

The purpose, format and parameter definitions for each instruction character are described beginning on the next page.

D

D describes the text attributes.

Format

D *tcolor pcolor rcolor prow pcol "prompt"*

Parameters

<i>tcolor</i>	color of the posted text (default=11)
<i>pcolor</i>	color of the prompt message (default=15)
<i>rcolor</i>	color of the response text (default=14)
<i>prow</i>	row to position the prompt message; the first row is numbered 0 (default=24)
<i>pcol</i>	column to position the prompt message; the first column is numbered 0 (default=0)
<i>"prompt"</i>	text for the prompt message (default=ENTER:)

W

W determines the exit window.

Format

W *window*

Parameter

<i>window</i>	window number to display after exiting ASK (default=the window where ASK was initiated or previously set)
---------------	---

V

V toggles the string table value substitution.

Format

V *switch*

Parameter

<i>switch</i>	ON	turns string substitutions on (default)
	OFF	turns string substitutions off

Remarks

You can substitute values from the string table in a text string using a pound sign (#) followed by the string name. For example, #XYZ in a text string will be substituted with the value in the string table for string XYZ.

P

P posts a line of text on the screen.

Format

P *throw tcol "text*

Parameters

throw screen row number for the text, rows 0-24 (no default)
tcol screen column number for the text, columns 0-79
(default=centers text on the screen)
"text character string to display on the screen

R

R posts text on the screen and waits for a response.

Format

R *throw tcol string "text*

Parameters

throw screen row number for the text, rows 0-24 (no default)
tcol screen column number for the text, columns 0-79
(default=centers text on the screen)
string string name to hold the response
"text character string to display on the screen

E

E posts text on the screen, waits for a response and echoes the response.

Format

E *throw tcol string rrow rcol "text*

Parameters

throw screen row number for the text, rows 0-24 (no default)
tcol screen column number for the text, columns 0-79
(default=centers text on the screen)
string string name to hold the response
rrow screen row number for the echoed text, rows 0-24
(default=*throw*+1)
rcol screen column number for the echoed text, columns 0-79
(default=centers text on the screen)
"text character string to display on the screen

B

B blanks out rows of text on the screen.

Format

B *brow erow*

Parameters

brow beginning row to erase (no default)
erow ending row to erase (default=*brow*)

S

S runs a command or sequence of commands synchronously.

Format

S *command*

Parameter

command a McIDAS command or sequence of commands separated by semicolons

A

A runs a command or sequence of commands asynchronously.

Format

A *command*

Parameter

command any McIDAS command or sequence of commands separated by semicolons

Manipulating Text

Use the keys below to manipulate text on the response line.

Key	Function
Space bar or Alt + Backspace	spaces forward with erase
Backspace	backspaces with erase
Right tab	tabs right to a blank character
Left tab	tabs left to a blank character
End	sends the cursor to the end of the text without erasing
Ctrl+End	erases from the cursor to the end of the text
Home	sends the cursor to the start of the line without erasing
Delete	deletes a character
Insert	inserts text at the cursor (toggle)
Esc	quits the ASK session

Example

The bolded lines below are an example of an .ASK file. Following them is an explanation of what each instruction line does.

```
D 10 12 14 20 30 "ENTER HERE:
W 3
P 3 "ASK INTERFACE SEQUENCE TO LIST SAO DATA
R 5 X ABC "ENTER STATION ID CURRENT ID= #ABC
B 5
E 5 DEF 7 "ENTER BEGINNING OBSERVATION HOUR TO
    BE LISTED
R 11 20 GHI "ENTER ENDING HOUR
S CLEAR 3
S SL #ABC #DEF #GHI TWIN=3
```

Instruction line 1 sets the text attributes. The colors of the posted text, prompt message and response are 10, 12 and 14, respectively. The prompt message ENTER HERE: begins on line 20, column 30.

Instruction line 2 sets window 3 to be displayed when you exit the ASK session.

Instruction line 3 posts and centers the text on screen line 3.

Instruction line 4 posts and centers the text on screen line 5. A response is requested and stored in string ABC. Because positional parameters may be defaulted using an X, the *tc*ol positional parameter centers the text string on line 5. String name ABC appears in the text string. If the string table value substitution toggle (instruction character V) is ON, the value in string ABC appears on the screen. To choose the current value for the response, press Enter. If a string contains no associated value, it is left blank.

Instruction line 5 blanks out line 5 on the screen.

Instruction line 6 posts the text on screen line 5. The system requests a response and stores it in string DEF. The response is also echoed on screen line 7.

Instruction line 7 posts and centers the text on screen line 11, again beginning at column 20. The response is stored in string GHI.

Instruction line 8 sets a command line to run CLEAR (a synchronous McIDAS-OS2 command) to clear window 3.

Instruction line 9 runs the McIDAS-OS2 SL command to fetch the numbers stored in strings ABC, DEF and GHI. Since this command produces text output, TWIN=3 is appended to the command.

Soft Tablet Interface

Introduction

This section of the manual describes the McIDAS-OS2 Soft Tablet interface. The Soft Tablet is a dynamic video interface that maps McIDAS commands to regions of the text screen. The workstation's VGA (Video Graphics Array) screen displays the tablets in color. Moving the mouse positions the cursor on the text screen. When you place the cursor over a region and press the mouse button, the system executes the commands associated with the region.

You define the appearance and functionality of a Soft Tablet by creating a template file containing specific ASCII text instructions. The tablet compiler program (TABLET) interprets these instructions using the template file as input, and creates a compressed format file. This compressed file contains a description of the appearance of the tablet screen as well as the sets of commands associated with regions of the screen.

Template files are standard ASCII text files; each line contains up to 80 characters and ends with a carriage return.

This section of the manual describes how to:

- create a Soft Tablet template file using specific character positions in the instruction lines
- compile a Soft Tablet template file with the TABLET command
- employ the Soft Tablet using commands specifically designed for the Soft Tablet interface

Creating a Soft Tablet Template File

Instruction Characters

A Soft Tablet template file contains ASCII text that the tablet compiler uses to define the appearance and function of the tablet. These instructions obey certain format rules. In particular, the instructions need specific character positions. The first character in any instruction defines the type of instruction as follows.

Character	Instruction
I	I means initialization. It defines a McIDAS-OS2 command sequence to run when the tablet is initialized.
R	R means region. It defines the region of the text screen to be assigned a command sequence.
L	L means label. It defines the label field where a string of text begins, the color and the text itself.
M	M means McIDAS. It defines the McIDAS-OS2 commands to execute when the region is selected.
+	+ means continuation. This character continues text from the previous line and is used with the M and I instruction characters only.

The tablet compiler interprets all other text in a template file as a comment line and ignores it. These instruction characters are further defined beginning on page 6-4. Each description includes a character definition, its format, parameter definitions, pertinent remarks and example.

Instruction Sequence

The sequence of instructions in the file is very important. To associate a set of McIDAS commands with a specific region, each region instruction must be immediately followed by the McIDAS commands associated with the region. Furthermore, initialization instructions must precede the first region instruction. Label instructions may appear in any order in the file. Finally, use a blank or comment line to terminate the file.

The format of a template file is:

INITIALIZATION

initialization instruction

REGION 1

region instruction

label instructions (if desired)

command instructions

REGION 2

region instruction

label instructions (if desired)

command instructions

REGION 3

region instruction

label instructions (if desired)

command instructions

REGION N

region instruction

label instructions (if desired)

command instructions

I
Defines a sequence of McIDAS-OS2 commands to be executed as part of the tablet initialization.

Format *I command*

Parameter *command* McIDAS-OS2 command to execute

Remarks Initialization lines must precede the first REGION instruction. To continue the initialization line on the next line, use the + instruction.

Example *I TU REST WXTAB*
This entry restores WXTAB as the current string table.

R

Defines a region of the text screen for a McIDAS-OS2 command sequence.

Format *R ulrow ulcol lrrow lrcol rcolor*

Parameters

<i>ulrow</i>	region's upper-left row number; the range is 1-25
<i>ulcol</i>	upper-left column number; the range is 1-80
<i>lrrow</i>	lower-right row number; the range is 1-25
<i>lrcol</i>	lower-right column number; the range is 1-80
<i>rcolor</i>	region color number; the range is 0-7 (see below)

Remarks The region instruction precedes the McIDAS commands associated with the region. The region color numbers in McIDAS-OS2 are:

Number	Color	Number	Color
0	black	4	red
1	blue	5	magenta
2	green	6	brown
3	cyan	7	gray

Example *R 10 10 20 20 4*
This entry defines a red region for rows 10 to 20 and columns 10 to 20.

L

Defines the label field displayed on a tablet.

Format	L <i>row col tcolor blink "text"</i>	
Parameters	<i>row</i>	row number to start the text
	<i>col</i>	column number to start the text
	<i>tcolor</i>	text color; the range is 0-7 (see the color table on the adjacent page)
	<i>blink</i>	text blink (0=NO, 1=YES)
	<i>"text"</i>	text to be displayed; it must be enclosed in double quotes
Remarks	Label instructions can appear anywhere in a template file.	
Example	L 15 12 15 0 "Label" This entry places the word Label starting at line 15, column 12, in white.	

M

Defines the McIDAS-OS2 command to execute when you select a region.

Format	M <i>command</i>	
Parameter	<i>command</i>	McIDAS-OS2 command to execute when you select the region
Remarks	You can enter only one command per instruction. If necessary, extend the command to the next line using the + instruction.	
Example	M .SL WI TWIN=1 This entry executes a mainframe SL command and places the output on window 1.	

+

Continues text from the previous line.

Format + *command*

Parameter *command* continuation of an I or M instruction

Remarks You can have only one continuation line per M or I instruction.

Example **M MENU 1 10 10 30 30 15 7 0 STN=MSN MKE LNR**
 + EAU LSE DBQ DEN MIA "SELECT 1"
 In this example, the MENU command sequence continues on the next
 line in the template file.

Compiling a Soft Tablet Template File

Once you've created a template file, compile the instructions using the **TABLET** command. Be sure the **\MCIDAS\TOOLS** subdirectory is displayed on the screen as shown below.

```
[C:\MCIDAS\TOOLS]
```

Then,

Type: **TABLET**

Press: **Enter**

The system displays the following prompt on the screen.

```
[C:\MCIDAS\TOOLS]
```

McIDAS Soft Menu Compiler Version 1.1

Enter Source File Name=

The tablet compiler waits for you to enter the name of the compiled tablet file with its appropriate path.

Type: **\MCIDAS\WORKING\WXTAB.TXT**

Press: **Enter**

The system displays the following prompt on the screen.

```
[C:\MCIDAS\TOOLS]
```

McIDAS Soft Menu Compiler Version 1.1

Enter Source File Name= **\MCIDAS\WORKING\WXTAB.TXT**

Enter Destination File Name=

Specify the name for the output file. Do not include an extension. In this example,

Type: **WX**

Press: **Enter**

The compiler creates the new file with the name specified for the output file and appends the extension **.TAB**.

The compiled file contains an internal description of the Soft Tablet screen appearance and linked lists of commands for each region defined in the template. The address of the first node of each list is located in a lookup table that matches each screen element to a region, if one exists for that screen element.

The internal representation of a compiled tablet file is as follows.

Absolute Word	Description
0 - 999	definition of the tablet screen (2000 INTEGER x 2); each word defines the character and attributes for each element on a 25 x 80 character screen.
1000 -1999	command lookup table (2000 INTEGER x 2); each word defines the byte address divided by four to the first command associated with the corresponding element on a 25 x 80 screen. If a screen element region is not defined (that is, the element is not part of a region) the lookup table entry is zero.
2000 - xxxx	initialization commands; each command cell is 180 bytes (45 words) long.
xxxx - zzzz	region commands; each command cell is 180 bytes (45 words) long.

Command cells have the following format.

Relative Word	Description
1	link to the next command cell; 0=end cell
2	synchronous/asynchronous flag (currently not implemented)
3 - 5	command name plus .EXE
6 - 45	command text; one command per cell

If the compiling process is successful, the tablet file will appear in the McIDAS-OS2 data directory \MCIDAS\DATA.

Entering the Soft Tablet Interface

Press: **Alt S** (hold down the Alt key and press the S key)

The current tablet name is read from User Common (where it is stored in words 90-92) and displayed on window 7. If User Common does not contain a tablet name, the interface prompts you for one. Enter the tablet name followed by a carriage return.

Selecting a Region

After you activate the Soft Tablet interface, use the mouse to position the text cursor over the desired region. Press either mouse button to select the region. If the cursor is positioned over a region with a command set, the commands are executed asynchronously. The cursor is frozen on the screen while the system executes the command set. The numeric keypad and single-letter commands retain their normal functions in the Soft Tablet interface. The keypad selects text windows and switches from video to text on VGA workstations. The single-letter commands perform their normal functions.

Pressing the mouse button prompts a variety of results, depending on the workstation's text display when the mouse is pressed. If the tablet is visible and the cursor is positioned over a region, pressing the mouse executes the commands associated with the region. If the cursor is not positioned over a region, a no-op occurs. Pressing the mouse with a text or graphics/image frame on the screen redisplay the tablet and executes the command on which the cursor lies.

Exiting the Soft Tablet

To exit the Soft Tablet,

Type: **S**
Press: **Enter**
or
Press: **Alt S**

Soft Tablet Commands

The McIDAS-OS2 commands described on the next few pages are designed to enhance the Soft Tablet interface.

CLOCK

Places the current time and/or date on the display screen.

Format	CLOCK <i>switch row col color bck blk nchr</i>	
Parameters	<i>switch</i>	ON displays the clock OFF turns off the display
	<i>row</i>	row number of the clock display
	<i>col</i>	column number of the first character of the display
	<i>color</i>	text color level; the range is 0-15
	<i>bck</i>	background (window) color level; the range is 0-7
	<i>blk</i>	0 no text blink 1 text blink
	<i>nchr</i>	number of characters to display (default=8 which causes only the time to appear)
Remarks	The format of the clock display is <i>HH:MM:SS dd mmm yy</i> , where <i>HH</i> is the current hour, <i>MM</i> is the current minute, <i>SS</i> is the current second, <i>dd</i> is the current day, <i>mmm</i> is the 3-letter abbreviation for the month, and <i>yy</i> is the last two digits of the year.	
	The CLOCK function updates the display about once per second when the tablet is idle. During busy times, e.g., when programs are started, there will be longer delays in the updating of the screen display.	
Example	CLOCK ON 10 6 15 7 0 5	
	This entry turns on the clock display and shows the first 5 characters (HH:MM) starting on row 10 and column 6 of the display. The time characters are white (15); the background is gray (7).	

ECHO

Echoes the values from the current string table to the Soft Tablet interface.

Format

ECHO *name1=row col color bck blk nchr...namen=row col color bck blk nchr*

Parameters

name string table value to retrieve
row row number of the text
col column number of the text
color text color level; the range is 0-15 (see the color table below)
bck window color level; the range is 0-7 (see the color table on page 6-4)
blk 0 no text blink
 1 text blink
nchr number of text characters to display

Remarks

This command displays the current value of a string table entry on a tablet.

The text color numbers defined by McIDAS-OS2 are:

Number	Color
0	blue
1	black
2	green
3	cyan
4	red
5	magenta
6	brown
7	gray
8	dark gray
9	bright blue
10	bright green
11	bright cyan
12	bright red
13	bright magenta
14	yellow
15	white

Example

ECHO STN=10 10 15 7 0 4

This entry echoes 4 characters of the STN string table entry to the current tablet.

IF

Conditionally tests a string table entry.

Formats

IF *name=value* "*command*"

IF *cond name,value* "*command*"

IF *cond name,value* **THEN**
 command
 command

 ...
ENDIF

IF *cond name,value* **THEN**
 command
 command

 ...
ELSE
 command
 command

 ...
ENDIF

Parameters

<i>cond</i>	condition to test
EQ	equal
NE	not equal
LT	less than (numerical strings only)
GT	greater than (numerical strings only)
LE	less than/equal (numerical strings only)
GE	greater than/equal (numerical strings only)
<i>name</i>	string table entry name
<i>value</i>	value to test
<i>command</i>	McIDAS command to execute if the condition is satisfied

Remarks

The IF/THEN--ENDIF blocks may be nested up to 10 levels deep.

Examples

IF STN=MSN "ECHO STN=10 10 10 13 15 7 0 4

This entry echoes the string to the tablet if the value for STN in the string table equals MSN.

IF NE STN,MSN "PC L MSN

This entry tests if the string table entry for STN is not equal to MSN. If this is the case, the PC command is executed.

```
IF LT LOOP,10 THEN
  LA #LOOP TWIN=3
  WINDOW 3
```

```
ENDIF
```

This entry tests if the numerical value of the string table entry for LOOP is less than 10. If so, all commands in the block are executed.

```
IF EQ MAG,YES THEN
  DF 101 1 EC MSN 2
ELSE
  DF 101 1 EC MSN
ENDIF
```

This entry tests if the string table entry for MAG equals YES. If so, the first DF command is executed. If MAG is not equal to YES, the second DF command is executed.

MENU

Transfers a selected option to the string table for later use in an M command.

Format

MENU *num ulrow ulcol lrrow lrcol col bck blk name=mnu1...
mnun VAL=val1...valn "title*

Parameters

<i>num</i>	number of menu items to select from the menu list
<i>ulrow</i>	upper-left row number of the menu box; the range is 1-25
<i>ulcol</i>	upper-left column number of the menu box; the range is 1-80
<i>lrrow</i>	lower-right row number of the menu box; the range is 1-25
<i>lrcol</i>	lower-right column number of the menu box; the range is 1-80
<i>col</i>	text color level; the range is 0-15 (see the table on page 6-11)
<i>bck</i>	window color level; the range is 0-7 (see the table on page 6-4)
<i>blk</i>	0 no text blink 1 text blink
<i>name</i>	name of the string table entry to set
<i>mnu1...n</i>	items displayed when the menu is visible; if the VAL keyword is not used, these values are placed in the string table; if VAL is specified, the listed values are aliases for the values listed by the VAL keyword
VAL=	values specified for alias menu items (optional)
<i>val1 ... n</i>	values placed in the string table if keyword VAL is used
<i>"title</i>	menu title (optional); quotes are mandatory

Remarks

If *mnum*=?, you can enter a value not specified in the menu item list. If you select this item, you must enter the value from the keyboard. See the example below.

If *num*=1 and *mnu1*=?, the system is in an automatic keyboard entry mode.

When you press a mouse button, the selected value is illustrated in the first column of the menu window containing the menu pointer.

If the menu item list is longer than the menu window, you can scroll the window by moving the mouse up and down.

If you specify a title, the first row of the menu window is that title.

If *num*=1, the selected menu items blink until you select the values.

Examples

MENU 1 10 10 10 18 MAP= ?

This entry prompts you to enter a value for MAP in the string table via the keyboard.

**MENU 1 10 10 20 15 14 3 0 STN=MSN BOS MKE DEN
MIA ? "STN**

This entry allows you to select the value for STN from the menu list. The menu window is 10 rows (10-20) by 5 columns (10-15). The menu has yellow text on a cyan background with no text blink. You can specify an alternate value by selecting the ? menu item.

**MENU 1 10 10 12 20 RAOBTIME=OGMT 12GMT VAL=0 12
"RAOB time**

This entry displays a menu 3 rows by 10 columns with white text on a black background. The values in the menu have aliases.

QUIT

Exits the Soft Tablet interface.

Format

QUIT

STRING

Writes a value into the string table.

Formats

STRING *name* "*value*"
STRING *name* *value*
STRING *name* UC=*number* *type*

Parameters

<i>name</i>	name of the string to write into the current string table
<i>value</i>	value to write
<i>number</i>	index into User Common
<i>type</i>	I integer C character

Remarks

The STRING command is far more efficient than the TE command since the logic for STRING is built into S and does not require a program load for TE.

Use the first form of the STRING command for any strings that cannot be represented as a character positional parameter, such as one that contains blanks or has more than 12 characters. The second format is suitable for strings that are 12 or fewer characters and do not contain blanks. The third format allows values in User Common to be put into strings.

If the third format is used, the value to be written into the *name* is taken from the designated word *number* in User Common. Because all string values are character, use *type* to insure proper conversion.

Examples

STRING CITY "CLE BOS MSN LAX

This entry writes the string CLE BOS MSN LAX into the string named CITY.

STRING CITY CLE

This entry writes the string CLE into the string named CITY.

STRING MDNUMB UC=5 I

This entry fetches the value from User Common word 5, which is the current default MD file number, treats it as type INTEGER and puts the value into the string named MDNUMB.

TABLET

Restores a soft tablet as the current tablet.

Format	TABLET <i>tname</i>
Parameter	<i>tname</i> name of the soft tablet
Example	TABLET WX.TAB This entry restores tablet WX.TAB as the current tablet.

VIDEO

Switches from a text display to an image/graphics display.

Format	VIDEO
Remarks	If you have a VGA display, switch to the video display and connect the cursor control. If you have a tower workstation, connect the cursor control.

WINDOW

Switches to a McIDAS-OS2 text window.

Format	WINDOW <i>window</i>
Parameter	<i>window</i> window number to display on the next screen refresh
Example	WINDOW 8 This entry switches from the current text window to window 8.

Example

Below is an example of a soft tablet. Commands are on the left; the purpose/function of the command is explained on the right.

L 1 35 17 0 "WX TABLET"	Defines the label at the top of the screen.
L 16 8 2 0 "TIME AND DATE"	Labels and initializes a clock on the tablet.
I CLOCK ON 14 6 15 7 0 19	
I STRING ID "MSN"	Initializes some strings used in the tablet.
I STRING IDNUM "72645"	
I STRING STATE "WI"	
I TU REST WXTAB	Restores the string table WXTAB as the current string table.
L 18 6 2 0 "Current Station ID"	Defines the label and initialization to display the current string for the station identifier.
I ECHO ID=20 12 8 1 1 3	
R 3 2 3 19 4	Defines the size and color for a region.
L 3 6 15 0 "ASYNC"	Provides the label for the above region.
M ,ATDT 36597	Defines the McIDAS command for the region.

The following regions are similar in format:

R 3 22 3 39 4	This region logs you onto the mainframe (add your initials and password).
L 3 28 15 0 "LOGON"	
M WINDOW 0	
M LOGON	
R 3 42 3 59 4	This region logs you off.
L 3 48 15 0 "LOGOFF"	
M .LOGOFF	
M WINDOW 0	
R 3 62 3 79 4	This region quits the tablet.
L 3 65 15 0 "EXIT TABLET"	
M QUIT	

R 5 2 11 19 3
L 8 5 14 0 "SURFACE PLOT"
M .EG
M GU REST GRAPHICS
M .TD ALL
M MENU 1 14 30 21 50 15 3 0
+ STATE=WI MID VT TX ? "STATES/REGIONS
M .SP PLOT #STATE
M VIDEO

This regions plots a current map
of a region chosen from a list or
a new one typed in.

R 5 22 11 39 3
L 8 27 14 0 "SKEW-T"
M MENU 1 14 30 21 50 15 2 0
+ IDNUM=72645 72518 74494 ? "STATION ID NUMBER
M EG; GU REST GRAPHICS
M .SKEWT #IDNUM
M VIDEO

This region plots a current Skew-
T of a chosen station.

R 5 42 11 59 3
L 8 47 14 0 "TERMINAL"
L 9 47 14 0 "FORECAST"
M MENU 1 14 55 21 78 14 5 0
+ ID=MSN GRB MKE 9B2 ? "STATION ID
M .FT #ID TWIN=3
M WINDOW 3

This region displays the terminal
forecast for a chosen station.

R 5 62 11 79 3
L 8 67 14 0 "METEOROGRAM"
M MENU 1 14 55 21 78 14 5 0
+ ID=MSN GRB MKE 9B2 ? "STATION ID
M EG; GU REST GRAPHICS
M .MG #ID
M VIDEO

This region plots a meteorogram
of a chosen station.

Appendix A

WWW Frame Allocation

This appendix explains how to allocate the image and graphics frames on your WIDE WORD Workstation (WWW). The number and size of the frames depend on the amount of memory in your WWW. You must know the number of memory boards in your WWW before proceeding with the steps below. To calculate the memory a set of frames requires, multiply the number of lines times the number of elements times the total number of frames (image and graphics). Frames of similar size can be grouped together or made opposites.

1. Run the SETUP program according to the instructions in the Installation Procedure chapter of this manual. The following text will appear on the screen:

McIDAS-OS2 System Setup	
(Press ENTER to accept default values)	
Select OS/2 version 1.1 / 1.2 environment:	
1. McIDAS-OS2 and Presentation Manager but no DOS mode	
2. DOS mode is required and system has at least 5MB of memory	
Enter number (1 or 2) corresponding to configuration	1
Is the data connection Async, ProNET, or None (A/P/N)?	A
Baud rate (1-1200, 2-2400, 3-4800, 4-9600)?	4
Communications port for data connection?	COM1
Printer interface (1-parallel, 2-serial)?	2
Port to use for printer connection	COM2
Type of display (0-Tower, 1-WWW, 2-EGA, 3-VGA)?	1
How many fixed-disks and partitions do you have total?	1
Would you like auto logon when host is contacted? (Y/N)	N
Hours to be added to system clock for GMT	5

2. Choose appropriate responses for your workstation and press Enter. If you press Enter without changing the value, the previous response is used. Since you are allocating frames for a WWW, select 1 for the type of display. The prompt below is displayed on the screen.

Change WIDE WORD frame allocation? (Y/N)?	Y
---	---

3. If you choose N, the previous frame allocation is retained. If you choose Y, the following prompt is displayed.

Note that the number of lines in a frame must be divisible by 4; the elements by 32

Enter the number of WW memory board sets 2

Enter the correct number of sets; check with your technician for the number.

4. Below is an example of selecting new frame sizes. Each selection builds on the previous request. The table shows the amount of memory used by each request. To calculate the memory a set of frames requires, multiply the number of lines times the number of elements times the total number of frames (image and graphics).

Image Frames	Graphics Frames	Lines	Elements	Bytes
20	20	480	640	12288000
5	1	1500	3200	28800000
5	1	760	1280	5836800
10	1	600	1344	8870400

Look at the sample frame allocations below; the first one begins with no frames allocated.

Allocated 0 image and 0 graphics frames. Memory remaining: 67108864
 # of image frames in this group (Press ENTER to end)? 20
 # of graphics frames in this group? 20
 Number of lines per frame? 480
 Number of elements per line? 640

This group of frames has 20 image frames and 20 graphics frames. All frames are 480 lines by 640 elements which is the default. There is no default for the number of image frames and graphics frames, but WWW diagnostics require the first six frames to be 480 lines by 640 elements.

The above set of frames consumes 12288000 bytes (480 x 640 x 40). The number of lines in a frame must be divisible by 4 and the number of elements by 32.

Allocated 20 image and 20 graphics frames. Memory remaining: 54820864
 # of image frames in this group (Press ENTER to end)? 5
 # of graphics frames in this group? 1
 Number of lines per frame? 1500
 Number of elements per line? 3200

This group of frames has 5 image frames and 1 graphics frame. All frames are 1500 lines by 3200 elements.

Allocated 25 image and 21 graphics frames. Memory remaining: 26020864
 # of image frames in this group (Press ENTER to end)? 5
 # of graphics frames in this group? 1
 Number of lines per frame? 760
 Number of elements per line? 1280

This group of frames has 5 image frames and 1 graphics frame. All frames are 760 lines by 1280 elements.

Allocated 30 image and 22 graphics frames. Memory remaining: 20184064
 # of image frames in this group (Press ENTER to end)? 10
 # of graphics frames in this group? 1
 Number of lines per frame? 600
 Number of elements per line? 1344

This group of frames has 10 image frames and 1 graphics frame. All frames are 600 lines by 1344 elements.

5. If you do not want to assign more image and graphics frames for the last group, press Enter in response to the prompt below. By doing so, you will have more memory space left. To assign more image or graphics frames, go to number 7 on the next page.

Allocated 40 image and 23 graphics frames. Memory remaining: 11313664
 # of image frames in this group (Press ENTER to end)?

Pressing Enter displays the following prompt on the screen.

Allocate the remaining memory for 40 TV-sized Image frames
 with imbedded graphics or just Graphics frames (I/G)? 1

6. Pressing G allocates the remaining memory to standard graphics frames.

Pressing I allocates the remaining memory to as many 480 by 640 image frames as possible. Frames in this group are called briefing frames on the WWW and are similar to VGA frames in that they combine images and graphics in one frame. Image levels 1-8 are converted to level 9 before being written in the WWW memory. Graphics written to these frames are written into levels 1-8. Level 0 and levels 9-255 are unchanged.

The summary of total images and graphics frames is shown below.

Total Image frames: 76 Graphics frames: 23
--

7. To assign more image or graphics frames instead of creating briefing frames, calculate the number of frames you could possibly allocate with the remaining memory and then answer the last group accordingly. For example:

Allocated 40 image and 23 graphics frames. Memory remaining: 11313664	
# of image frames in this group (Press ENTER to end)?	36
# of graphics frames in this group?	0
Number of lines per frame?	480
Number of elements per line?	640

This group of frames has 36 image frames and no graphics frames. All frames are 480 lines by 640 elements. Since this group uses all remaining memory, this is the last frame group setting.

The following text appears on the screen.

Total Image frames: 76 Graphics frames: 23
--

8. When the prompt below appears on the screen, reboot the system.

Press CTL+ALT+DEL to reboot system.

[C:\MCIDAS\TOOLS]

The example described above provides the WWW with 76 image frames and 23 graphics frames (assuming no briefing frames are allocated). The numbering sequence for the graphics frames is 1 to 20, 21, 26 and 31. You cannot access any graphics frames other than those specified above.

The image/graphics frame allocation is placed in a PC file called `ALLOC.WWW`. The first time a host command makes a reference to a frame, the host pulls this file from the PC with command `SENLW`. The name of the host file is `WWSIZnnn`, where *nnn* is the terminal index number of the workstation on the host. If you change the frame allocation by rerunning the `SETUP` program, delete this `WWSIZnnn` file from the host using command `LWU DEL`. If you don't delete the old `WWSIZnnn` file, the host and workstation will not agree on the size and numbers of frames. This prevents the WWW from loading images.

After you run `SETUP` to change the PC workstation configuration, log on to the host to make sure it acknowledges the change.

The example described above gives a list of WWV and 30 pages frames and 30 graphics frames (assuming no starting frames are allocated). The numbering sequence for the graphics frames is 1 to 30, 31, 32 and 33. You cannot access any graphics frames other than those specified above.

The image/graphics frame allocation is placed in a PC file called `ALLOCWWV.W`. The first line is a host command means a reference to a frame, the host builds this file from the PC with command `SETUP.W`. The name of the host file is `WWWWWW`, where `WWW` is the terminal index number of the workstation on the host. If you change the frame allocation by returning the `SETUP` system delete this `WWWWWW` file from the host using command `DEL WWWWWW`. If you don't delete the old `WWWWWW` file, the host and workstation will not agree on the size and number of frames. This prevents the WWV from loading images.

After you run `SETUP` to change the PC workstation configuration, log on to the host to make sure it acknowledges the change.

Appendix B

TrailBlazer Plus Modem

This appendix describes the line requirements and configurations for the TrailBlazer Plus modem manufactured by Telebit Corporation. The TrailBlazer Plus is capable of 19,200 bps operation, depending on line quality. The FCC registration number is ER95W5-16287-MD-E. For more information, see the *TrailBlazer Plus User's Manual*, Rev. A.

Line Requirements

You can use the TrailBlazer Plus modem with either a dial-up or dedicated (i.e., leased or private) line. The TrailBlazer Plus has an asynchronous RS-232 interface which is used on both dedicated and dial-up lines. For dedicated line operation, the gain control resistor (R89) inside the TrailBlazer Plus must be changed to provide a 0 dBm transmit level. For a laboratory bench test of two TrailBlazer Plus modems in an end-to-end configuration, the value of R89 must provide a -9.0 dBm transmit level. See Appendix F (Leased Line Considerations) in the *TrailBlazer Plus User's Manual*, Rev. A, for information about dedicated operation.

Dial-up Line

The requirements for dial-up operation over the public switched network are:

- RJ-11C jacks installed at each modem location
- each jack/business line conditioned for touch tone or pulse operation

The ringer equivalence number is 0.4B.

Dedicated Line

The requirements for a dedicated line are:

- 2-wire dedicated land line
- full duplex
- C-1 conditioned, if available
- RJ-11C jacks installed at each end

The transmit level is 0 dBm; the receive level is -16 dBm.

TrailBlazer Plus Configurations for a McIDAS Workstation

The TrailBlazer Plus configuration depends on whether you have a dial-up or dedicated line and whether the modem is located at the IBM mainframe 3708 or the user workstation. The four configurations shown on the next few pages are:

- IBM mainframe 3708 dial-up operation
- IBM mainframe 3708 dedicated line operation
- workstation PC dial-up operation
- workstation PC dedicated line operation

SSEC uses the IBM mainframe 3708 dial-up configuration for the "Dial-Distribution" port.

Command Settings

The E and Q command settings vary among the configurations. The other command settings remain constant.

Register Settings

Use the command ATSN? to list the register settings and firmware revision level for the above configurations. If you have firmware revision level BA4.00, see figures 1, 3, 5 and 7 on the following pages. If you are using firmware version BA5.00, see figures 2, 4, 6 and 8. These settings were generated with an IBM PC using TrailBlazer Plus command ATSN?. If you enter this command at a McIDAS workstation, be sure to precede it with a comma.

For the IBM mainframe 3708 connections, S51 is set to 4 for an interface speed of 9600 baud. You can change this as needed for other interface speeds. For the PC configured modems, S51 is set to 255 which is the auto speed setting.

There are two registers that are not documented in the *TrailBlazer Manual* that you can set to improve performance. One is `ATS120=12` which eliminates micro packets. The other is `ATJ6S36=4` which adds a tone to the front of the packet. Each count represents 22 milliseconds (4 x 22=88 milliseconds total). Remember to save these and all register changes with the command AT &W.

Refer to the *Telebit T2000 and TrailBlazer Plus Reference Manual*, Rev. A, and the *TrailBlazer Plus User's Manual* for further information on register options, definitions and settings.

To use the SETUP feature that causes LOGON to send a modem command string, you must have the modem configured with the Verbose mode ON.

Configuration for an IBM Mainframe 3708 Dial-up Operation

Version BA4.00

This is the configuration for a dial-up operation on the IBM mainframe 3708, using TrailBlazer Plus firmware version BA4.00.

```
ATSN?  
E0 F1 M1 Q1 T V1 X1      Version BA4.00  
S00=001 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07=040 S08=002 S09=006  
S10=007 S11=070 S12=050  
S45=000 S47=004 S48=001 S49=000  
S50=000 S51=004 S52=001 S53=003 S54=000 S55=000 S56=017 S57=019 S58=003 S59=000  
S60=000 S61=045 S62=003 S63=001 S64=001 S65=000 S66=001 S67=000 S68=003  
S90=000 S91=000 S92=000 S95=000  
S100=000 S101=000 S102=000 S104=000  
S110=255 S111=255 S112=001  
S121=000  
N0:  
N1:  
N2:  
N3:  
N4:  
N5:  
N6:  
N7:  
N8:  
N9:  
OK
```

Figure 1. IBM Mainframe 3708 Dial-up Operation, Version BA4.00

Version BA5.00

Below is the configuration for a dial-up operation on the IBM mainframe 3708, using TrailBlazer Plus firmware version BA5.00. Note the difference between the equal sign (=) and colon (:) associated with each register setting. The equal sign signifies a factory default setting; the colon indicates a change from the factory default setting.

```

ATSN?
E0 F1 M1 Q0 T V1 W0 X1 Y0 &P0 &T4      Version BA5.00
S00=001 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07=040 S08=002 S09=006
S10=007 S11=070 S12=050 S18=000 S25=005 S38=000
S41=000 S45=000 S47=004 S48 : 001 S49=000
S50=000 S51 : 004 S52 : 001 S54=000 S55=000 S56=017 S57=019 S58=003 S59=000
S60=000 S61 : 045 S62=003 S63=001 S64 : 001 S65=000 S66 : 001 S67=000 S68 : 003 S69 : 002
S90=000 S91=000 S92=000 S94=001 S95=000 S96 : 000
S100=000 S101=000 S102=000 S104=000 S105 : 000
S110=255 S111=255 S112=001
S121=000 S130 : 004 S131 : 001 S255 : 001
N0:
N1:
N2:
N3:
N4:
N5:
N6:
N7:
N8:
N9:
OK
  
```

Figure 2. IBM Mainframe 3708 Dial-up Operation, Version BA5.00

Configuration for an IBM Mainframe 3708 Dedicated Line Operation

Version BA4.00

This is the configuration for a dedicated line operation on the IBM mainframe 3708, using TrailBlazer Plus firmware version BA4.00.

```
ATSN?  
E0 F1 M1 Q1 T V1 X1      Version BA4.00  
S00=000 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07=255 S08=002 S09=006  
S10=255 S11=070 S12=050  
S45=000 S47=004 S48=001 S49=000  
S50=255 S51=004 S52=000 S53=001 S54=000 S55=000 S56=017 S57=019 S58=003 S59=000  
S60=000 S61=045 S62=003 S63=001 S64=001 S65=000 S66=001 S67=000 S68=003  
S90=000 S91=000 S92=000 S95=000  
S100=000 S101=001 S102=000 S104=000  
S110=255 S111=255 S112=001  
S121=000  
N0:  
N1:  
N2:  
N3:  
N4:  
N5:  
N6:  
N7:  
N8:  
N9:  
OK
```

Figure 3. IBM Mainframe 3708 Dedicated Line Operation, Version BA4.00

Version BA5.00

Below is the configuration for a dedicated line operation on the IBM mainframe 3708, using TrailBlazer Plus firmware version BA5.00. Note the difference between the equal sign (=) and colon (:) associated with each register setting. The equal sign signifies a factory default setting; the colon indicates a change from the factory default setting.

```

ATSN?
E0 F1 M1 Q0 T V1 W0 X1 Y0 &P0 &T4      Version BA5.00
S00 : 000 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07:255 S08=002 S09=006
S10 : 255 S11=070 S12=050 S18=000 S25=005 S38=000
S41=000 S45=000 S47=004 S48 : 001 S49=000
S50 : 255 S51 : 004 S52=000          S54=000 S55=000 S56=017 S57=019 S58=003 S59=000
S60=000 S61 : 045 S62=003 S63=001 S64 : 001 S65=000 S66 : 001 S67=000 S68 : 003 S69 : 002
S90=000 S91=000 S92=000 S94=001 S95=000 S96 : 000
S100=000 S101 : 001 S102=000 S104=000 S105 : 000
S110=255 S111=255 S112=001
S121=000 S130=002 S131 : 001 S255 : 001
N0:
N1:
N2:
N3:
N4:
N5:
N6:
N7:
N8:
N9:
OK
  
```

Figure 4. IBM Mainframe 3708 Dedicated Line Operation, Version BA5.00

Configuration for a PC Dial-up Operation

Version BA4.00

This is the configuration for a dial-up operation on the workstation PC, using TrailBlazer Plus firmware version BA4.00.

```
ATSN?  
E1 F1 M1 Q0 T V1 X1      Version BA4.00  
S00=000 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07=040 S08=002 S09=006  
S10=007 S11=070 S12=050  
S45=000 S47=004 S48=001 S49=000  
S50=000 S51=255 S52=001 S53=003 S54=000 S55=000 S56=017 S57=019 S58=003 S59=000  
S60=000 S61=045 S62=003 S63=001 S64=001 S65=000 S66=001 S67=000 S68=003  
S90=000 S91=000 S92=000 S95=000  
S100=000 S101=000 S102=000 S104=000  
S110=255 S111=255 S112=001  
S121=000  
N0:  
N1:  
N2:  
N3:  
N4:  
N5:  
N6:  
N7:  
N8:  
N9:  
OK
```

Figure 5. PC Dial-up Line Operation, Version BA4.00

Version BA5.00

Below is the configuration for a dial-up operation on the workstation PC, using TrailBlazer Plus firmware version BA5.00. Note the difference between the equal sign (=) and colon (:) associated with each register setting. The equal sign signifies a factory default setting; the colon indicates a change from the factory default setting.

```

ATSN?
E1 F1 M1 Q0 T V1 W0 X1 Y0 &P0 &T4      Version BA5.00
S00 : 000 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07=040 S08=002 S09=006
S10=007 S11=070 S12=050 S18=000 S25=005 S38=000
S41=000 S45=000 S47=004 S48 : 001 S49=000
S50=000 S51 : 255 S52 : 001      S54=000 S55=000 S56=017 S57=019 S58=003 S59=000
S60=000 S61 : 045 S62=003 S63=001 S64 : 001 S65=000 S66 : 001 S67=000 S68 : 003 S69 : 002
S90=000 S91=000 S92=000 S94=001 S95=000 S96 : 000
S100=000 S101=000 S102=000 S104=000 S105 : 000
S110=255 S111=255 S112=001
S121=000 S130 : 004 S131 : 001 S255 : 001
N0:
N1:
N2:
N3:
N4:
N5:
N6:
N7:
N8:
N9:
OK

```

Figure 6. PC Workstation Dial-up Operation, Version BA5.00

Configuration for a PC Dedicated Operation

Version BA4.00

This is the configuration for a dedicated operation on the workstation PC, using TrailBlazer Plus firmware version BA4.00.

```
ATSN?
E1 F1 M1 Q0 T V1 X1      Version BA4.00
S00=000 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07=255 S08=002 S09=006
S10=255 S11=070 S12=050
S45=000 S47=004 S48=001 S49=000
S50=255 S51=255 S52=000 S53=001 S54=000 S55=000 S56=017 S57=019 S58=003 S59=000
S60=000 S61=045 S62=003 S63=001 S64=001 S65=000 S66=001 S67=000 S68=003
S90=000 S91=000 S92=000 S95=000
S100=000 S101=002 S102=000 S104=000
S110=255 S111=255 S112=001
S121=000
N0:
N1:
N2:
N3:
N4:
N5:
N6:
N7:
N8:
N9:
OK
```

Figure 7. Workstation PC Dedicated Line Operation, Version BA4.00

Version BA5.00

Below is the configuration for a dedicated line operation on the workstation PC, using TrailBlazer Plus firmware version BA5.00. Note the difference between the equal sign (=) and colon (:) associated with each register setting. The equal sign signifies a factory default setting; the colon indicates a change from the factory default setting.

```

ATSN?
E1 F1 M1 Q0 T V1 W0 X1 Y0 &P0 &T4      Version BA5.00
S00 : 000 S01=000 S02=043 S03=013 S04=010 S05=008 S06=002 S07:255 S08=002 S09=006
S10 : 255 S11=070 S12=050 S18=000 S25=005 S38=000
S41=000 S45=000 S47=004 S48 : 001 S49=000
S50 : 255 S51 : 255 S52=000      S54=000 S55=000 S56=017 S57=019 S58=003 S59=000
S60=000 S61 : 045 S62=003 S63=001 S64 : 001 S65=000 S66 : 001 S67=000 S68 : 003 S69 : 002
S90=000 S91=000 S92=000 S94=001 S95=000 S96 : 000
S100=000 S101 : 002 S102=000 S104=000 S105 : 000
S110=255 S111=255 S112=001
S121=000 S130=002 S131 : 001 S255 : 001
N0:
N1:
N2:
N3:
N4:
N5:
N6:
N7:
N8:
N9:
OK

```

Figure 8. PS/2 Workstation Dedicated Line Operation, Version BA5.00

Appendix C

Asynchronous Communication

This appendix provides the steps for establishing a McIDAS session with a host using asynchronous communication. It assumes you're using a TrailBlazer Plus modem manufactured by Telebit Corporation. You can use standard Hayes modems operating at lower baud rates, but they have a higher error frequency and slower data transfer. For information not covered here, see the *TrailBlazer Plus User's Manual*.

1. Connect your modem to the PC's serial port. If you're using a 25 to 9-pin adapter, be careful not to reverse the pin arrangement.
2. Configure your modem using the settings in Appendix B. The configuration must match these settings exactly, or the modem may not operate correctly with McIDAS-OS2. To modify the register and command settings, begin each request with a comma, e.g., ,AT.

In some cases a modem's initial settings are so incompatible with McIDAS that McIDAS cannot modify the settings. If this happens, change the settings using another software package, e.g., PROCOMM™.

3. Run the SETUP program described in the Installation Procedure chapter of this manual. Define the appropriate data communications, serial port and printer port. If you're using the auto-connect feature, be sure to enter the entire modem command.
4. Toggle the modem power switch ON. The CTS and MR lights will illuminate. Start McIDAS-OS2. You will receive this asynchronous communication message (in magenta):

*** Async comm active on COM1 at 9600

The modem's DTR light will also illuminate. This means the workstation and serial port are connected and ready to transmit and receive data. To confirm this status,

Type: ,AT

The workstation will respond with the message below.

OK

5. When you receive the OK message, enter a modem dial command or the LOGON command if you selected the auto-connect feature during SETUP. Modem commands from McIDAS-OS2 always begin with a comma. For example,

Type: `,ATDT9W6085551234`

In this entry, the modem dials a number (608/555-1234) using tone dialing (DT9). It waits for an outside line (W) and then completes the dialing sequence. `,AT` must precede all modem commands.

When the modem successfully contacts the mainframe, you will receive this message:

CONNECT FAST

If you receive the message

UNSUPPORTED FUNCTION

after the CONNECT FAST statement, ignore it. The host (VTAM) generates this message because it is initially unaware that this is a McIDAS connection.

6. When you receive the CONNECT FAST message, log on to the host McIDAS. You may receive this message:

MCIDAS TERMINAL NOT LOGGED ON

Ignore it; try to log on again. Your second attempt should prove successful. This message, like the one above, is sent when the host is not expecting McIDAS. In either case, the auto-connect sequence activated by LOGON may fail and you must enter another LOGON command.

Note

If an alternate value of the XOFF character is required, place the decimal value into a file named `\MCIDAS\DATA\XONXOFF.PTR` as ASCII text. The normal value is 19.

Non-McIDAS Use

To send control characters or the modem escape sequence to the modem, use the McIDAS-OS2 CTRL command documented in the Commands section of this manual.

To use the modem for another purpose, such as using PROCOMM to connect with a data service, set User Common word 168 to one (1) with the McIDAS-OS2 UCU POKE command. After a few seconds, the modem's DTR light turns off indicating you can use the modem with other software. If you run this software in the DOS Compatibility Box, you may need to enter this DOS command.

Type: **SETCOM40 COM x =ON**

x is the port number the modem uses. McIDAS is still active and communicating. To reestablish control of the modem, check that the DTR light is not illuminated, then use the command UCU POKE to set word 168 back to zero. After a few seconds, the asynchronous communication message reappears.

The current status of the asynchronous communication is on window six. The data rate is updated after about 10K bytes of data is transferred.

Non-MIDAS Use

To send output characters to the modem escape sequence to the modem, use the MCRAS-082 CTR command documented in the Command's section of this manual.

To use the modem for another purpose, such as using PROCOMM to connect with a data service, set the Common word 188 to one (1) with the MCRAS-082 LCU POKE command. After a few seconds, the modem's DTR light turns off indicating you can use the modem with other software. If you wish this software to use the DOS Compatibility Box, you may need to enter the F08 command.

Type PROCOMM0 COMMAND

It is the port number the modem uses. MIDAS is still active and communicating. To reestablish control of the modem, check that the DTR light is not illuminated, then use the command LCU POKE to set word 188 back to zero. After a few seconds, the asynchronous communication message reappears.

The current status of the asynchronous communication is on window six. The data rate is updated after about 100 bytes of data is transferred.

Appendix D

McIDAS-OS2 System Drivers

This appendix provides a list of drivers used in the McIDAS-OS2 system. This information is useful if your site plans to install unique hardware on your workstations which have addresses or interrupt levels that interfere with those used by McIDAS-OS2.

TVSYNC Drivers

TVSYNC drivers coordinate the timing between the display head, i.e., either the tower or WIDE WORD workstation (WWW), and the computer. TVSYNC.SYS is the driver for PC/ATs; it uses Interrupt Request IRQ 15.

TVSYNC2.SYS is the driver for PS/2s. It also uses Interrupt Request IRQ 15. Since PS/2 interrupts are level rather than edge, it uses I/O location 334 to reset the level.

Tower Driver

Tower driving software is used with tower-based workstations only. The tower uses a memory interface starting at 0D0000.

WWW Driver

The WWW.SYS driver is for WIDE WORD workstations only. The WWW.SYS driver uses memory from C00000 to C1FFFF; it uses I/O locations 336, 338, 33a, 33c and 33e. You cannot have more than 12 megabytes of main memory in a computer driving a WWW because the system will see the WWW control memory as contiguous to the main memory and think it belongs to the system.

ProNET Driver

The ProNET driver is used for Proteon's ProNET communications. The PC/AT driver for ProNET is named PRONETA.SYS; it uses IRQ 9 and I/O ports starting at 0300. The PS/2 ProNET driver, PRONET.SYS, uses IRQ 5 and I/O locations starting at 10e0. SSEC ProNET drivers do not read the data from the PS/2 I/O configuration process, so you must manually assure that there are no memory, I/O or interrupt conflicts with other adapters.

DRV Driver

All configurations require a DRV.SYS driver which is the memory mapper.

Removing Drivers

You can remove unneeded drivers from your CONFIG.SYS file. **WIDE WORD** workstations need TVSYN2.SYS and WWW.SYS. **Tower** workstations need TVSYN2.SYS or TVSYN2.SYS. **ProNET** needs PRONET.SYS or PRONETA.SYS.

Appendix E

Required System Files

Listed below in alphabetical order are the required McIDAS-OS2 files in the \MCIDAS\DATA subdirectory and their functions.

File name	Function
ALLOC.WWW	allocation of frames and graphics for WWWs
AREAnnnn	area files, where <i>nnnn</i> is the area number
CONTEXT.SLT	LOOP management context file (DEFBRIEF, MOVIE, etc.)
DCISFC	MD file schema for ISFC data (ASCII format)
DCRAOB	MD file schema for RAOB data (ASCII format)
DCSVCA	MD file schema for SVCA data (ASCII format)
DNKEYS	list of MD file keys, field widths and units used by the system commands (ASCII format). LW file FLDWDTH is generated from this list.
EXPORT	text of F0-packets queued to go to the mainframe
FLDWDTH	LW file list of MD file keys and field widths for the MDL command
FRAMED	frame directory
FRAMENAV	frame navigation information
GRaannnn	grid files where <i>aa</i> is either part of the grid file number or letters ID; <i>nnnn</i> is the grid file number.
GRAPHIC.ET	graphics palette for the GU command
HELP.DAT	list of documented commands on the McIDAS-OS2 system (ASCII format)
HOST.PTR	command to contact the host in the TCP or ASYNC domain

File name	Function
IDSVCA	surface station identifiers (binary format)
IMAGE.ET	image palette for the EU and GU commands
MDaannnn	MD files where <i>aa</i> is either part of the MD file number or letters <i>XX</i> ; <i>nnnn</i> is the MD file number.
MENU	compiled menu file output from the MAKMNU command; delete this file to prevent McIDAS-OS2 from booting in the menu mode.
NUM.FRM	VGA frame allocation information
OFFSET.GMT	the offset in hours between local and GMT time
OUTLHPOL	world political boundary basemap (binary format)
OUTLHRES	North America high-resolution basemap (binary format)
OUTLSUPU	high resolution USA basemap
OUTLSUPW	world outline basemap (binary format)
OUTLUSAL	North America low-resolution basemap (binary format)
OUTLUSAM	North American medium-resolution basemap (binary format)
OUTLWRLD	world basemap (binary format)
*.PIC	VGA image files (UNIDATA version)
RADAR.ET	radar palette for the EU and GU commands
RAOBMASK	required for decoding RAOB MD files
RSIGMASK	required for decoding RAOB MD files
SKEDFILE	system scheduler file
STARTUP.SYS	list of McIDAS components to start for different communications or display configurations
STRTABLE	system string table files

<u>File name</u>	<u>Function</u>
SVCAMASK	required for decoding imported surface MD files
SYSIMAGE.VIF	used as a back store for images during DF on VGA displays
SYSKEY.DOC	system key table; ASCII representation for the SYSKEY.TAB file
SYSKEY.TAB	system key table derived from SYSKEY.DOC (binary format)
UNIDATA.MNU	sample F Key Menu template file (ASCII format)
VERSION.TXT	ASCII text for the current version of McIDAS-OS2
*.VFF	VGA image files (old version)
*.VIF	VGA image files saved with the SVF command
WINQUFIL	queueing file used for cloud drift wind processing with the mainframe
WWW.PAL	16-bit enhancement temporary storage
WX.TAB	sample tablet created from the WX.TXT file (binary format)
WX.TXT	sample Soft Tablet descriptor file and documentation (ASCII format)

required for decoding imported software MP files	SYNCHRON
used as a back store for images during OF on VGA displays	SYNCHRON.VIF
system key table; ASCII representation for the SYNCHRON.VIF file	SYNCHRON.DOC
system key table derived from SYNCHRON.DOC (binary format)	SYNCHRON.TAB
sample F key table template file (ASCII format)	UNIDATA.MNU
ASCII text for the current version of MEDAS 4.02	VERSION.TXT
VGA image files (old version)	*.VIF
VGA image files saved with the BVF command	*.VIF
generating file used for cloud drift wind processing with the mainframe	WINDOUT.FIL
10 file enhancement repository storage	WWW.BAT
sample tables created from the WX.TXT file (binary format)	WX.TAB
sample WX Tablet description file and documentation (ASCII format)	WX.TXT

Appendix F

Exception Vector Assignments

If you're running remotely or don't always monitor your machines, you may want to include the AUTOFAIL=YES statement in your CONFIG.SYS file. This will prevent interrupts of the entire computer when a problem occurs in some session (except for the DOS box).

TRAP #	Type	Description
0000 0	Divide Error	Division by zero was attempted.
0001 1	Debug Exception	Trap caused by single stepping or debug trap.
0002 2	Hardware Error	Probably a memory error.
0003 3	Breakpoint	A breakpoint instruction was executed; 0xCC is a single byte opcode used to trigger a breakpoint.
0004 4	Integer Overflow	Integer overflow exception caused when the OF overflow flag is set.
0005 5	Bounds Violation	Caused when the processor detects a bounds violation.
0006 6	Invalid Opcode	Processor attempted to execute an instruction which was not a valid value.
0007 7	Coprocessor Missing	An instruction was executed that required a numeric coprocessor which is not present in the current configuration.
0008 8	Double Fault	Caused by an interrupt occurring while an interrupt service routine or exception handler is currently being processed.
0009 9	Coprocessor Operand Segment Overrun	An operand for the numeric coprocessor crossed a segment boundary.

TRAP #	Type	Description
000a 10	Invalid Task State Segment	The 80386 detected an error in the contents of the TSS register when performing a task switch.
000b 11	Segment loaded into CS, DS, ES, FS, GS is not present	Segment is not currently in memory (fix lock segment into memory).
000c 12	Segment loaded into ss is not present	Stack overflow occurred or stack pointer got corrupted.
000d 13	General protection violation	Memory was accessed that was not owned by the process.
000e 14	Page fault	Program attempted to access a page in violation of its access rights.
0010 16	Numeric Coprocessor Error	An error was generated by the numeric coprocessor.

Appendix G

File Redirection

File redirection is the relocating of a McIDAS file to any directory or subdirectory on any drive. You can redirect LW files, MD files, areas and grid files. For example, you can use file redirection to store areas, MD files and grid files in a subdirectory for a particular study. File redirection is also useful if you don't have much memory on your hard drive; you can use it to write and read files on the floppy disk drive.

Restrictions

Redirecting some system files will cause problems on your PC. Below is a list of files that should never be redirected.

ALLOC.WWW	NUM.FRM
CONXT.SLT	REDIRECT
EXPORT	SKEDFILE
FRAMED	STARTUP.SYS
FRAMENAV	STRTABLE
HELP.DAT	SYSIMAGE.VIF
HOST.PTR	VERSION.TTT
MENU	WINQUFIL

Creating a Redirection File

Redirection files can be created with a text editor or with command **REDIRECT MAKE** from McIDAS. The only difference is that **REDIRECT MAKE** does not allow you to enter comments. (For more information about the **REDIRECT** command, see the Commands section of this manual.) A redirection file may contain both paths and comments, where "path" refers to the OS/2 convention of paths, e.g., C:\JUNE\STORM\INNJ. To make a comment, type a double quote (") in the first character position, followed by the comment, e.g., "This is a comment.

To make a redirection path, type the file name you want redirected, followed by a space and the path to the file's destination. The maximum length is 32 characters, 12 for the file being redirected and 19 for the path itself, where the twentieth character can only be a backslash (\). Here is an example: *filename.xxx x:\xxxxxx\xxxx\xxxx*.

All redirection files must be stored in C:\MCIDAS\DATA as text files.

Using a Text File Editor

Use the steps below to create a redirection file with a text file editor.

1. From a text file editor, enter these lines creating file EXAMPLE.EXA.

```
"REDIRECT MD FILE 1000 INTO A:\
MDXX1000 A:\
"REDIRECT AREAS 500-509 TO C:\JUNE\STORM\STUDY
AREA05* C:\JUNE\STORM\STUDY
"REDIRECT GRID 5534 INTO C:\MCIDAS
GRID5534 C:\MCIDAS
"REDIRECT VIRTUAL FRAME FILE STORM INTO A:\STORM
STORM.VIF A:\STORM
```

2. Save the file in C:\MCIDAS\DATA.
3. Go back into McIDAS. Then restore the file you created into the dynamic memory (described below) and the file LWPATH.NAM.

Type: **REDIRECT REST EXAMPLE.EXA**
Press: **Enter**

Using REDIRECT MAKE

The second way to create a redirection file is to use **REDIRECT MAKE** from McIDAS. Then use **REDIRECT ADD** to set up your file redirections. This example creates the same redirect file as above and saves the new entries. From McIDAS,

Type: **REDIRECT MAKE**
REDIRECT ADD MDXX1000 "A:
REDIRECT ADD AREA05* "C:\JUNE\STORM\STUDY
REDIRECT ADD GRID5534 "C:\MCIDAS
REDIRECT ADD STORM.VIF "A:\STORM
REDIRECT SAVE EXAMPLE.EXA

Implementing a Redirection File

File redirection is stored in three places:

- The test file you created.
- A file called LWPATH.NAM that holds the current file redirection (file direction in use). This file writes the file redirection into dynamic memory.
- The dynamic memory which is read by McIDAS to do the redirection.

Below is an example of a redirection file and how to get these redirections into memory.

1. This file (called RESEARCH.RED) redirects areas, MD files and enhancements. It was created in the editor.

```
"OK TORNADO 4/32/87 VISIBLE IMAGES
AREA939* A:\OK\TORNADO\VIS
"OK TORNADO 4/23/87 IR IMAGES
AREA940* A:\OK\TORNADO\IR
"OK TORNADO 4/23/87 SURFACE DATA
MDXX321* A:\OK\TORNADO\SURF
"TX HURRICANE 8/23/85 VISIBLE IMAGES
AREA601* C:\TX\HURRICANE\VIS
"TX HURRICANE 8/23/85 IR IMAGES
AREA939* C:\TX\HURRICANE\IR
"TX HURRICANE 8/23/85 ENHANCEMENTS FOR VISIBLE
IMAGES
TXHUR.ENH C:\TX\HURRICANE\ENH
```

2. To install this file redirection, from McIDAS,

```
Type: REDIRECT REST RESEARCH.RED
Press: Enter
```

This entry writes the file RESEARCH.RED into both the dynamic memory and file LWPATH.NAM. To check that the correct file was put into dynamic memory, use **REDIRECT LIST** to list its contents. Now, any program using areas 9400-9409 will look for the data on the A: drive subdirectory \OK\TORNADO\IR.

If your workstation has multiple users, you may want to clear the dynamic memory and file LWPATH.NAM at the end of your workstation session. To do this,

Type: **REDIRECT CLEAR**
Press: **Enter**

Now another user will not use your redirections and McIDAS will use the default redirection of C:\MCIDAS\DATA.

Appendix H

McBASI Interpreter for McIDAS-OS2

This appendix contains an introduction to McBASI in McIDAS-OS2, a description of the McBASI interpreter commands and reserved words, and three McBASI sample programs.

Introduction

The name McBASI was first coined in 1985 on McIDAS-MVS to describe a line oriented editor and on-line BASIC language interpreter within the mainframe McIDAS environment. In McIDAS-OS2, only the interpreter (the RUN command) has survived.

McBASI programs are presented as ASCII text files created by either the OS/2 editor, or any other editor that stores text as ASCII text with a carriage return <cr> character at the end of each line. Commands may be in uppercase or lowercase; line numbers are only needed on program lines that are referenced as targets of GOTO or GOSUB statements.

McBASI Interpreter Commands and Reserved Words

Use the following McBASI interpreter commands and reserved words to create and run a McBASI program. They are listed alphabetically. Each description contains the command's function, syntax and one or more examples.

CLOSE

Frees the I/O table entry for the specified *unit* (LW file). A maximum of 10 files are active at once.

Syntax: **CLOSE** *unit*

where *unit* is any valid numeric expression associated with an LW file by a previous OPEN command.

Example: **CLOSE** 10

where 10 is the *unit* number associated with an LW file by a prior OPEN command.

GOSUB

Changes the normal downward flow of control. This command is like GOTO, except control may be returned to the statement following the GOSUB by executing a RETURN statement.

Syntax: GOSUB *x*
where *x* is any valid numeric expression.

Example: GOSUB 1000
 100 REM Return Here
 .
 .
 1000 PRINT B
 1010 RETURN

In this example, control is returned to line 100.

GOTO

Changes the downward, line-by-line flow of control.

Syntax: GOTO *x*
where *x* is any valid numeric expression.

Examples: GOTO 300
 GOTO 13+6*X

IF

Compares expressions, using relational operators, to determine whether to execute a statement, e.g., IF $X+13>Y-9$ GOTO 310. If several *statements* are used, either all are done (if the relationship is true) or none are done (if the relationship is false). To compare character strings, use only the = and < > relational operators. If *statement* is a let statement, i.e., a replacement statement, use the command LET.

Syntax: IF *expr relop expr statement*
where: *expr* is any valid expression.
 relop is any relational operator.
 = means equal
 < > or > < means not equal
 > means greater than
 < means less than
 >= or => means greater than or equal to
 <= or =< means less than or equal to
 statement is the step to be executed if the relationship is true.

Example: IF $X=8$ LET $Y=13$:LET $J=9$:GOTO 890

In this example, if $X=8$ is true, both LET *statements* and the GOTO *statement* are executed.

INPUT

Allows data to be gathered from an LW file, a RUN statement, or the keyboard. The input statement for LW files is restricted; only one character variable may be designated in the list and the record from the file will be read into this variable. The syntax of this LW file input is shown below. This form of INPUT is useful for reading text files. Refer to the OPEN statement regarding fixed length and variable length records. The INPUT statement in this form handles both; the (r) record number is available for either format.

Syntax: **INPUT @u(r) , A\$**

where: **u** is a numeric expression for the unit number; @ is required.

(r) is a numeric expression used to specify a record number; record numbers always begin with zero.

A\$ is the variable into which the record is read.

The syntax of the INPUT statement used to obtain values from the RUN statement is shown below.

Syntax: **INPUT a,b,c**

where **a,b,c** are the variables.

Values are taken from the RUN command line as positional parameters of a normal McIDAS command. If the named variable is numeric, it is picked up as a number. If the variable is a character string, the value is picked up as a character parameter (up to 12 characters, no blanks). Each INPUT statement of this form picks up the next positional parameter. Thus, these statements are equivalent to the single INPUT statement above:

INPUT a

INPUT b

INPUT c

If the RUN command line contains a quoted string (for example, "THIS IS A QUOTED STRING), it may be read by using a character variable. The first character in the variable is a double quote (") to indicate it was picked up from the quoted string. An attempt to input a parameter which is not present results in either a numeric value of zero or a character string of length zero.

If the file OPENed is named "KBD*", input may be obtained from the keyboard. Only one character variable may be used: INPUT A\$. See the LOCATE statement regarding cursor positioning and selecting alternate text windows.

Example: **INPUT @3, A\$**

IF MID\$(A\$,1,4)=EOF\$ GOTO xxx

This example tests for an end-of-file, using the pseudovariable EOF\$.

KEYIN

Submits a McIDAS command to be executed.

Syntax: **KEYIN** *list*

where *list* is zero or more expressions. Place a comma or semicolon between expressions. Commas tabulate to a print position (column) that is a multiple of 16. Semicolons allow no spaces to be inserted. Do not end the *list* with a semicolon or comma unless you don't want the statement to execute until you've entered another KEYIN statement that does not terminate with a semicolon.

Example: **LET A\$="MSN"**

LET T= 12.0

KEYIN "SL A ";

KEYIN A\$;

KEYIN " ";T

This example submits the following command: **SL A MSN 12**

LET

Creates a replacement statement in a McBASI program.

Syntax: **LET** *var* = *expr*

where: *var* is a variable for numeric quantities; it is a single letter or a single letter followed by a digit.

Numeric variables are REAL*4 quantities. For character strings, A\$ through Z\$ are available and may contain up to 255 characters each.

expr is any valid numeric or character expression; numeric expressions may contain the operators +, -, *, /, **, with normal precedence rules. For character or string expressions, *expr* may be a string variable, a string constant enclosed in quotes ("ABC"), a concatenation of two strings with the + operator, or a string function, e.g., pseudovariable TIMES\$.

The hexadecimal constant \$nnnn is available, e.g., \$FE equals 254. A single array is also available; one thousand words are reserved and referenced by following a numeric variable name with a parenthetical expression. The value of this expression is added to the value of the variable to obtain an index into this array space.

Example: **LET A=0**

LET B=A(13) references the 13th word

LET C=10

LET B=C(13) references the 23rd word (10 + 13)

Do not mix numeric and character expressions. The VAL function converts character to numeric; STR\$ converts numeric to character. In most cases, the LET may be omitted.

LOCATE

Enables the use of text windows 5-9 for specifically tailored applications.

Syntax: **LOCATE** *row, column, window, color, erasecolor*
where: *row* is the text screen row for the next PRINT or INPUT when using "KBD*"; values are 0-24. You must specify a value.
column is the column number; values are 0-79. You must specify a value.
window is the text window that all subsequent output should go to; values are 0-9. Specify this parameter only if you want to change windows.
color is the text color value for subsequent output; see the COLORS command for the list of color values. Specify this parameter only if you want to change colors.
erasecolor if present, causes the named window (only 5-9) to be erased to the color given. If you omit this parameter, the window will not be erased.

You cannot omit a value unless it is the last one in the statement, e.g., LOCATE 5, 3, , 7 is not legal.

Example: LOCATE 5, 6, 7, 11, 2
 PRINT "Please enter the value:"
 OPEN "KBD*", 10
 INPUT @10, A\$
 CLOSE 10
 LOCATE 24, 0, 0
 PRINT A\$

This example prompts the input on window 7 and then prints the value back on window 0.

OPEN

Logically equates a *unit* number with the name of an LW file for INPUT and OUTPUT. When an OPEN statement is executed, the record pointers for input and output are set to point to the first record of the file (record zero). If these options are omitted from the INPUT or PRINT statements, the next record is used.

In order to solicit input from the user, a special file called "KBD*" may be opened. Input from this file really obtains input from the user who must type it. See the INPUT statement.

Syntax: **OPEN** *filename, unit, reclength*

where: *filename* is a valid string expression, less than 13 characters.

unit is any valid numeric expression.

reclength is any valid numeric expression. It is only useful when dealing with old-style or otherwise fixed length text files. It must be specified if you want to randomly write (PRINT) data into a file; otherwise, writing is sequential. When dealing with old-style McIDAS text files, it should be 80.

Example: **OPEN "YYEXPLE",10**

POKE

Forces a value into a User Common location.

Caution !

Be careful when using this command. It is possible to set your computer into a state from which the only recovery is to boot.

Syntax: **POKE** *value, location*

where: *value* is a numeric or string expression. If numeric, it's converted to an interger quantity unless a string is specified.

location is a numeric expression identifying which word in User Common should be written into.

See also functions PEEK and PEEK\$.

PRINT

Displays command text on your CRT. When developing programs that generate commands, use the **PRINT** statement for testing. This allows you to see the would-be command text on your CRT. The **PRINT** statement is identical in structure to the **KEYIN** statement.

Syntax: **PRINT list**

where *list* is zero or more expressions. Place a comma or semicolon between expressions. Commas tabulate to a print position (column) that is a multiple of 16. Semicolons allow no spaces to be inserted. Do not end the *list* with a semicolon or comma unless you don't want the statement to execute until a future **PRINT** or **KEYIN** statement is executed.

Output may be directed to an LW file in either fixed length or variable length (text) format. This file-directed form of the **PRINT** statement has the following syntax.

Syntax: **PRINT @u(r),list**

where: *u* is the numeric expression for the unit number; @ is required.
r is a numeric expression used to specify the record number, which always begins with zero. Parentheses are required. This may only be specified for files with fixed length records (see the **OPEN** statement); variable length files are always sequentially written. If the *r* clause is omitted, the next record is assumed (record following the last one written). The comma is required and followed by a list of variables, constants, etc. If a **PRINT** statement ends with a semicolon or comma (meaning *do not print this yet*), the @u(*r*) clause is ignored.

Example: **LET X=123**
LET A\$="MSN"
LET T= 12.0
PRINT "this is a test ";X;
KEYIN "SL A ";
PRINT " of the ",
KEYIN A\$;
PRINT " print statement"
KEYIN " ";T

This example produces the following print line:

this is a test 123 of the print statement
--

It also submits the following command: **SL A MSN 12.**

Example: **PRINT @4,EOF\$**

This is a final PRINT statement that outputs a logical end-of-file. Use it for a sequential file that will be read by another McIDAS program.

Example: **LPRINT list**

This entry sends output directly to the local printer

The question mark (?) may be used in place of the PRINT statement. For example, these two statements are equivalent:

? "A=";A

PRINT "A=";A

PTABLE

Places the value of *stringvalue* into the string table entry named *stringname*. See function TABLE\$.

Syntax: **PTABLE** *stringvalue*,*stringname*

where: *stringvalue* is the string expression to store.

stringname is the name of the string to store the value in.

REM

Adds comments or inserts a help into your program. Remarks (REMs) do not affect the flow of the program.

Syntax: **REM** *comment*

Examples: **REM ?**

REM?

Use one of these examples to begin a help line. The normal McIDAS HELP facility can then be employed to list the help for this program.

RETURN

Returns from a subroutine call; also see GOSUB.

Syntax: **RETURN**

RUN

Executes your McBASI program. The RUN statement can be abbreviated; see the examples below.

Syntax: **RUN** *parameters* **FILE=** **CLEAR=** **VAR=**

where: *parameters* are the parameter values.

FILE= runs a program from a different file.

CLEAR= suppresses initialization of all variables;

NO means the variables retain their previous values.

VAR= specifies the variable's source.

SHARE shares variables when one McBASI program RUNs another.

x specifies an LW file in which to store the variables (different from the default, which is assigned by terminal number).

Examples: **RUN** *parameters* **FILE=xxxxxx**

'xxxxxx *parameters*

where *xxxxxx* is the file name (limited to 6 characters). These two RUN statements are interchangeable.

STOP

Stops your program; also stops by "falling off the end," completing the last line of a program. If you don't provide a quoted message, a line is displayed indicating the program line or statement number where the STOP occurred.

Syntax: **STOP**

STOP "Message"

Functions

The following functions are available. *x* and *y* refer to numeric expressions; *a*\$ and *b*\$ refer to character expressions.

Function	Meaning
SIN(<i>x</i>), COS(<i>x</i>)	trigonometric functions; <i>x</i> is an angle in radians;
TAN(<i>x</i>), ASIN(<i>y</i>)	the arc functions return values in radians
ACOS(<i>y</i>), ATAN(<i>y</i>)	
EXP(<i>x</i>)	exponential
LN(<i>x</i>)	natural logarithm
LOG(<i>x</i>)	base ten logarithm
ABS(<i>x</i>)	absolute value of <i>x</i>
INT(<i>x</i>)	integer part (truncated value) of <i>x</i>
NINT(<i>x</i>)	nearest integer value to <i>x</i>

Function	Meaning
MOD(x,y)	the remainder resulting from x/y
LEN(a\$)	length of the string in a\$
INDEX(a\$,b\$)	location in a\$ string of b\$ substring; if b\$ is not in a\$, zero is returned
VAL(a\$)	numeric value of string a\$
SQRT(x)	square root of x
STR\$(x)	calculates the string corresponding to the number x using McIDAS function CFG for the conversion
MID\$(a\$,x,y)	extracts a string of length y from a\$, starting at character position x (first position = 1)
TIME\$	a pseudostring variable of length 6 which has the current time in the format HH:MM:SS
DATE\$	a pseudostring variable of length 5 which has the current date in the format YYDDD
DAY\$	a pseudostring variable of length 6 which has the current date in the format YYMMDD
TFILE\$	a pseudostring variable of length 9; a temporary LW file named during execution of a BASIC program; it is deleted (via LWD) when the program terminates
EOF\$	a pseudostring variable; contains the universal value Z80808080
PEEK(x)	returns a value from User Common (UC) location x; the value in UC is assumed integer and is converted to REAL*4
PEEK\$(x)	returns a character string
BIN(string\$)	the real number equivalent of the binary integer value in string\$; assumes the first four bytes are an integer value (in binary)
CHR\$(x)	returns a string of length one which is equivalent to the ASCII code value x
KSYS(x)	returns the value from the System KeyTable location x; the value in SYSKEY is assumed to be an integer and is converted to REAL*4
KSYS\$(x)	returns the value from the System KeyTable location x; the value in SYSKEY is assumed to be a character string of length 4
TABLE\$(a\$)	returns the value of the string stored in the current string table under the name a\$

McBASI Sample Programs

1. In this program, parameters are read from the RUN command until the list is exhausted. DEV=CNM suppresses the normal DONE message from YA. This sends the standard output to the CRT, but does not send the error or debug output. Use **RUN MSN MKE CLE BOS DCA** or **RUN MEM ORD** for this example. A step-by-step practice session with this example follows.

```

10  INPUT A$
    IF LEN(A$)< 3 GOTO 100
    KEYIN "YA SA ";A$;" DEV=CNM"
    KEYIN "YA FT ";A$;" DEV=CNM"
    GOTO 10
100  REM FINISHED. . .

```

2. This program illustrates a method of looping. The NINT function ensures that B will at some time be exactly equal to 101. No parameters are necessary in the RUN statement.

```

    let a=0
    let b=0
30  let a=a+b
    let b=b+1
    if nint(b)=101 goto 30
    print a

```

3. In this example, the two character variables are read from the RUN statement. If they are identical, line 20 causes EQUAL to be displayed on the CRT and the program stops at line 100. If they are not equal, line 30 causes NOT EQUAL to be displayed, and lines 40 and 50 use the INDEX function to find out if one is a subset of the other. The semicolons between PRINT list items are omitted, as they are only required to prevent syntax ambiguities.

For example, **RUN ABC ABC** produces EQUAL on the CRT while **RUN ABC DEFABCGHI** produces NOT EQUAL plus BUT ABC IS WITHIN DEFABCGHI.

```

    INPUT A$,B$
    IF A$=B$ PRINT "EQUAL": GOTO 100
    IF A$<>B$ PRINT "NOT EQUAL"
    IF INDEX(A$,B$)<>0/ PRINT " BUT "B$" IS WITHIN "A$
    IF INDEX(B$,A$)<>0/ PRINT " BUT "A$" IS WITHIN "B$
100  STOP

```

McBASIC Sample Programs

In this program, parameters are read from the RUN command and the list is expanded. DEV-COM suppresses the normal DONE message from Y.A. This sends the standard output to the CRT, but does not send the error or debug output. Use WITHIN WITHIN CLE-BOB DCA or RUN ME B ORB for this example. A step-by-step practice version with this example follows.

```

100 REM FINISHED
GOTO 10
KEYIN "Y.A. FT. AS" DEV-COM
KEYIN "Y.A. SA" DEV-COM
IF LEN(AS) > 3 GOTO 100
INPUT AS

```

This program illustrates a method of looping. The WITHIN function ensures that B will at some time be exactly equal to 100. No parameters are necessary in the RUN statement.

```

print a
t = int(b) - 101: goto 30
let b = t + 1
let a = b + 1
let b = 0
let a = 0

```

In this example, the two character variables are read from the RUN statement. If they are identical, line 30 causes EQUAL to be displayed on the CRT and the program stops at line 100. If they are not equal, line 30 causes NOT EQUAL to be displayed, and lines 40 and 50 use the INDEX function to find out if one is a subset of the other. The conditions between PRINT list items are omitted, as they are only required to prevent syntax ambiguities.

For example, IF A=B AND produces EQUAL on the CRT while IF A=B OR B=C produces NOT EQUAL plus BUT A=B IS WITHIN D=ABCD.

```

100 STOP
IF INDEX(B2, A2) < 0: PRINT "BUT A2 IS WITHIN B2"
IF INDEX(A2, B2) < 0: PRINT "BUT B2 IS WITHIN A2"
IF A2 <> B2: PRINT "NOT EQUAL"
IF A2=B2: PRINT "EQUAL"
GOTO 100
INPUT A2, B2

```

McIDAS-OS2 Users Guide Update

September 1991

Chapter	Pages to Remove	Pages to Insert	Modifications
	Title page	Title page	Changed the revision date.
Table of Contents	i thru iv	i thru iv	Updated the Table of Contents.
Installation Procedure	1-1 thru 1-22	1-1 thru 1-20	Added two sections: Installing OS/2 Version 1.3 Extended Edition for TCP/IP, and Installing TCP/IP Version 1.1; updated the procedure for installing McIDAS-OS2 software; deleted all OS/2 V1.2 documentation.
Commands			
AA	3-9	3-9	Added a remark.
AAMAP	3-11	3-11	Updated the defaults for <i>line</i> and <i>ele</i> ; documented the SPLINE= keyword.
CA thru ZM	3-17 thru 3-186	3-17 thru 3-210	Added 8 commands: CCODE , IMGPRO , ISENT , LWTODOS , MOVIT , SENAA , SU , SYSKEY ; deleted TRANEU ; updated the commands below:
		DEFLOOP	Added parameters <i>bloop</i> and <i>eloo</i> .
		DOSTOLW	Added the R parameter; updated the remarks.
		IGU	Added the parameter <i>maxgrd</i> .
		LOGON	Updated the <i>password</i> information.
		MAKMNU	Deleted the <i>type</i> parameter; added the keywords INIT= and TYPE= .
		PC	Deleted the G parameter and keyword.
		SYSVAL	Updated the remarks.
		XSECT	Updated the <i>text</i> parameter and keywords LAT= and LON= .
		ZA	Added the keyword ENCL= .
F Key Menu System	4-14	4-14	Updated the command lines.
Soft Tablet Interface	6-9 thru 6-14	6-9 thru 6-18	Added commands CLOCK and STRING ; updated the IF command.
Appendix G	G-1 thru G-4	G-1 thru G-4	Editorial changes.
Appendix H		H-1 thru H-12	New information.



MIDAS-OS2 Users Guide Update

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Chapter	Pages to Remove	Pages to Insert	Modifications
Appendix H	0-1 thru 0-4	0-1 thru 0-4	New information.
Appendix G	0-1 thru 0-4	0-1 thru 0-4	Editorial changes.
Soft Tablet Interface	0-9 thru 0-14	0-9 thru 0-14	Added commands CLOCK and STRING; updated the IP command.
F Key Menu 2x Item	1-11	1-11	Updated the command lines.
XA			Added the keyword HNCX.
XRECT			Updated the "last parameter and keywords LAT" and LON.
YSVAL			Updated the remarks.
PC			Deleted the G parameter and the keywords ENT and TYPE.
MARKING			Deleted the type parameter; added the keyword INF.
LOON			Updated the keyword information.
ICU			Added the parameter string.
DOEOLW			Added the H parameter; updated the remarks.
DEFOOP			Added parameter block and clock.
commands before			Deleted TRANS; updated the commands before.
CA line 2M	2-11 thru 2-15	2-11 thru 2-210	Added 8 commands CODE, IMPRO, INST, LWTOS, MOVIT, RENAI, SUTRY, and deleted TRANS; updated the commands before.
AA/MP	2-11	2-11	Updated the details for line and also documented the SFLNR keyword.
Comments	2-9	2-9	Added a remark.
Installation Procedure	1-1 thru 1-32	1-1 thru 1-30	Added two sections: Installing OS2 Version 1.1 Standard Edition for TTY, and Installing TTY for Version 1.1; updated the procedure for installing MIDAS-OS2 software; deleted all OS2 V1.1 documentation.
Table of Contents	1 thru iv	1 thru iv	Updated the Table of Contents.
	Title page	Title page	Changed the revision date.