

# **International Solar-Terrestrial Physics (ISTP) Program Central Data Handling Facility (CDHF) Users Guide**

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## ABSTRACT

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This document provides documentation for the International Solar Terrestrial Physics (ISTP) Program Central Data Handling Facility (CDHF) User Interface (UI). This guide provides an overview of the functions of the ISTP CDHF and is a user reference manual describing the services available to the general CDHF science user community.

The ISTP Project homepage (<http://www-istp.gsfc.nasa.gov>) contains links to online versions of ISTP documentation (including this document) as well as other information useful to ISTP investigators.



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# QUICK TOUR OF THE CDHF USER INTERFACE

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This quick-tour segment can help you quickly and easily learn to use the basic functions of the CDHF User Interface. If you are already familiar with the interface, then you might want to jump to the section titled "Getting Things Done." However, the section titled "Keys to Success" may provide some helpful hints even to experienced users. Those users unfamiliar with the User Interface or having trouble setting up their terminal to be compatible with the interface should follow the advice of the doormouse in *Alice in Wonderland* and "start at the beginning and go on until the end."

## Getting Started

To use the CDHF User Interface, you first need an account on the computer system. If you do not have one, you can obtain one by completing an online application. Either use Telnet to `istp1.gsfc.nasa.gov` (128.183.92.58) or SET HOST ISTEP1 (15461) and log in with the username APPLY. You will be prompted through a set of questions and your application submitted for approval. Once your account has been approved and established, you will be notified of your username and initial password. Now that you have an account on the computer system, you can start to use the User Interface.

## Setting Up Your Terminal

You will communicate with the CDHF User Interface using the keyboard of your display device. Keyboards come in many shapes, sizes, and layouts; and display devices can emulate a number of standard terminal types. The CDHF User Interface provides support for three different classes of terminals: (1) VT100 or VT100 emulators; (2) VT200, VT300, and their emulators; and (3) all others.

If you have a Sun Workstation but do not have a VT100, VT200, or VT300 emulator, you might want to obtain a copy of a terminal emulation package called VTTOOL. You can find a compressed UNIX tape archive (tar) file containing this package on the CDHF in `SY$PUBLIC:[VTTOOL]`, along with a README file with instructions for installing the emulator on your Sun Workstation.

If you do not know which type of terminal your display device emulates, then proceed to the next section, "Starting the interface." The procedure that starts the User Interface attempts to determine and set the appropriate terminal class for your display device.

If you have established the terminal class to which your display device belongs, place the following command in your LOGIN.COM file:

```
DBI_TERM_TYPE:== "term_class"
```

where `term_class` is one of `cdhf100` (for VT100 terminals and most VT100 emulators), `cdhf220` (for VT200 terminals, VT300 terminals, and their emulators), or `cdhf100e` (for all other types of terminals and VT100 emulators that do not work properly with `cdhf100` classes).

For example:

```
DBI_TERM_TYPE:== "cdhf220"
```

Because keyboards and terminal emulators can vary widely in the key mappings they use for the keypad and the function keys, do not be discouraged if you initially have difficulty locating the correct keys for your display device. If the `cdhf100` or `cdhf220` class does not work, use the

cdhf100e class. If possible, try a different terminal emulator package. IBM PCs and PC clones have the widest range of available keyboards and have been the most difficult display devices for which to provide keyboard mappings. Check the documentation for your terminal emulator package to see if it provides a mapping from your keyboard to a DEC VT100 or VT200-style keyboard. If you still have problems, contact the CDHF staff with the following information: the display device and the emulator (if any) you are using and your method of accessing the CDHF (dial-up or network). See “Whom Do You Call” for a list of people to call for help.

### Starting the User Interface

The CDHF User Interface supports a NOVICE/EXPERT mode. By default, users are in NOVICE mode. NOVICE mode prompts a user through the steps required to properly set up and configure a session for the interface. If you have already defined your terminal class (described in the previous section), execute the following command and place it in your LOGIN.COM file:

```
$ DEFINE CDHF_USER_LEVEL "EXPERT"
```

This action causes the startup procedure to skip the interactive steps that describe how to set up your terminal.

Once you have determined the display-device class, turn to the appendixes and make a copy of the keyboard mapping diagram that corresponds to the display device you are using. Place the diagram near your terminal so you can refer to it until you have learned some of the basic key mappings.

To actually start the User Interface, type the following command:

```
CDHF_UI
```

This action initiates the procedure that invokes the User Interface and opens the User Interface main menu. However, if you are in NOVICE mode, you will see the terminal setup dialog.

The following table lists the available main menu items with a brief description of their functions:

Menu Item	Description
CDHF Queries and Reports	Query the CDHF catalog for information and/or generate reports.
Data Transfer Services	Request data files for transfer.
Update Key Parameter Quality Information	Update key parameter quality flag in the CDHF catalog.
Certify Key Parameter Generation Software	Set a flag indicating Key Parameters generated by the specified program are suitable for distribution
Decommutation Specifications	Create, modify, or delete decommutation specifications.
Invoke Theory Programs	Display menu of available theory investigation programs.

Menu Item	Description
Extract NRT Level-zero Data	Extract data from WIND or POLAR near-real-time telemetry files.
Plot Orbit Data	Generate plots of orbit data.
Access the NEWS Bulletin Board	Run the NEWS bulletin board.

## Keys to Success

You will navigate through two types of screens in the User Interface. The first is a simple menu of items. In the menus, use the cursor keys to select the desired item. Invoke the item by using the [RETURN] key. The second type of screen is a form that contains fields for querying and displaying information. (Keyboard mappings are important to forms). The table below lists the core set of functions and their descriptions. These functions, along with the special function keys, are used 90 percent of the time. Functions not listed here but mentioned elsewhere in this guide are described as needed. Altogether, 50 keys control the forms with some keys being more important than others. A full list of keys and functions appears in the ISTP CDHF User's Guide.

Function	Description
Exit/Cancel	Exits the current menu, form, or pop-up window. Cancels the current function.
Abort	[CONTROL] Y usually gets you completely out of the User Interface but should not be used unless you are hopelessly lost.
Refresh	Redraws the current screen.
Show Keys	Provides key mappings table (the keystroke for this is always [CONTROL] K). Note that the table presented shows the key mappings for the defined terminal class. If cdhf100 has been defined, then the mappings displayed are for a DEC VT100 keyboard. If you are using an emulator with a non-VT100-like keyboard, then your key mappings may be different than shown.
Next Field	Moves the cursor to next enterable field on the form.
Previous Field	Moves the cursor to the previous enterable field on the form.
Up	Moves the cursor to the next record.
Down	Moves the cursor to the previous record.
List	Displays a list of valid values for the current field (if available).
Next Block	Moves cursor to the first enterable field in the next block of the form. Also used to execute a query for criteria entered in the current block and display results in the next block (see sample queries under "Getting Things Done").

Function	Description
Previous Block	Moves the cursor to the first enterable field in the previous block.
Insert/Replace	Toggles between INSERT and REPLACEMENT character modes. In general, REPLACEMENT should be used.
Menu	Activates the pull-down menu items, allowing an alternative method to invoke the form's functions.
Commit/Accept	Used to commit changes, enter new information in the database, select from a list of values, and to activate reports.
Special Function Keys	Four special function keys which are defined as needed, provide special functions on forms. When needed, the keys and functions are described on the form.

**A word about insert vs. replacement mode:**

INSERT mode allows you to insert text at any point in a string. REPLACEMENT (or overstrike) mode types over the existing text in a field. A common problem in using the User Interface is trying to insert text into a field that is full. If you are in INSERT mode and try to type in a field that is full, nothing happens. The mode you are in is indicated at the bottom right corner of each form (<Insert> or <Replace>). To avoid confusion, stay in REPLACEMENT mode. Switch to INSERT mode only when you need to, and then switch back to REPLACEMENT mode. Use the INSERT/REPLACE key to toggle between INSERT and REPLACEMENT modes.

**Getting From Here to There**

Currently, to navigate through the User Interface you must go up and down the menus to reach the desired form. A future release of the User Interface will let you jump directly to a form without having to step through the menus.

**Getting Things Done**

This section contains step-by-step examples that should help you perform queries, generate reports, request data files for transfer, and perform other functions available through the User Interface. Before reading these examples, put a copy of the appropriate key mappings diagram from Appendix A in front of you so you can refer to it.

**Setting Defaults**

One of the first things you will want to do is verify your default information. Default information set up for your account is used to pre-fill certain fields on the User Interface forms.

To check your default information and change the default data type, do the following:

1. Select the "CDHF Queries and Reports" option from the main menu.
2. Select the "ISTP Users and Privileges Form" option.
3. Press [TAB] once to place you in the "Query All Versions" field. If this field is set to **Y**, you see all versions of data files when you perform a query. If it is set to **N**, you only see the most recent version of a data file. In general, you will want to look at only the most recent version of a file. Viewing all versions of a file is useful when you are interested in the reprocessing history of a data file.
4. Press [TAB] again to move to the "Default Mission Name" field. Press the List key to obtain a list of missions from which you can choose. Highlight the mission name you wish to have set as your default, and press [RETURN] to fill in the field.
5. Press [TAB] again to advance the cursor to the "Data Type" field. Press the List key to obtain a list of data types from which you can select, highlight the desired data type, and press [RETURN] to fill in the field.
6. Press [TAB] again to advance to the "Default Descriptor" field. Press the List key to obtain a list of descriptors from which you can select, highlight the desired descriptor, and press [RETURN] to fill in the field.
7. Press the Commit/Accept key to commit the changes to the database.
8. Press the Exit/Cancel key to exit.

## Making Queries and Generating Reports

Numerous queries and reports can be generated through the User Interface. This section contains examples of some of the more widely used queries and reports. One of the characters often used in the examples is the % character. It is a wildcard character and, if allowed in the field, causes all values to be matched for that field. Note that the wildcard character, if used, must appear as the first character in the field.

To obtain a list of all key parameter files for all missions during the time period 01-JUN-1993 through 01-JUL-1993, perform the following:

1. Select the "CDHF Queries and Reports" option from the main menu.
2. Select the "Data File Information Menu" option.
3. Select the "Science Data File Information Form" option.
4. Type % under Mission Name (if necessary, use the space bar to erase any remaining text in the field).
5. Press [TAB] to advance to the next field.
6. Type **K%** under Data Type.
7. Press [TAB] to advance to the next field.
8. Type % under Descriptor (if necessary, use the space bar to erase any remaining text in the field).
9. Press [TAB] to advance to the next field.
10. Type **01-JUN-1993** into the starting date field.
11. Press [Tab] to advance to the next field.
12. Type **01-JUL-1993** into the ending date field.
13. Press the Next Block key to move to the next block and perform the query. If records are found in the database, they appear in the second block on the screen.
14. Press the Up and Down arrow keys to scroll through the records retrieved.
15. Press the Exit/Cancel key to exit.

The preceding query can also be performed for a specific instrument or mission or for a different time range. Simply type the desired mission or instrument name into the appropriate field instead of the wildcard character % (or use the list of values to choose from), or specify the desired time range.

To generate a report identical to the preceding query, perform the following:

1. Select the "CDHF Queries and Reports" option from the main menu.
2. Select the "Data File Information Menu" option.
3. Select the "Data Files Stored Online Report" option.
4. Type % under Mission Name (if necessary, use the space bar to erase any remaining text in the field).
5. Press [Tab] to advance to the next field.
6. Type K% under Date Type.
7. Press [Tab] to advance to the next field.
8. Type % under Descriptor (if necessary, use the space bar to erase any remaining text in the field).
9. Press [Tab] to advance to the next field.
10. Type **01-JUN-1993** into the starting date field.
11. Press [TAB] to advance to the next field.
12. Type **01-JUL-1993** into the ending date field.
13. Press SF1 if you want the report generated in BATCH mode instead of the default INTERACTIVE mode.
14. Press the Commit/Accept key to execute the query. The report will be written to your home directory unless DBI\_RPT\_DIR is defined in your LOGIN.COM. (Refer to Section 4.1.1.2, "Customizations," of the ISTP CDHF User's Guide.)
15. In INTERACTIVE mode, you are prompted to display the report to the screen. Answering **Y** causes the report to be displayed to your screen.

While viewing the report, press [CONTROL] Z to abort the displayed report, if desired. Afterward you are prompted to print the report. Answering **Y** to this prompt causes the report to be printed on a printer at the CDHF. For remote users, this is not desired so, in general, answer **N**. The report file remains in the designated report directory (DBI\_RPT\_DIR or your home directory by default).

### **Viewing processing information**

The CDHF catalog contains information on the processing history of ISTP data products. Information on the input files used to generate specific key parameter files and version information on key parameter generation software is available. Following are a sample query and a sample report for retrieving historical information about data files and programs.

To list KPGS program history information for IMP-8 MAG, perform the following:

1. Select the "CDHF Queries and Reports" option from the main menu.
2. Select the "File Processing Information Menu" option.
3. Select the "Process Program Information Form" option.
4. Enter the program name **IMP8\_MAG\_KP** or press the List key to obtain a list of programs from which you can select, highlight **IMP8\_MAG\_KP**, and press **[RETURN]** to fill in the field.
5. Press the Execute Query key to execute the query.
6. Use the arrow keys to scroll through multiple entries, if they exist.
7. Press Exit/Cancel to exit or press Enter Query to enter a new query.

To generate a report on key parameter certification information for IMP-8 MAG, perform the following:

1. Select the "CDHF Queries and Reports" option from the main menu.
2. Select the "Data File Information Menu" option.
3. Select the "Data File Certification Status Report" option.
4. Enter the mission name **I8** or press the List key to obtain a list of the programs from which you can select, highlight **I8**, and press **[RETURN]** to fill in the field.
5. Press **[TAB]** to move to the next field.
6. Type **MAG** in the descriptor field.
7. Press **[TAB]** to advance to the next field.
8. Type **01-JUN-1993** into the starting date field.
9. Press **[TAB]** to advance to the next field.
10. Type **01-OCT-1993** into the ending date field.
11. Press the Commit/Accept key to execute the query. The report will be written to your home directory unless **DBI\_RPT\_DIR** is defined in your **LOGIN.COM**. (Refer to Section 4.1.1.2, "Customizations," of the ISTP CDHF User's Guide.)
12. In INTERACTIVE mode, you are prompted to display the report to the screen. Answering **Y** causes the report to be displayed to your screen.

## Transferring Data Files

The ISTP CDHF provides for two types of file transfers: scheduled and standing. A scheduled request is a one-time request for specific data files that is executed at a scheduled time. A standing transfer is a general request for data files that is executed periodically on a schedule defined by the user. The files to be transferred in a standing request are determined at the time the request executes.

Data files can be transferred to the user's directory on the CDHF (staged transfer) or directly to the user's remote computer system (direct transfer). The following examples use the staged method of transfer. For information on setting up your computer system to accept direct transfers, refer to Section 4.2.5 of the CDHF User's Guide.

Before trying to execute the following examples, obtain the name of your home directory on the CDHF by typing **SHOW LOGICAL SYSS\$LOGIN** at the VMS system prompt. The destination address you will use in the examples looks like the following address:

ISTP::disk:[dir]

where disk:[dir] is the disk and directory name of your home directory.

The following is an example of a scheduled request to transfer GEOTAIL orbit data for 01-JUN-1993:

1. Select the "User Data Transfer Services" option from the main menu.
2. Select the "Create Transfer Request for Cataloged Science Files" option.
3. Type the execution date (the default is an immediate transfer).
4. Press **[TAB]** to advance to the next field.
5. A default Mail Address appears; modify it if desired.
6. Press **[TAB]** to advance to the next field.
7. A default Transfer Destination appears; set this to be your home directory as described above.
8. Press the Next Block key to advance to the next block.
9. Type the mission identifier **GE** or press the List key to obtain a list of mission names from which you can select, highlight **GE**, and press **[RETURN]** to fill in the field.
10. Press **[TAB]** to advance to the next field.
11. Type the datatype **OR** or press the List key to obtain a list of data types from which you can select, highlight **OR**, and press **[RETURN]** to fill in the field.
12. Press **[TAB]** to advance to the next field.
13. Type the descriptor **DEF** or press the List key to obtain a list of descriptors from which you can select, highlight **DEF**, and press **[RETURN]** to fill in the field.
14. Press **[TAB]** to advance to the next field.
15. Type **01-JUN-1993** into the Start Date field.
16. Press **[TAB]** to advance to the next field.
17. Type **01-JUN-1993** into the End Date field.
18. Press the Next Block key to move to the next block and perform the query. If records are found in the database, they appear in the second block on the screen.
19. Use the arrow keys to move to the file to be selected for transfer, and press SF1 to select individual files. Use SF2 to select all files in the list.
20. Press the Commit/Accept key to commit the request.
21. Press **[RETURN]** to acknowledge the request.
22. Press the Exit/Cancel key to exit.

The transfer request is queued and executed at the specified time. After the request is executed, an E-mail message providing the status of the transfer is sent to the address entered in step 5 above.



To set up a staged standing transfer for GEOTAIL definitive orbit data, perform the following:

1. Select the "User Data Transfer Services" option from the main menu.
2. Select the "Create Standing Request for New Science files" option.
3. Type the date and time of execution of the first execution of the standing request.
4. Press **[TAB]** to advance to the next field.
5. A default Mail Address appears; modify it if desired.
6. Press **[TAB]** to advance to the next field.
7. A default Destination Address appears; set this to be your home directory as described in the previous example.
8. Press the Next Block key to advance to the next block.
9. Type the mission identifier **GE** or press the List key to obtain a list of mission names from which you can select, highlight **GE**, and press **[RETURN]** to fill in the field.
10. Press **[TAB]** to advance to the next field.
11. Type the datatype **OR** or press the List key to obtain a list of data types from which you can select, highlight **OR**, and press **[RETURN]** to fill in the field.
12. Press **[TAB]** to advance to the next field.
13. Type the descriptor **DEF** or press the List key to obtain a list of descriptors from which you can select, highlight **DEF**, and press **[RETURN]** to fill in the field.
14. Press **[TAB]** to advance to the next field.
15. Type the effective catalog start date for request (must be no earlier than the current date/time). The request looks for files cataloged after this date.
16. Press **[TAB]** to advance to the next field.
17. Type the time interval for the execution of the request. The value can be from 1 hour to 7 days and is entered as days or fractions of days.
18. Press the Commit/Accept key to commit the request.
19. Press **[RETURN]** to acknowledge the request.
20. Press the Exit/Cancel key to exit.

To remove a standing request from the request queue:

1. Select the "User Data Transfer Services" option from the main menu.
2. Select the "Query/Modify Standing Requests for New Science Files" option.
3. The standing transfer requests you have entered are displayed. Use the arrow keys to view each request.
4. When you have the request displayed that you want to delete, press the Delete Record key. You are asked if you really want to delete the record. Answer **Y** or **N** and press **[RETURN]**.
5. Press the Exit/Cancel key to exit.

## Extracting WIND Near-Real-Time Data

To extract near-real-time (NRT) data from an active message for WIND 3DP, perform the following:

1. Select the "Extract NRT Level Zero Data" option from the main menu.
2. Type the mission identifier **WI** or press the List key to obtain a list of mission names from which you can select, highlight **WI**, and press **[RETURN]** to fill in the field.
3. Press **[TAB]** or **[RETURN]** to advance to the next field when the List key is not used.
4. Type the descriptor or press the List key to obtain a list of descriptor names from which you can select, highlight **3DP**, and press **[RETURN]** to fill in the field.
5. Press **[TAB]** or **[RETURN]** to advance to the next field when the List key is not used.
6. Allow **ACTIVE** to remain as the File Type.
7. Press the Next Block key to query the database for the NRT LZ files.  
(Note: The file **WI\_LZ\_3DP.NRT** will contain the data from the currently active pass; however, if there is no active pass, this file will be empty.)
8. Press the SF1 key to select the **WI\_LZ\_3DP.NRT** active NRT file.  
(Note: An "S" will appear in the Selected column, and times will appear in the Start Date and End Date columns.)
9. To change the requested time range, press **[TAB]** to advance to the Start Date field. Enter the start date and time for data to be extracted.  
(Note: If a time is selected prior to the actual start of the message, the extracted data will begin at the actual start time.)
10. Press **[TAB]** to advance to the End Date field. Enter the stop date and time for the data to be extracted.  
[Note: Only data that has been received can be extracted. For example, if a real-time pass is scheduled to be captured from 2100 hours to 2300 hours, and at 2200 hours a user performs an NRT extraction with a start time of 21:00:00 and an end time of 23:00:00, only 1 hour of data (21:00:00 to 22:00:00) will be extracted.]
11. Press the Accept key to extract the NRT data and write it to your **SYSS\$LOGIN** directory.

## Updating Key Parameter Quality Information

Authorized users are allowed to enter quality information on key parameter files into the CDHF catalog. The examples below illustrate two mechanisms for performing these updates.

To update the key parameter quality information interactively, perform the following:

1. Select the "Update Key Parameter Quality" option from the main menu.
2. Select the "Key Parameter Update Form" option.
3. Press the List key to obtain a list of mission names from which you can select, highlight your selection, and press [RETURN] to fill in the field.
4. Press the List key to obtain a list of data types from which you can select, highlight your selection, and press [RETURN] to fill in the field.
5. Press the List key to obtain a list of descriptors from which you can select, highlight your selection, and press [RETURN] to fill in the field.
6. Enter the starting date for the query (or use the default).
7. Press [TAB] to advance to the next field.
8. Enter the ending date for the query (or use the default).
9. Press the Next Block key to execute the query. The results are displayed in the second block of the form.
10. Use the SF1 key and the Up and Down keys to select the key parameter files for which quality information and comments are to be entered.
11. Once the files have been selected, verify that the cursor is on one of the selected files and press the SF4 key to display a form where quality and comments may be entered. If the entry on which the cursor was positioned on the previous form had quality and comment information already entered, this information appears as defaults on this form.
12. To update the KP Quality Indicator, type **Y**.
13. Press [TAB] to advance to the next field.
14. Enter the quality information (GREEN, YELLOW, RED) or use the default.
15. Press [TAB] to advance to the next field. The Certify Date and User ID fields are automatically filled in.
16. To update or enter the KP Comment, type **Y**.
17. Press [TAB] to advance to the next field.
18. Type in a one-line comment or press the Edit key to bring up a pop-up window providing additional lines for comments.
19. Press the Accept key to commit the changes.

The second method of updating key parameter quality information is to supply the quality information in a file, which is then processed to update the database. The following example shows a method of creating a file with the appropriate information and then instructing the User Interface to use that file to update the database.

## Updating key parameter quality information using a text input file

You can update key parameter quality information simultaneously for numerous files by using information supplied in a text file. The format of the file is shown as follows (either upper or lowercase may be used):

```
KEY PARAMETER QUALITY UPDATE FILE FOR USER [your username]
[logical filename]
[key parameter quality, RED, YELLOW, GREEN, or null string]
[comment]
[logical filename]
[key parameter quality, RED, YELLOW, GREEN, or null string]
[comment]
.
.
.
```

For example, the following file contains information to update three key parameter files. User SMITH must have key parameter quality update privileges for GEOTAIL PWI key parameter data. The first file is marked as PASS and has no comment in the command field. The second and third files have comments in the comment field and are marked as FAIL and PASS, respectively.

```
KEY PARAMETER QUALITY UPDATE FILE FOR USER SMITH
GE_K0_PWI_19930525_V01
GREEN

GE_K0_PWI_19930526_V01
RED
Excessive noise
GE_K0_PWI_19930527_V01
YELLOW
Only data after 0200GMT should be used
```

After creating the file with the update information, perform the following:

1. Select the "Update Key Parameter Quality" option from the main menu.
2. Select the "Process Key Parameter Update File" option.
3. Enter the name of the input file containing the key parameter quality update information. If the file is in your default directory, you can simply enter the filename; otherwise, you must enter the complete file specification.
4. Press the Accept/Commit key to start the update. You will receive status information on the progress of the update.
5. When the update is complete, you are prompted to press [**RETURN**] to return to the form.

## Certifying Key Parameter Generation Software

Users with the privilege to update quality information for the key parameter files generated by a KPGS program also have certification privilege for the program itself. A program that is certified indicates the program is believed to be generating key parameters suitable for distribution. An uncertified program will generate key parameter files that will be cataloged in the system but

will not be sent to the DDF for distribution on CD-ROM. Once a KPGS program is certified, the latest versions of all files generated by that program are sent to the DDF for distribution.

The example below illustrates the procedure for certifying a KPGS program that is in production use.

To certify a KPGS program interactively, perform the following steps:

1. Log into a principal investigator (PI) account that has been authorized access to the user data services (UDS) or a DBA account.
2. At the user prompt, enter "CDHF\_UI" to start up the user interface to the UDS.
3. On the main menu of the user interface, select the "CDHF Queries and Reports" option and press [RETURN].
4. Select the "File Processing Information Menu" option and press [RETURN].
5. Select the "Process Program Information Form" option and press [RETURN].
6. Press PF4 to cancel the query mode.
7. Press the SF1 key (View All Process Program) to display a list of the production KPGS programs.
8. Select the KPGS program to be certified and press the Accept key to commit the selection.
9. Press [TAB] to advance to the "Certify Status" field.
10. Enter **Y** in the Certify Status field.
11. Optionally press the Next Block key to display the "PI Comment" field and enter a comment of up to 255 characters; else, skip to step 13.
12. Press the Accept key to terminate the PI Comment field.
13. Press the Accept key to commit the certification.
14. Press [RETURN] to acknowledge the informational message at the bottom of the screen.
15. Press the Exit/Cancel key to exit the Process Program Information Form and the user interface.

## What Else Can I Do?

This Quick Tour of the CDHF User Interface has been provided to help you obtain information and data products from the CDHF without having to wade through pages of documentation. The examples are designed to get you started as quickly as possible in using the CDHF User Interface. But many other functions and features are in the User Interface. The intrepid are invited to explore further by perusing the user's guide, which contains detailed information on all functions and options of the User Interface.

## Where To Go From Here

The ISTP CDHF Users Guide contains detailed information on all available options and functions in the User Interface.

THE SYS\$PUBLIC:[DOCS] directory on the ISTP CDHF contains electronic versions of some documents. See the README file for a list of what is available.

If you have a World Wide Web (WWW) client such as Mosaic, you may want to link to the ISTP Project Home Page (<http://buster.gsfc.nasa.gov/>). This WWW server provides information on the ISTP project, missions and investigations, and CDHF.

## Whom Do You Call?

If you can log into the CDHF system, type **HELP @SITE PERSONNEL** to obtain a list of people to contact for various problems. Below is a list of contacts for system or data access questions:

<b>Problem</b>	<b>E-mail</b>	<b>Telephone</b>
Problems with the User Interface	ISTP::PAC PAC @ istp1.gsfc.nasa.gov	(301) 286-3228
Login problem, forgotten password, and other access problems	ISTP::SYSTEM system@istp1.gsfc.nasa.gov	(301) 286-9561
Data access privilege changes	ISTP::SCHNEIDER schneider@istp1.gsfc.nasa.gov	(301) 286-5543
Other ISTP data questions	ISTP::WMISH wmish@istp1.gsfc.nasa.gov	(301) 286-5444

# SECTION 1—INTRODUCTION

---

## 1.1 Purpose

This users guide serves as an introduction to the functions of the International Solar-Terrestrial Physics (ISTP) Program Central Data Handling Facility (CDHF) and as a guide and reference for the User Interface (UI) to the CDHF.

## 1.2 Scope

This document covers all activities and functions related to the CDHF support of the ISTP science community. This version of the users guide is for Release 6.3 of the ISTP CDHF Software System (ICSS).

It is assumed that the reader has some familiarity with the Virtual Address Extension (VAX)/Virtual Memory System (VMS) Operating System and the Digital Command Language (DCL) commands.

## 1.3 ISTP Program Overview

The ISTP is a cooperative scientific effort between the National Aeronautics and Space Administration (NASA), the European Space Agency (ESA), and the Institute of Space and Astronautical Science (ISAS). The ISTP program is a major new space science initiative to study the energetics of the near-Earth space environment (or geospace), using instruments on a set of integrated and coordinated spacecraft flight missions. The main program consists of ground-based investigators (GBIs), theory investigators (TIs), and at least five spacecraft missions: Geomagnetic Tail (GEOTAIL), Interplanetary Physics Laboratory Mission (WIND), Polar Plasma Laboratory Mission (POLAR), Solar and Heliospheric Observatory (SOHO), and the four Plasma Turbulence Laboratory (CLUSTER) satellites. Five other missions will contribute data to ISTP. These are Interplanetary Monitoring Platform (IMP-8), the National Oceanic and Atmospheric Administration (NOAA) Geostationary Operational Environmental Satellite (GOES) spacecraft, the Los Alamos National Laboratory (LANL) spacecraft, Interball-Tail, and the Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX). Figure 1-1 illustrates the ISTP mission orbit configuration.

The ISTP program includes two NASA spacecraft programs, the Collaborative Solar-Terrestrial Research (COSTR) initiative and the Global Geospace Science (GGS) project, plus GBIs and TIs.

The COSTR initiative provides for the development and operation of United States instruments on ISAS and ESA spacecraft. The COSTR spacecraft developed by ISAS is the GEOTAIL Laboratory; the spacecraft developed by ESA are the SOHO and CLUSTER. The major objective of the COSTR initiative is to provide an overall assessment of energy flow throughout geospace through parallel studies of closely related and time-dependent plasma physics processes.

The GGS project provides for the development and operation of two spacecraft laboratories: the Interplanetary Physics Laboratory (IPL) on WIND and the Polar Plasma Laboratory (PPL) on POLAR. The project also manages the contributions of the IMP-8, GOES, and LANL to ISTP. The mission objectives of the GGS project are to advance the scientific study of the source and three-dimensional features of solar wind, solar wind-magnetosphere interaction, global plasma storage flow and transformation, deposition of energy into the Earth's atmosphere, and basic plasma states and characteristics.

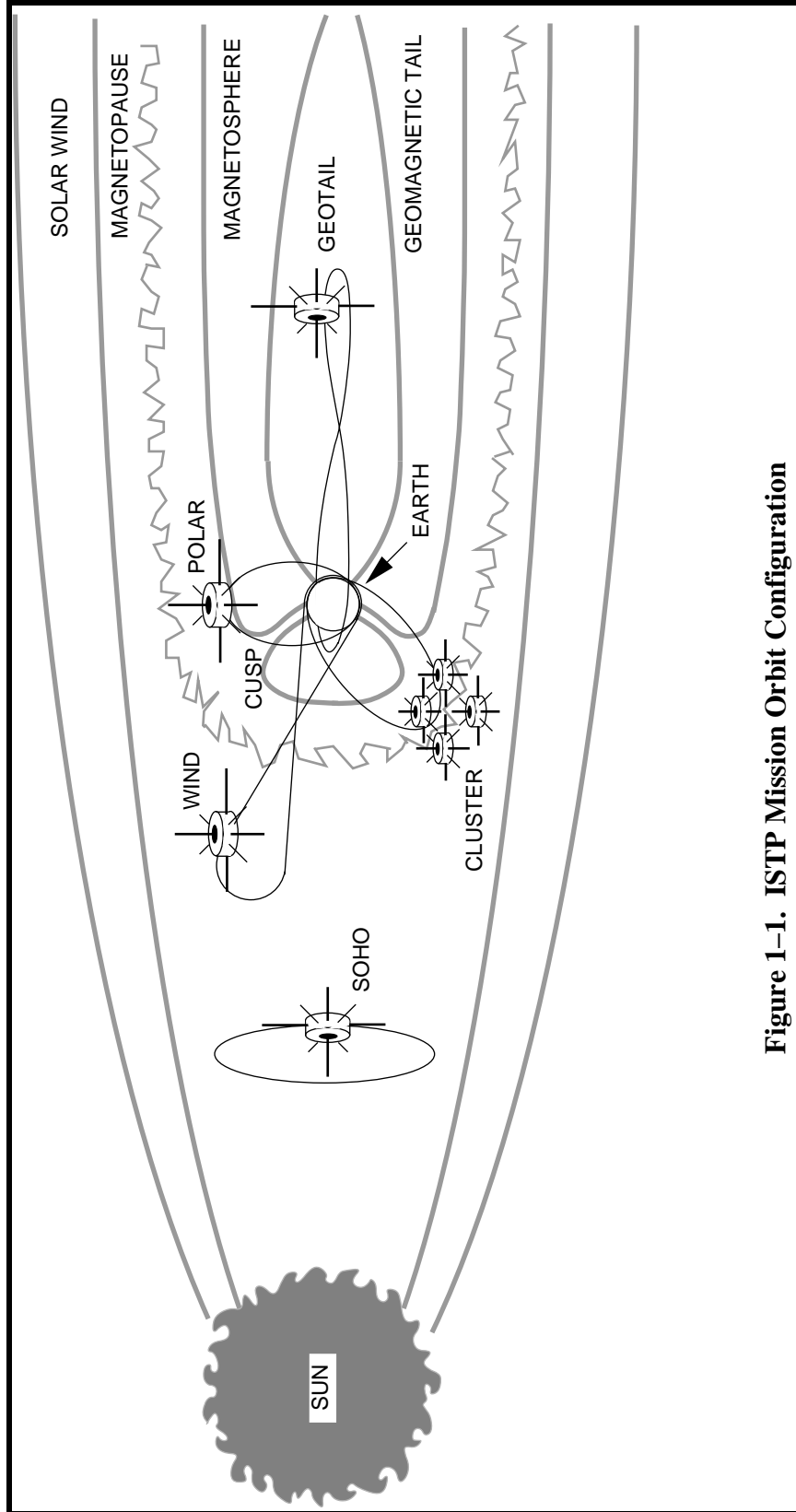


Figure 1-1. ISTP Mission Orbit Configuration



The ISTP ground-based observing programs provide ground-based radar observations coordinated with the spacecraft missions. The ground-based program provides the ISTP project with observational data unobtainable from the ISTP spacecraft missions. The ISTP TIs provide for the development and refinement of theoretical models for geospace and physical processes and for the comparison of theory with observational data.

## 1.4 Applicable Documents

This document is based on the results of prior analysis and design work completed for the ICSS. Figure 1–2 presents the documentation tree for the ISTP CDHF.

## 1.5 Document Organization

This document contains five sections. Section 1 presents the purpose and scope of the document and an overview of the ISTP Program. Section 2 provides an overview of the ISTP CDHF. Section 3 describes the UI to the ISTP CDHF and provides an overview of its use. Section 4 provides a detailed description of the use of each of the functions of the UI. Section 5 provides additional information on CDHF operations relevant to the science users of the CDHF.



When you see the symbol to the left of this line in the document, it indicates an important note. It is used to draw attention to special procedures, warnings, caveats, and other items of interest.

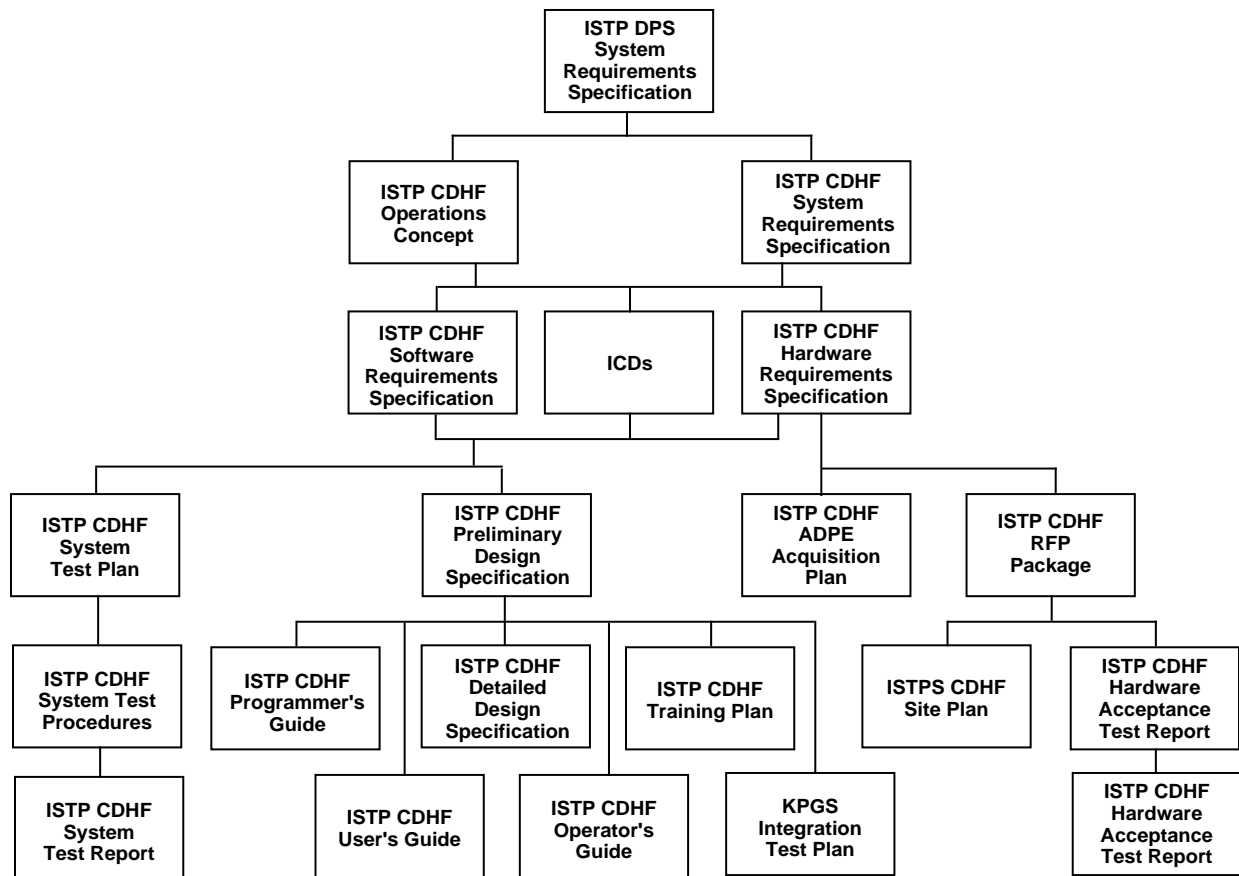


Figure 1–2. Documentation Tree for the ISTP CDHF



## SECTION 2—CDHF SYSTEM OVERVIEW

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### 2.1 Description of CDHF

The CDHF is an ISTP project-unique, multimission facility dedicated to processing scientific data. It provides for the centralized handling of instrument and related science data for the scientific community. The CDHF receives science telemetry and supporting data. These data are used to produce key parameters using principal investigator (PI)-supplied key parameter generation software (KPGS) and calibration data. These data are maintained online and are made available to users, on request, via electronic transfer.

To support the ISTP scientific community, the CDHF provides the following services and functions:

- Receive telemetry, orbit, and attitude data
- Receive and store supplementary data, such as command history data and calibration data
- Receive and store key parameters from GBIs, LANL, GOES, CLUSTER, Interball-Tail, SAMPEX, and IMP-8
- Generate key parameters
- Generate spin-phase data (GEOTAIL, WIND, POLAR) and despun platform attitude (POLAR)
- Store and manage science data for online retrieval
- Transfer science data to other facilities
- Perform data management and accounting
- Control and monitor system operations
- Provide interactive user services
- Provide interactive access to the CDHF catalog
- Provide electronic transfer of online data to ISTP investigators
- Receive, edit, decommutate, and distribute WIND and POLAR telemetry data in near-real time
- Generate key parameters in near-real time for specified instruments on WIND

The CDHF interacts closely with the Science Planning and Operations Facility (SPOF). The SPOF is physically located in Goddard Space Flight Center (GSFC) Building 2, but it shares some of the CDHF hardware resources via the network.

### 2.2 System Software Configuration

The operating system for the CDHF is the current version of VAX/VMS. The intent is that the system be upgraded as needed to be maintained at the current release of the VMS operating system over the life of ISTP mission support. Likewise, all other software products will be maintained at the most current release unless operational considerations dictate otherwise. Not all products are licensed for use on all CDHF computer systems. For a list of all software products, the current versions, and the systems they are licensed on, contact the Computer System Manager.

Communications software on the CDHF supporting access via NASA Science Internet (NSI) consists of Digital Equipment Corporation network (DECnet) software for communicating with NSI-DECnet nodes and Multinet Transmission Control Protocol/Internet Protocol (TCP/IP) for communicating with NSI-TCP/IP nodes.

The following products are available to support development activities:

- VAX FORTRAN compiler
- VAX C compiler
- VAX Language-Sensitive Editor
- VAX Source Code Analyzer
- VAX Performance and Coverage Analyzer
- VAX DEC Code Management System
- VAX DEC Module Management System
- VAX DEC Test Manager
- Common Data Format (CDF)
- International Mathematics and Statistics Library (IMSL)
- Numerical Algorithms (NAG) Libraries
- ORACLE database management system (DBMS) and ORACLE SQL\*Forms

### **2.3 External Interfaces**

The CDHF communicates with GSFC Code 510 facilities over the InfoLAN. The CDHF communicates with GSFC Code 550 facilities over the Mission Operations and Data Systems Directorate (MO&DSD) Operational Development Network (MODNET).

The ISTP CDHF communicates with facilities other than Codes 550 and 510 over the NSI or the GSFC Center Network Environment (CNE).

The CDHF provides dial-in access to support users without access to the NSI and to provide a backup in the event that network access to the CDHF is unavailable. Magnetic tape is used as a backup for all electronic interfaces with institutional facilities [i.e., Generic Data Capture Facility (GDCF), Data Distribution Facility (DDF), and Flight Dynamics Facility (FDF)].

Figure 2–1 provides a context diagram that identifies all external data sources and sinks interfacing with the ICSS and identifies the major data flows. The CDHF interfaces with the following external systems:

- GDCF
- Unisys
- DDF
- ISAS
- FDF
- Remote Data Analysis Facilities (RDAFs)
- National Space Science Data Center (NSSDC)
- Command Management System (CMS)
- SPOF
- Rutherford-Appleton Laboratory (RAL)
- NOAA
- SOHO Experimenters' Operations Facility (EOF)

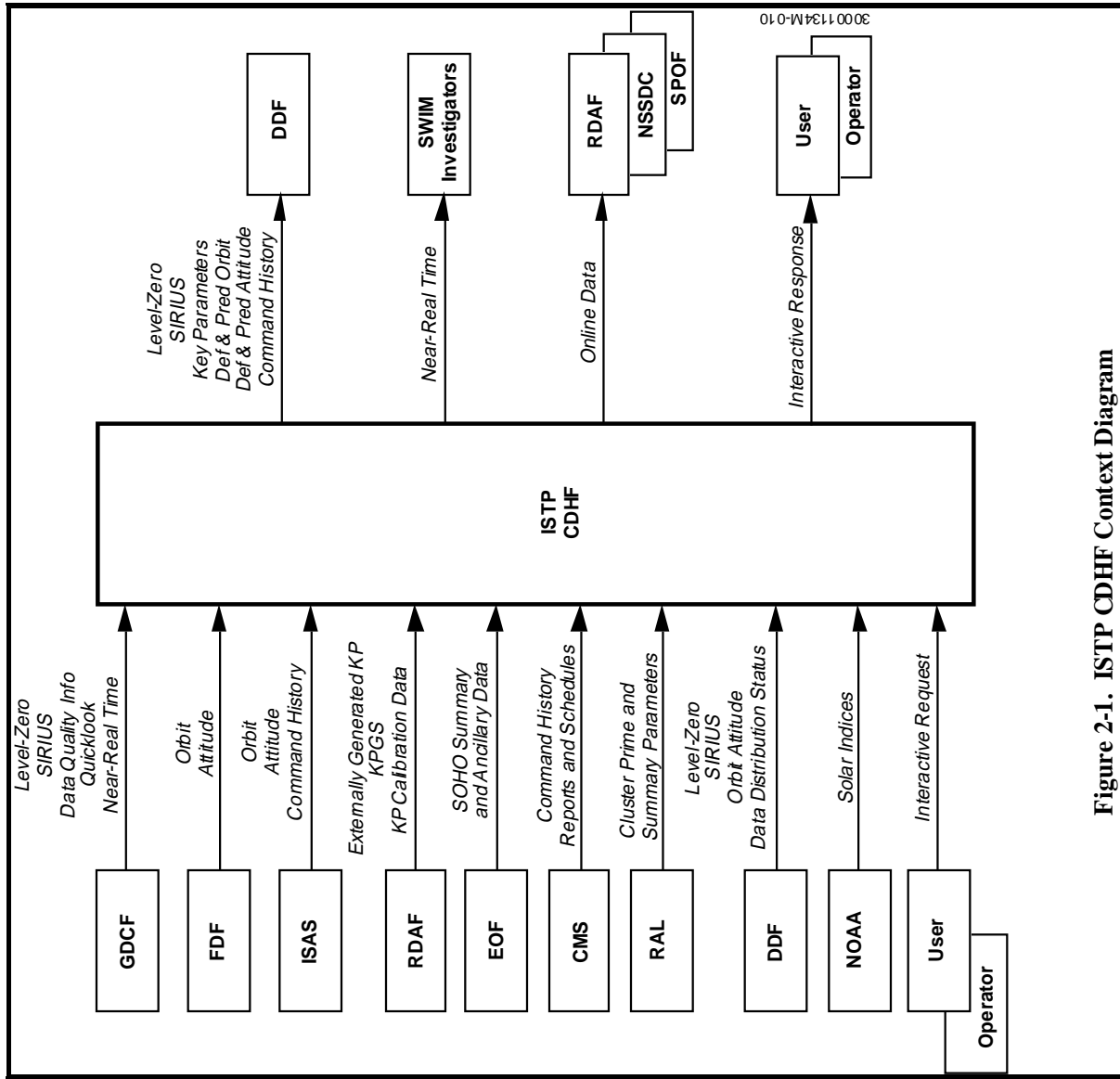


Figure 2-1. ISTP CDHF Context Diagram



## SECTION 3—CDHF SUPPORT OF ISTP USERS

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The ISTP CDHF is the central repository for ISTP data products and information about these data products. The CDHF provides online storage of instrument telemetry, spacecraft orbit and attitude, key parameter, command history, and other ISTP-related data. Authorized users of the CDHF may request transfer of ISTP data and query the CDHF database for information on the data products. This section provides an overview of the support services provided to the ISTP community by the CDHF.

### 3.1 Obtaining an Account on the CDHF

To obtain an account on the CDHF, connect to the ISTP CDHF system and then type **APPLY** at the username prompt. A request for an account will be generated and submitted to the Project for approval. Authorization may also be obtained by submitting a request form to the Project. Once the account has been approved, the CDHF/RDAF Coordinator will set up the account with the resident system manager for the ISTP CDHF. Approved users are assigned an account, a password, and a set of privileges and resource quotas.

To access the CDHF, log onto the local RDAF computer and then enter one of the following commands, depending on which network is used:

- DECnet over NSI

SET HOST ISTP ! Provided that ISTP is defined on your system

or

SET HOST 15461 ! If ISTP is not defined on your system

- TCP/IP Access over NSI

telnet istp1.gsfc.nasa.gov ! 128.183.92.58

In response to the prompts, enter your username and account password.



When logging into the system for the first time, you will be prompted to change your password. Passwords on the CDHF are a minimum of eight characters long. The user account will have been set up with a standard LOGIN.COM file. This command file is executed every time you log into the account. You should edit and customize this file with your preferences.

### 3.2 Obtaining Help

The CDHF has an extensive online help facility. Information on operating system features and commands can be obtained by using the HELP utility. To enter the HELP utility, type the **HELP** command at the DCL prompt. In addition, you may obtain site-specific information from the HELP utility by typing **HELP @SITE**.

For problems with user accounts (e.g., forgotten password), contact the CDHF System Manager. See **HELP @SITE PERSONNEL** for details.

For problems related to the User Interface, send mail to the PAC account on the CDHF.

### 3.3 Data Products

The ISTP CDHF both receives and generates data products for use by investigators. All science files are cataloged on the system with entries in the database. These files may be obtained by using the appropriate function from the UI. In addition to the science files, various report files and temporary files are directly available from specified directories. This section describes the data products available and the methods used to obtain them.

#### 3.3.1 Science Data Files

Information about ISTP science files is stored in the CDHF catalog. By using the UI, you can request files for transfer, query information about the files, or generate a report containing information from the catalog. Science data files are identified by logical file identifiers. Logical file identifiers are a concatenation of five fields that identify the mission, data type, data descriptor, date, and version of the data file or file group. Each of these fields is separated by an underscore character. Blank characters are not allowed in the file identifier. These fields make up the unique key that identifies the file in the CDHF catalog. The logical file identifier is constructed as shown below:

mission\_data type\_descriptor\_date\_version

The fields are defined as follows:

- mission—Identifies the mission or investigation.
- data type—Identifies the type of data.
- descriptor—Describes or further qualifies the source of the data.
- date—Identifies the starting date of the data in the file group given in the form YYYYMMDD. In multiple groups, this is the date of the start of the first file of the group.
- version—Identifies the version of the data (01–99).

In addition to the logical file identifier, each data file has a file extension associated with it that identifies the individual components of a multifile group.

A few specific examples follow:

#### **GE\_LZ\_QAF\_19920912\_V01.SFDU**

GE	=	GEOTAIL mission
LZ	=	Level-zero data type
QAF	=	Quality file
19920912	=	Data starting on September 12, 1992
V01	=	Version 1 of this file
SFDU	=	Indicates standard formatted data unit (SFDU) file



### **WI\_CH\_NUL\_19930115\_V01.DAT**

WI = WIND mission  
CH = Command history data  
NUL = Field not applicable  
19930115 = Data starting on January 15, 1993  
V01 = Version 1 of this file  
DAT = Indicates generic data type file

### **GE\_SD\_NUL\_19920912\_V01.S01**

GE = GEOTAIL mission  
SD = Scientific Information Retrieval Integrated Utilization System (SIRIUS) data type  
NUL = Descriptor for SIRIUS data is not applicable  
19920912 = Data starting on September 12, 1992  
V01 = Version 1 of this file  
S01 = Indicates segment 1 of the SIRIUS data file group

### **GE\_SD\_NUL\_19920912\_V01.SFDU**

**GE\_SD\_NUL\_19920912\_V01.S01**

**GE\_SD\_NUL\_19920912\_V01.S02**

**GE\_SD\_NUL\_19920912\_V01.S03**

**GE\_SD\_NUL\_19920912\_V01.S04**

The above group of files constitutes a multifile group of SIRIUS data files. Note that the logical file identifier is the same for each file in the group. The group consists of a single SFDU file and four data files.

The valid values for each of the fields of the logical file identifier are described in the following list:

#### **Mission:**

C1 = CLUSTER spacecraft #1  
C2 = CLUSTER spacecraft #2  
C3 = CLUSTER spacecraft #3  
C4 = CLUSTER spacecraft #4  
CL = CLUSTER mission  
CN = CANOPUS  
DN = DARN

G6	=	GOES_6
G7	=	GOES_7
G8	=	GOES_8
G9	=	GOES_9
GE	=	GEOTAIL
I8	=	IMP-8
IG	=	Interball-Ground
IT	=	Interball-Tail
L0	=	LANL 1990_095
L1	=	LANL 1991_080
L9	=	LANL 1989_046
PO	=	POLAR
SO	=	SOHO
SE	=	SESAME
SL	=	Solar-Terrestrial Environment Laboratory, Nagoya University
SN	=	Sondrestromfjord
SX	=	Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX)
XX	=	All missions
WI	=	WIND

**Data Type:**

AN	=	Ancillary data
AR	=	As-Run Plan
AT	=	Attitude
CD	=	Calibration data
CH	=	Command history
K0-K9	=	Key parameters (maximum of 10 files per instrument)

LZ	= Level-zero
OR	= Orbit
PA	= Platform attitude
QL	= Quick look
SD	= SIRIUS data
SU	= Summary data
WA	= Working attitude
WO	= Working orbit

**Descriptor:**

DEF	= Definitive data
LNG	= Long-term predicted
NUL	= Indicates this field does not apply
PRE	= Predicted data

**CANOPUS**

ASI	= All Sky Imager
BARS	= Bistatic Auroral Radar System
MARI	= Magnetometer and Riometer Array (MARIA)
MPA	= Meridian Photometer Array

**CLUSTER**

ASP	= Active Spacecraft Potential Control (ASPOC)
AUX	= Auxillary
CIS	= Cluster Ion Spectrometry Experiment
DWP	= Digital Wave Processing Experiment
EDI	= Electron Drift Instrument
EFW	= Electric Field and Wave Experiment
FGM	= Magnetic Field Investigation
PEA	= Plasma Electron and Current Experiment (PEACE)

RAP	= Imaging Energetic Particle Spectrometer (RAPID)
STA	= Spatio-Temporal Analysis of Field Fluctuations (STAFF)
WHI	= Sounder and High-Frequency Wave Analyzer Experiment (WHISPER)
DARN	
AARC	= Halley/Syowa/Sanae
ALPA	= Alaska/Prince Albert
BARS	= BARS VHF Radar
CTLS	= Iceland/Finland (Cutlass)
GBAY	= Goose Bay HF Radar
GBST	= Goose Bay/Stokkseyri
HANK	= Hankasalmi (Cutlass/Finland) Radar
ICEW	= Iceland West Radar
KAPU	= Kapuskasing
PYK	= Pykkvyaer (Cutlass/Iceland) Radar
SABR	= SABRE VHF Radar
SAKA	= Saskatoon/Kapuskasing
SASK	= Saskatoon
SHAR	= SHARE (Sanae Station) Radar
SYOW	= Syowa Stations Radar
GEOTAIL	
CPI	= Comprehensive Plasma Composition
EFD	= Electric Field
EPI	= Energetic Particles and Ion Composition
HEP	= High-Energy Particles
LEP	= Low-Energy Particles
MGF	= Magnetic Field

PWI	=	Plasma Wave Instrument
QAF	=	Quality File
SCR	=	Spacecraft Housekeeping
SPHA	=	Spin Phase
GOES		
EP8	=	Low Energy Particle and Electrons (different energies from EPS)
EPS	=	Low Energy Particle and Electrons
MAG	=	Magnetometer
IMP-8		
MAG	=	Magnetic Field Investigation
MCE	=	Multi-Coordinate Ephemeris
PLA	=	Plasma Investigation
Interball-Ground		
PCI	=	PC Geomagnetic Index
Interball-Tail		
DEF	=	Definitive Data
ELE	=	Thermal Electron Experiment
EPI	=	Energetic Particle Experiment
ICD	=	Ion Composition
MFI	=	Magnetic Fields Instrument
LANL		
MPA	=	Magnetospheric Plasma Analyzer
SPA	=	Synchronous Orbit Particle Analyzer
POLAR		
CAM	=	Charge and Mass Magnetospheric Ion Composition Experiment

CEP	=	Comprehensive Energetic Particle Pitch Angle Distribution
EFI	=	Electric Fields Investigation
HYD	=	Fast Plasma Analyzer
MFE	=	Magnetic Fields Experiment
PDC	=	VIS Pixel Distortion Correction File
PIX	=	Polar Ionospheric X-ray Imaging Experiment
PWI	=	Plasma Wave Instrument
QAF	=	Quality File
SCR	=	Spacecraft Housekeeping
SEPS	=	Source/Loss-Cone Energetic Particle Spectrometer
SPHA	=	Spin Phase
TID	=	Thermal Ion Dynamics Experiment
TIM	=	Toroidal Imaging Mass-Angle Spectrograph
UVI	=	Ultraviolet Imager
VIS	=	Visible Imaging System
VLТ	=	VIS Lookup Table
SAMPEX		
30F	=	30-Second Fluxes
POF	=	Polar Cap Fluxes
SESAME		
AIS	=	Advanced Ionospheric Sounder
FPI	=	Fabry-Perot Interferometer
MAG	=	Fluxgate Magnetometer
RIO	=	Riometer
VLF	=	VLF/ELF Logger Experiment (VELOX)

## SL

210 = 210 Magnetic Network

## SOHO

FTR = Full-time resolution attitude data

G001 = SVM HK1 packets

G002 = SVM HK2 packets

G003 = SVM HK3 packets

G004 = SVM HK4 packets

G005 = AOCS HK1 packets

G006 = AOCS HK2 packets

G007 = ATTITUDE 1 packets

G008 = ATTITUDE 2 packets

G009 = S/W packets

G010 = OBT packets

G011 = Experiment HK packets

G012 = CDS HK packets

G013 = CELIAS HK packets

G014 = CEPAC HK packets

G015 = EIT/LASCO HK1 packets

G016 = EIT/LASCO HK2 packets

G017 = EIT/LASCO HK3 packets

G018 = GOLF HK packets

G020 = Reserved EGSE packets

G022 = SUMER HK packets

G023 = SWAN HK packets

G024 = UVCS HK packets

G025 = VIRGO HK packets

G026	=	CDS SCIENCE LR packets
G027	=	CDS SCIENCE MR packets
G028	=	CDS SCIENCE HR packets
G029	=	CELIAS SCIENCE packets
G030	=	CEPAC SCIENCE packets
G031	=	EIT/LASCO SCIENCE LR packets
G032	=	EIT/LASCO SCIENCE HR packets
G033	=	GOLF SCIENCE packets
G034	=	MDI SCIENCE packets
G035	=	SUMER SCIENCE LR packets
G036	=	SUMER SCIENCE HR packets
G037	=	SWAN SCIENCE packets
G038	=	UVCS SCIENCE packets
G039	=	VIRGO SCIENCE packets
G041	=	MDI HK packets
CDS	=	Coronal Diagnostic Spectrometer
CEP	=	COSTEP-ERNE Particle Analysis Collaboration (CEPAC)
CEL	=	Charge, Element, and Isotope Analysis System
CST	=	Comprehensive Suprathermal and Energetic Particle analyzer
EIT	=	Extreme-Ultraviolet Imaging Telescope
ERN	=	Energetic and Relativistic Nuclei and Electron experiment
GOL	=	Global Oscillations at Low Frequencies
LAS	=	Large-Angle Spectrometric Coronagraph (LASCO)
MDI	=	Michelson Doppler Imager
SDR	=	SOHO Daily Report
SUM	=	Solar Ultraviolet Measurements of Emitted Radiation (SUMER)



SWA	=	Solar Wind Anisotropies
TCF	=	Time Correlation File
UVC	=	Ultraviolet Coronal Spectrometer
VIR	=	Variability of Solar Irradiance Gravity Oscillations (VIRGO)
Sondrestromfjord		
GISR	=	Greenland Incoherent Scatter Radar
WIND		
3DP	=	3-D Plasma Analyzer
EPA	=	Energetic Particle Acceleration Composition Transport
KON	=	Konus
MFI	=	Magnetic Fields Investigation
QAF	=	Quality File
SCR	=	Spacecraft Housekeeping
SMS	=	Solar/Wind Suprathermal Ion Composition Studies
SPHA	=	Spin Phase
SWE	=	Solar Wind Experiment
TGR	=	Transient Gamma-Ray Spectrometer
WAV	=	Radio/Plasma Wave
WIFP	=	WIND Fields and Particle Parameters

**Date:**

YYYYMMDD

YYYY = 4-digit year

MM = month (01–12)

DD = day of month (01–31)

**Version:**

Vnn = version of file (01–99)

In general, a data file may have any extension. However, an SFDU file must always have the SFDU extension. A CDF file should always have a CDF extension. SIRIUS data files and other file groups consisting of multiple segments must use the Sxx extension. It is recommended that in the absence of a meaningful extension for a data file that the extension DAT be used.

The values for the file extension field for data files that are cataloged are shown below:

SFDU = SFDU file

DAT = Generic data file

Sxx = Data file segment xx (01–99)

CDF = CDF file

### **3.3.2 Report Files**

The CDHF receives and generates a number of report files that are temporarily stored on the system for access by investigators. This section describes the reports files and their locations.

#### **3.3.2.1 WIND and POLAR CMS Reports**

The GGS CMS will place report files into directories on the CDHF for access by investigators. These files will be placed into directories called CMS\_WIND and CMS\_POLAR. The files will consist of the following:

Clock Delta Report	Contains the measured differences between the spacecraft clock's time and standard time. [produced by the Payload Operations Control Center (POCC)]
Combined Request List Report	Integrated list of spacecraft and instrument requests. (produced by CMS)
Daily Operations Schedule	Contains information such as confirmed station contact intervals, stored commands to be executed with the contact intervals, scheduled orbital adjustment commands, and orbital events. Scheduled loads and the corresponding uplink windows for each load are summarized. (produced by CMS)
Integrated Print	Time-ordered list of all stored commands that will be executed during the operational day. Orbital events and DSN contacts are included. (produced by CMS)

Old files will be deleted periodically from these directories.

#### **3.3.2.2 SPOF Science Plans**

The SPOF will place the long-term and biweekly science plans into directories on the CDHF for access by investigators. These files will be located in subdirectories of a directory called SPOF\_DIR. Old files will be deleted periodically from these directories.

### **3.3.3 Online Documentation**

Electronic versions of a number of documents are available through the ISTP World Wide Web page located at <http://www-istp.gsfc.nasa.gov/>.

### 3.3.4 Data Rights and Computer Security

The CDHF has a responsibility to protect the data rights of the data files it manages. To this end, certain restrictions are placed on the access to data files managed by the CDHF. The access rights to data files for each CDHF user are defined in the interface control document (ICD) governing the mission and instrument with which each user is associated. These access rights are enforced through the UI. Access to any CDHF-managed data product is through the UI. Users are not permitted direct access or network access to these data files. Users request data products through the UI. These requests are validated and, if authorized, the requested data products are transferred to the specified location. Once data files have been transferred to the user-specified location, they are no longer under the control of the CDHF, and the CDHF will no longer be capable of enforcing access restrictions on those files. You should be familiar with the file protection mechanisms on the computer system to which the data products are transferred and should set the file protections on the ISTP data files appropriately.

Your account on the CDHF is only as secure as the account password. Never give the password out, write it down, or store it in a file on any computer system. Upon logging in, check for messages indicating any failed logins to your account since the last time you logged in. If you suspect that your account has been used by an unauthorized person, report this to the CDHF system manager immediately.

## 3.4 User Interface Overview

The UI to the CDHF is implemented using ORACLE forms. This section provides an overview of the interface and the methods of navigating through the menus and invoking interface functions.

### 3.4.1 Invoking the User Interface

Invoke the UI by entering the CDHF\_UI command from the system prompt, as follows:

```
$ CDHF_UI
```

The CDHF UI supports a novice/expert mode. By default, users are in novice mode. Novice mode prompts you through the steps necessary to properly set up and configure a session for the UI (see Section 3.5.1.1.) If you are familiar with the UI, place the following command in the LOGIN.COM file:

```
$ DEFINE CDHF_USER_LEVEL "EXPERT"
```

With the CDHF user level set to expert, the CDHF UI main menu (Figure 3–1) is displayed. If the user level has not been specified or has been set to novice, a procedure to assist in setting up the terminal is invoked. Following this procedure, you will be asked whether you want to invoke the UI now. If you answer **YES**, the system displays the CDHF UI main menu; otherwise, the procedure exits to the system-command level.



When using the KPGS development environment on the CDHF, exit that environment in order to use the UI. The KPGS development environment establishes directory path links that will interfere with the operation of the UI. In addition, you may have defined logical names to support KPGS development that are incompatible with the UI. To ensure that there are no conflicts, either log off the CDHF and then back in again or establish a second connection to the CDHF specifically for the UI.

The UI main menu is a form that displays additional menu items for the UI function. You may use the cursor keys to highlight the item and then press [**RETURN**] to select that item. These

menu items are discussed in detail in Section 4. Below is an overview of the use of ORACLE forms.

### 3.5 How To Use SQL\*Forms

The forms are a user representation of the CDHF database allowing users to enter, query, update, and delete the information contained in it. Although there are some special behaviors in the forms, as described in Section 4, all the forms operate in the same general manner. This section describes the screen objects, functions, modes, and general operation that are common to all forms.

In order to use SQL\*Forms, you must verify that the requirements outlined in this section have been fulfilled.

#### 3.5.1 Setup Requirements

The setup requirements are as follows:

1. You must have a VAX account *and* a corresponding ORACLE account on the ISTEP VAXcluster. Contact the Data Processing Specialist (DPS) personnel if these accounts have not been created for you. In general, there is no separate password for an ORACLE account. An ORACLE account is directly related to a single VAX account.

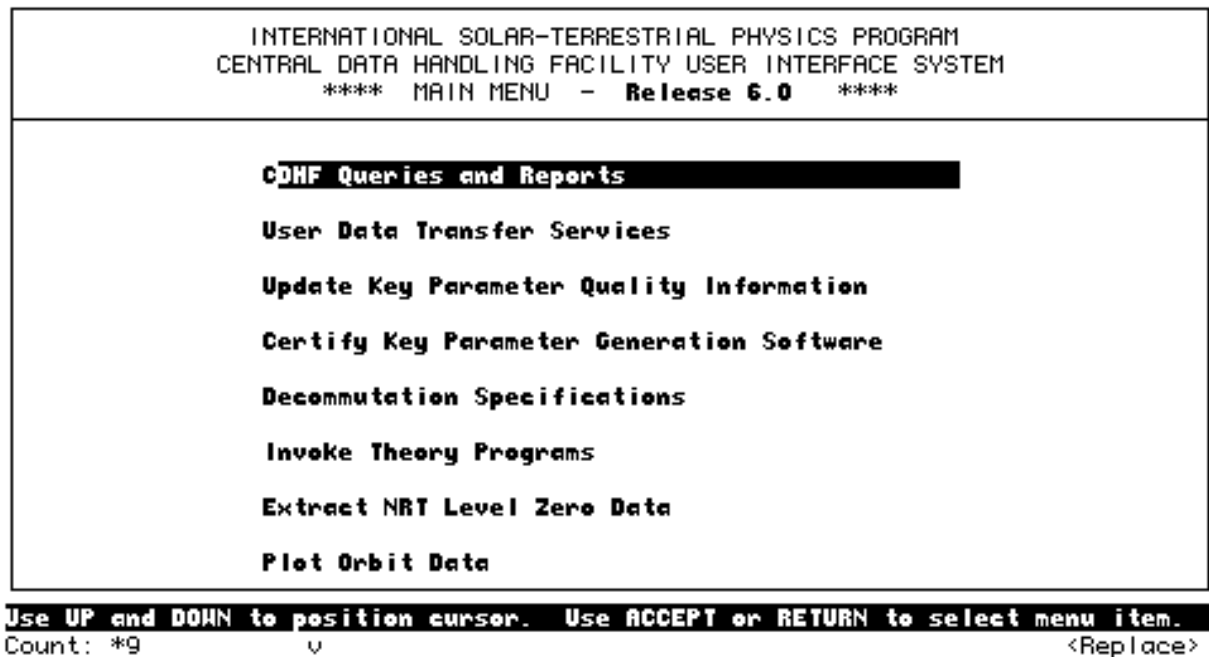


Figure 3-1. CDHF User Interface Main Menu

2. You must log into the ISTEP VAXcluster (ISTP1) to use the SQL\*Forms.
3. You must be in the operational environment. The operational environment is the default environment when you log into the ISTEP VAXcluster, but commands in your personal LOGIN.COM file can override the default. For example, if you are testing a program in the key parameter test environment, you may need to log in again without the command

to point to the key parameter test environment. One way to verify your environment is to enter the following command:

```
$ SHOW LOGICAL ORA_SID
```

If the value returned is “OP”, then you are pointing to the operational environment.



Note: Unlike the KP environment, you do not need to execute a SET\_DB... command file in the operational environment.

### 3.5.1.1 Terminal Support

SQL\*Forms will support any DEC terminal or DEC terminal emulator. The VT220 keypad for the CDHF menus and forms will support any terminal or emulator with a designation of VT220 or higher, including VT240, VT320, VT1200, and DECTerm. The VT100 keypad will support any VT100 terminal and most VT100 emulators for UNIX.

Some VT100 emulators, especially the ones for IBM personal computers (PCs), do not have full VT100 functionality. These emulators can be identified by their lack of function key mappings for the VT100 numeric keypad. The VT100 emulator keypad for the CDHF menus and forms supports these partial emulators by using control keys and escape keys.

If you are using a Sun Workstation, you should obtain the VTTOOL terminal simulation package. You can obtain it from the CDHF in directory SYSS\$PUBLIC:[VTTOOL].

The keypad maps for the VT220, VT100, and VT100 emulator are in Appendix A. For all three keypad mappings, you can display the mappings for your particular type of terminal when you are using SQL\*Forms by pressing [CONTROL] and **K** simultaneously (press Down to view any additional keys and press [RETURN] to return to your form).

If you are using a terminal or emulator with full VT220 or VT100 functionality, the correct keypad will automatically be incorporated when you access the SQL\*Forms.



If you are using a VT100 emulator with partial functionality, you need to add the following command to your LOGIN.COM before the **DBI\_MM** command (see Section 4.1.1.2):

```
$ DBI_TERM_TYPE := "CDHF100E"
```

#### Terminal Support Notes and Recommendations:

1. If you are using an IBM PC or PC clone and do not have a virtual terminal (VT) emulator, a VT220 emulator is recommended. Cross Talk Communicator can be purchased for less than \$100 with a VT220 emulator.
2. Kermit is a public domain package with a VT100 emulator that works well with the VT100 emulator keypad. VTTOOL is another public domain package for the UNIX environment that works well with the regular VT100 keypad.
3. Procomm is not recommended for use with IBM PCs and PC clones because of the known bugs in its DEC emulators. In particular, some versions do not echo the last character in a field, but the character is actually there. If you have Procomm already, you can use it as long as its limitations are accepted.
4. Some emulators allow the user to define icons for the function keys. This feature is particularly useful if you have a mouse. The VTTOOL package and the emulator included with Microsoft Windows 3.0 support mouse-driven keypad icons.
5. Some emulators do not respond to the DCL terminal width commands. Consequently, when you execute a 132-column report interactively, the terminal width may remain

80 columns wide when you display the report to the screen. If your emulator has this problem, the batch report mode is recommended.

6. For all keypad mappings, escape key sequences require the ESC key to be activated first followed by the other key in the sequence. Likewise, gold key sequences require the PF1 key to be activated first followed by the other key in the sequence. For control key sequences, however, both the control key and the other key in the sequence must be activated at the same time.
7. If you do not have a VT emulator, you may be able to operate the forms using the VT100 emulator keypad (if the DBI\_TERM\_TYPE symbol is setup as described above), but the degree of functional compatibility varies among terminal types. For example, XTERM windows available on UNIX systems are fairly functional with the VT100 emulator keypad.
8. Contact the database administrator (DBA) if you are unable to operate the forms with your VT terminal or emulator. The DBA can also provide information on how to obtain public domain emulators.

### 3.5.2 How To Use a Menu

There are four basic functions for working with menus. The Up and Down keys will move the cursor among the menu items. The Return or Accept key will invoke the menu item on which the cursor is positioned. The Exit key will cause the cursor to exit the current menu.

Within a menu, more menu items may be available than are displayed at one time. In such cases, a message will appear upon entry into the menu. Use the Down key several times to access the hidden menu items. When the Down key is used on the last menu item or the Up key is used on the first menu item, the cursor will automatically cycle around to the first or last menu item, respectively. Under the main menu, there are up to two levels of submenus. When exiting a submenu, the previous (parent) menu is displayed.

### 3.5.3 Form Objects

To understand the purpose of the functions, it is necessary to understand the components of a form. Figure 3-2 contains a graphical representation of these components.

#### 3.5.3.1 Pages, Blocks, Records, and Fields

Each form must have at least one page, one block, one record, and one field. A page is one entire screen of information, the most information that can be viewed at one time. Currently, all forms have just one page except for the Science Data File Information Form and the Data Transfer Services Forms. A block is a group of related data items (fields), often from one database table. **When a page is composed of multiple blocks, there is always a line separating them.** Typically, a page will contain multiple blocks either because a query criteria must be entered in the upper block or because there are multiple entries in the lower block for each entry in the upper block (known as parent-child or master-detail blocks). A record is one unique entry (row) for the set of fields composing a block. Each distinct data item (column) in a block is a field.

In many blocks, only one record can be viewed at a time. Except for query criteria blocks, one-record blocks have the same behavior as blocks with multiple records displayed at once because they both can buffer the nondisplayed records until the user requires them. Query criteria blocks contain a single record with a small set of fields that must be specified to retrieve records for a lower block or a report.

Field →

DATA FILE

Block #1

Block #2

Page

Record

Record

OFF

Mission Name	Data Type	Descriptor	Start Date	End Date
■	■	■	31-OCT-1993 00:00:00	31-DEC-1993 00:00:00

Mission Name    Data Type    Descriptor    Start Date    End Date

File Date    ■    ■    ■    ■

Logical Identifier    ■    ■    ■    ■

Physical File Name    ■    ■    ■    ■

Start Date    ■    ■    ■    ■

Reference File(s)    ■    ■    ■    ■

SF3 - View Reference File(s) (List)  
SF4 - View Reference File(s) (Detail)

SF1 - View Page 2    SF2 - View Retransmit Dates

Enter a valid mission short name. List of values available.  
Count: #0

Message Line  
Status Line

<List><Detail>

Figure 3-2. SQL\*Forms Objects

### 3.5.3.2 Pop-Up Windows

Several forms have special function keys that will invoke pop-up windows on top of the main screen for a form. Like a page, a pop-up window can have blocks, records, and fields. Typically, they only have one block. The information in a pop-up always relates to the information currently displayed in the main screen. In some cases, information can be copied back to the main screen from the pop-up window. In other cases, the pop-up is just a detail block that could not fit on the main screen with the master block.

### 3.5.3.3 Message Line

The message line is the inverse-video line at the bottom of the page. It displays field-level help messages, informational messages, warning messages, and error messages. Whenever the cursor is moved to a new field, a field-level help message is automatically displayed for user assistance (within the 80-character limit). The field-level help message may include the purpose, possible values, format, and available functions for a field. Warning and error messages are accompanied with a terminal bell. Error messages may be caused by user error or a data inconsistency. Informational messages are usually non-field-level user assistance messages.

The message line “Transactions Complete -- {X} Records Posted and Committed” does not always reflect the actual record count, but may indicate the number of fields updated or entered.

### 3.5.3.4 Status Line

The status line is immediately below the message line. It provides additional information about the record count for a block, the form mode, the character mode, list of values, and the cursor position relative to the records in the block and the characters in a field. The following symbols may appear, from left to right, in the status line:

Count	Indicates the number of records retrieved so far by a query. As the cursor moves down through the records, the count will increment until the last record is reached.
*	Indicates that the record count for a query is final after all the records have been retrieved.
<	Indicates that the beginning of the current field is scrolled off the left side of the screen. Occurs when a field's actual length is larger than its displayed length.
>	Indicates that the end of the current field is scrolled off the right side of the screen. Occurs when a field's actual length is larger than its displayed length. To display the entire field in a pop-up window, use the Edit key.
^	Indicates that there are records before the current record in the block.
∨	Indicates that there are records after the current record in the block.
ENTER QUERY	Indicates that the form is in enter query mode. Either enter a query criteria, if any, and invoke Execute Query, or cancel the mode by invoking Exit.



<List>	Indicates that there is a list of values for the current field. (Note: For logical identifiers, only the message line will indicate that a list of values exists.)
<Insert>	Indicates that new characters will be inserted between any pre-existing characters. No characters are inserted if the field is full.
<Replace>	Indicates that new characters will replace any pre-existing characters. This default character mode should be used at all times unless characters are being added between existing characters.

### 3.5.3.5 Alerts

SQL\*Forms will automatically issue alerts if you have not committed database changes, or if back-to-back messages or very important messages occur. The first type of alert is in the form of a pop-up window that prompts you to respond Yes, No, or Cancel. Either position the cursor on your response using the Left or Right functions and press **[RETURN]**, or type a **Y**, **N**, or **C** to respond accordingly. The other type of alert occurs when you must acknowledge a message.



If you receive an OK prompt on the status line, press **[RETURN]** to continue after acknowledging the message.

### 3.5.4 Function Keys

To operate SQL\*Forms, various functions are predefined to move the cursor, execute queries, modify data, and save changes. If you are a novice user, the number of functions available may be overwhelming initially, but you only need to learn a fraction of these functions to use the forms. To invoke the functions, either use the function keys as mapped to your terminal, or use pull-down menus, which only require a couple of function keys.

Because SQL\*Forms supports several terminal types, a function may be mapped differently for each terminal. In addition, emulators tend to map the VT keys differently.



Be sure to review the terminal support information in Section 3.5.1.1 before attempting to use the forms. Throughout this users guide and the online help messages, the SQL\*Forms function names are referenced, not the keys to which the functions are mapped. Press **[CONTROL]** and **K** to determine the associated VT keys for the SQL\*Forms functions. The function key mappings for the supported terminal types are also in Appendix A.

If you are using an emulator, you will also need to refer to the keypad mapping instructions for the emulator. For example, the Accept function is mapped to the Do key (F16) for a VT220 terminal, but your VT220 emulator may map the Do key to Shift F6. Emulators usually support escape and control keys exactly the same as a real VT terminal.

#### 3.5.4.1 Function Keys Versus Pull-Down Menus

If you are a novice user, the pull-down menus are recommended for invoking SQL\*Forms functions. The functions are categorized, and you only need to memorize a couple of keys. When you are comfortable with the functions, you may want to start using the function keys. If you are an experienced user, the function keys tend to allow quicker operation of a form because fewer key strokes are required. There are a few advanced SQL\*Forms functions that are not available as both pull-down menu items and function keys, but these functions are rarely used.

Because SQL\*Forms is currently set up to support character-mode terminals, you cannot use your mouse directly on the pull-down menus. Instead, you must invoke the Menu function, which will place your cursor on the first pull-down menu item. If you press **[RETURN]**, the

functions for the first pull-down menu item will be displayed. Using the Right function, you will be able to view the functions for the other pull-down menu items. To invoke a function under the current pull-down menu item, you can either type the capital letter that appears in the function name, or you can use the Up and Down functions to position the cursor on the function and press [RETURN] to invoke it. When you invoke a function, the pull-down menus will disappear and the function will execute. To invoke another function, invoke the Menu function again. To exit the pull-down menus without invoking a function, use the Exit/Cancel function. In summary, to use the pull-down menus, you only need to learn the keys for six functions: Menu, Left, Right, Up, Down, and Exit.

#### 3.5.4.2 Special Function Keys

In many of the forms, there are up to four special function keys identified on the screen text as SF1, SF2, SF3, and SF4. The purpose of these nonstandard SQL\*Forms functions is different for each form, as documented on the screen text and in Section 4. The most common purpose is to display pop-up windows with information related to the main screen. **The special function keys cannot be invoked from the pull-down menus.** In all three of the CDHF keypad mappings for SQL\*Forms, there are keypad mappings for SF1 through SF4. The online keypad help can be used to display the mapping for your terminal/emulator type.

#### 3.5.4.3 Disabled Keys

Depending on the form and your user privilege, several functions are often disabled at the field, block, or form level. For example, if you do not have insert privilege in a form, functions such as Commit, Insert Record, and Down after the last record may be disabled. In addition, some or all fields in a form may not be updateable. The set of field values that distinguish a particular record (primary key fields) is never updateable. In forms with restricted queries, the Enter Query and Execute Query functions are usually disabled. If you find a disabled function that you believe should not be disabled, contact the DBA for a resolution.

#### 3.5.4.4 Function Key Definitions

The standard SQL\*Forms functions are categorized and defined in this section. Unless noted otherwise, all functions are included in the three keypad mappings available to SQL\*Forms users. Most functions are also available in the pull-down menus.

##### 3.5.4.4.1 Navigation Functions

Exit/Cancel	Used to exit the current menu, form, or pop-up window. In edit pop-up windows, any edit changes are undone by the function. In pop-up windows for selection purposes, such as list of values, the pop-up window will disappear without returning a selection if Exit is invoked.
Left	Moves the cursor one character to the left within a field.
Right	Moves the cursor one character to the right within a field.
Next Field	Moves the cursor to the next enterable field in the block. For most keypad mappings, the Return key and Tab key can be used interchangeable for this purpose. In special cases, such as list of values and print pop-up windows, the tab key will move the cursor to a different field while the Return key is used to accept an entry.
Previous Field	Moves the cursor to the previous enterable field in the block.
Next Block	Moves the cursor to the first enterable field in the next block. Used to access a set of fields separated by a horizontal line.

Previous Block	Moves the cursor to the first enterable field in the previous block.
Up	Moves the cursor to the same field in the previous record within the current block, if any.
Down	Moves the cursor to the same field in the next record within the current block, if any.
Scroll Up	Displays the previous set of records for a block, if any. Recommended for blocks with multiple records displayed simultaneously.
Scroll Down	Displays the next set of records for a block, if any. Recommended for blocks with multiple records displayed simultaneously.
Previous Record	Virtually interchangeable with the Up function. This function is only available in the pull-down menus.
Next Record	Virtually interchangeable with the Down function. This function is only available in the pull-down menus.
Next Set of Records	Virtually interchangeable with the Scroll Down function. This function is only available in the pull-down menus.

#### **3.5.4.4.2 User Assistance Functions**

Display Error	Displays more detailed information, if any, for the last error that occurred. It is primarily used to obtain more information about errors issued from the ORACLE database management system as oppose to routine errors issued by SQL*Forms.
Help	Displays the brief field-level help message. If it is invoked twice, advanced field help information is displayed. The brief field-level help message is usually displayed automatically upon entry into a field.
List	Activates a list of values pop-up window, if there is one available for the current field. Use the Return key to accept the current value back into the original field. Use the Exit function to return to the original field without a value. Use the Next Field (Tab) function to enter a search criterion.
Menu	Activates the pull-down menu items, allowing an alternative method to invoke the SQL*Forms functions.
Print	Writes the current screen contents or keypad mapping to a file. Options are available to name the file, print the file, or to choose the keypad mapping instead of the current screen. Use the Next Field (Tab) function to specify the options.
Refresh	Redraws the current screen. Can be used if broadcast messages or modem characters disrupt the screen display.
Show Keys	Displays the function key assignments for the CDHF keypad currently activated. Use the Down function to review all of the assignments, and use Return to exit the show keys window.

#### **3.5.4.4.3 Query Processing Functions**

Enter Query	Clears the current block and activates the enter query mode to accept query criteria. If invoked twice, the query criteria from the previous query is displayed.
-------------	--

Execute Query	Clears the current block and retrieves all the records that match the query criteria, if any criteria was specified by invoking Enter Query. If the Enter Query was used prior to Execute Query and no records were retrieved, the form will remain in enter query mode. Otherwise, the form will return to normal (update) mode.
Exit/Cancel	Cancels enter query mode. Use if you do not want to specify any query criteria.
Next Block	Use to execute a query with the values entered in a query criteria block. Query criteria blocks are only applicable for restricted queries.
Count Query Hits	Clears the current block and displays the number of records that the query would retrieve on the message line. This function is not recommended because it has little practical use. The execution time is the same as it is for Execute Query. This function is only available in the pull-down menus.

#### **3.5.4.4 Database Modification Functions**

Accept/Commit	Saves in the database all changes made since the last commit. Accept is also used to activate selections such as menu items, reports, and list of value entries.
Insert Record	Inserts a new blank record below the current record to allow completion of a new entry. A new entry is not permanent until it is committed to the database.
Delete Record	Deletes the current record if it has been previously saved in the database. The deletion is not permanent until you commit your changes to the database. Use the Clear Record function if the record has never been saved in the database. Delete Record can be used to clear a blank record between two nonblank records.
Clear Field	Clears the value in the current field. Use to deassign (nullify) a value or to correct a bad entry. If the applicable record has been previously saved in the database, the change will not be permanent until it is committed. In an edit pop-up window, the Clear Field function will clear the characters to the left of the current cursor position.
Clear Record	Clears the current record, reversing any uncommitted changes made to that record. It does not affect the data saved in the database. Use Delete Record to permanently remove a record from the database. Use clear record to abort a new entry and to prevent the commit alert from being activated. For example, if you start to enter a query criteria without being in enter query mode or a query criteria block, the Clear Record function will undo the changes so you can try again with Enter Query.
Clear Block	Clears all records in the current block and leaves the block ready to accept new records. It does not affect the data saved in the database. It only clears the record buffer for the block. If you have not committed any changes, a commit prompt alert will be issued before clearing the block. All changes are rolled back if a commit is not selected when prompted.
Clear Form/Rollback	Clears all blocks for the current form and returns the cursor to the first field in the first block. It does not affect the data saved in the database. If you have not committed any changes, a commit prompt alert will be

issued before clearing the form. All changes are rolled back if a commit is not selected when prompted.

- Duplicate Field** When creating a new record, the Duplicate Field function can be used to copy the value in the same field of the previous record into the new record. This function is only available in the pull-down menus.
- Duplicate Record** When creating a new record, the Duplicate Record function can be used to copy the values for the previous record into the new record. The values copied can then be modified as required. This function is only available in the pull-down menus.

#### **3.5.4.4.5 Editing Functions**

- Delete Backward** Deletes the character to the left of the current cursor position.
- Insert/Replace** Toggles the character mode between Insert and Replace.
- Edit** Displays a pop-up window in which the user can perform all editing functions on the current field. The edit function is recommended to view or modify long or truncated fields. Use the Accept or Edit function to exit the pop-up window while maintaining the changes. Use the Exit function to exit the pop-up window and to undo any changes made.
- Beginning of Line** Moves the cursor to first character in a field or edit line.
- End of Line** Moves the cursor to the last character in a field or edit line.
- Search** Displays a dialog box (special pop-up window) for entering a search criteria string and optionally a replacement string. The function is only available within an edit window.
- Select** For editing, the Selection function will underline all the characters to be selected for cutting or copying. Select can also be used interchangeable with Return to select a choice in a list or an alert dialog box.
- Cut** Used to remove the text selected and to save it in the Paste buffer.
- Copy** Used to copy the text selected into the Paste buffer. The text is then no longer selected.
- Paste** Used to copy the current contents of the Paste buffer into the current field to the right of the current cursor position.

### **3.5.5 Online Help**

In SQL\*Forms, there are several features that provide online help to users. This section describes the purpose and usage of these features.

#### **3.5.5.1 Keypad Map**

From any terminal or emulator type, you can always view the key mapping for any function by pressing [**CONTROL**] and **K** simultaneously. The first and third columns of the keypad help contain the SQL\*Forms functions. The second and fourth columns contain the corresponding DEC keys for your terminal type. If you are using an emulator, you may need to map the DEC keys to an actual key on your terminal, as specified by the documentation for your emulator. If you cannot find a function in the keypad help, press the Down function to see any hidden

functions. If you still cannot find a function, it is disabled in the current block or form mode. Press **[RETURN]** when you are done with keypad help.

### **3.5.5.2 Field-Level Help**

In general, a field-level help message will automatically be displayed when the cursor first enters a field. If the field-level help message is overwritten by another message, you can retrieve it again by using the Help function. Within the 80-character limit, the message instructs the user on the purpose, possible values, format, and other available functions for a field. Some messages use the following codes to minimize the number of characters used:

- LOV—A list of values is available for the field by using the List function.
- EDT—The Edit function is recommended to view or modify the entire contents of the field.
- MAN—A value is required to be entered into the field.

If you activate the Help function twice, an advanced field-level help screen will be displayed. The advanced help information may include the data type, length, help message, format, and default value for a the field. It may also include information on whether the field is updateable, primary key, and mandatory. Press **[RETURN]** to exit the advanced field-level help screen.

### **3.5.5.3 List of Values**

If the status or message line indicates that a list of values is available for a field, you may select a value for the field by invoking the List function. When the pop-up window appears, the cursor will be on the first value in the list. There may be more values in the list than visible at one time. Use the Scroll Down function to view the next set of values in the list. To select a value back into the original field, place the cursor on the value and press **[RETURN]**. If you would like to exit the list of values window without selecting a value, invoke the Exit function. Unless the form is in Enter Query mode, the cursor will automatically be forwarded to the next field when a list of values window is terminated.

If the list of values is very long, you can use the find feature to reduce the number of values in the list. To use this feature, invoke the Next Field (Tab) function, which will put the cursor in the find field. Type in the find string pattern and press **[RETURN]**. A wild card will automatically be appended to the end of your find string. Use an explicit wild card (%) if you would like wild cards in the beginning or middle of your find string. A new list will be built based on the find string.

Because the list of possible values for logical identifiers is extremely large, a nonstandard list of values will appear that requires the selection of a mission name, data type, descriptor, and date range before the logical identifier list will be generated. Once you select these values and invoke the Next Block function, you can select a value from the list in the same manner as you would with a regular list of values.

### **3.5.5.4 ORACLE Errors**

If you receive an error message that an ORACLE error has occurred, use the Display Error function to find the source of the error. The most common errors are “duplicate value in index” (duplicate entry) and “insufficient privileges.” None of the records changed will be committed to the database until the problem records are resolved. The cursor will usually reside on the problem record when the error occurs. If the record is a duplicate entry, use the Clear Record function to undo the change. If you believe that an insufficient privileges or duplicate entry error should not have occurred, contact the DBA. Likewise, contact the DBA if any other ORACLE errors occur.

### **3.5.6 Form Modes**

When operating SQL\*Forms, you should be aware of a few explicit and implicit form modes. These modes determine the type of operations that are permitted in a given form state. Only the Enter Query mode is explicitly indicated on the status line. This section describes how the form modes can be recognized and what operations can be completed in them.

The form modes apply to all blocks except the query criteria blocks used to restrict queries. Query criteria blocks are modeless. Therefore, you should simply provide the appropriate values for query criteria blocks without worrying about the form mode.

#### **3.5.6.1 Enter Query Mode**

The Enter Query mode strictly allows a query criteria to be entered in the current block and the query to be executed. Most functions are disabled in this mode, including special function keys and the record/block-level navigation functions. With the exception of logical identifiers, the List function is still available in Enter Query mode to select query criteria values. If you execute a query while you are in Enter Query mode and no records are found, the form will remain in Enter Query mode to allow you to respecify the criteria. If records are found when the query is executed, the form is then in Update mode.

Upon entry into a form that allows unrestricted queries, the form will automatically be in Enter Query mode if you do not have insert privilege for the form. The status line will indicate the mode with the ENTER QUERY symbol. If you do not want to be in Enter Query mode, invoke the Exit/Cancel function, which will return the form to Insert mode.

#### **3.5.6.2 Insert Mode**

A form is in Insert mode if the current block has no records in its buffers and the status line does not indicate ENTER QUERY. Most functions are available in Insert mode before you start a record entry. Therefore, special functions can be invoked, and the cursor can be moved to other blocks. Likewise, a query can be executed. The only database modifications that can be completed in Insert mode are the creation of new records. Once a new record entry is started, it must either be completed or cleared to continue.

Upon entry into a form, the form will automatically be in Insert mode if you have insert privilege for the form. Therefore, the form will be blank, and there will not be an ENTER QUERY symbol on the status line. Use the Enter Query and Execute Query functions, respectively, to change the form mode to Enter Query or Update mode.

#### **3.5.6.3 Update Mode**

A form is in Update mode if the current block has records in its buffers. The only way to put a form in Update mode is to perform a query. Update mode allows records to be created, updated, and deleted. All functions are available in Update mode as user privileges allow. A form is only in Update mode upon entry into the form, if an automatic query is performed upon entry.

### **3.5.7 Form Navigation**

To operate a form for query or database modification purposes, move the cursor to different parts of the form. This section describes the various form navigation options. Section 3.5.3 explains the various parts of a form.

### **3.5.7.1 Moving Block to Block**

The Next Block and Previous Block functions allow block-to-block navigation. To move your cursor to a field below when there is a horizontal line separating that field from the field in which the cursor currently resides, the Next Block function is required. You cannot move the cursor to another block if the form is in Enter Query mode. In most cases, you also cannot move the cursor to a lower block if a record has not been created or queried in the current block.

### **3.5.7.2 Moving Record to Record**

The Down, Up, Next Record, and Previous Record functions allow record-to-record navigation within a block. If multiple records can be viewed at one time, the cursor will actually move to the record. If only one record can be viewed at a time, the buffer entry for the record will be displayed. The Scroll Down, Scroll Up, and Next Set of Records functions are also useful for record-level navigation if multiple records can be viewed in a block at one time. If you enter an invalid combination of field values, you will not be able to leave the record until the values are corrected. The status line and the scroll bars in pop-up windows indicate the cursor's relative position from the first and last records.

### **3.5.7.3 Moving Field to Field**

The Next Field and Previous Field functions allow field-to-field navigation within a block. If you enter an invalid value in a field, you will not be able to leave the field until the value is corrected. Fields are usually ordered left to right and top to bottom.

### **3.5.7.4 Moving Within a Field**

The Right, Left, Beginning of Line, and End of Line functions allow navigation within a field. A field may be larger than displayed. In such cases, the field will automatically scroll left and right as the functions require. The Edit function is recommended for viewing and modifying truncated fields.

### **3.5.7.5 Edit Window**

Within a field edit pop-up window, the Down, Up, Left, Right, Beginning of Line, End of Line, First Line, and Last Line functions all allow navigation within the window. Because word wrapping is handled automatically, the Return function is not recommended. To exit an edit window with any changes completed, use the Accept function. To exit an edit window with an undo on any changes, use the Exit function.

### **3.5.7.6 Pop-Up Windows**

Within a pop-up window, the block, record, and field-level navigation is the same as the main screen for a form. To exit a pop-up window, use the Exit function. Some pop-up windows allow a value to be selected. In such cases, the Accept function will select the current cursor value, exit the pop-up window, and display the selected value in the main screen for the form.

### **3.5.7.7 Exiting a Form**

The Exit function can be used to exit a form. Upon the exit, the cursor will return to the menu or prompt that invoked the form. To exit all the menus, continue to use the Exit function until a DCL prompt appears or the TAE menus reappear.



### 3.5.8 How To Perform a Query

This section explains how to perform queries using a form. The first step required is to determine whether your particular form allows restricted or unrestricted queries. The usage restrictions for each form in Section 4 indicate whether a form only allows restricted queries.



If your form is in Enter Query mode upon entry into the form or if it allows you to activate the Enter Query function, then your form allows unrestricted queries. If the first block of your form contains a small set of fields and the Enter Query function is disabled, then your form only allows restricted queries.

#### Detailed Query Information:

In general, forms that query large history tables and account information only allow restricted queries. The queries on large history tables are restricted to prevent users from using excessive computer resources by querying thousands of records at once. Some of the history tables will eventually contain a few million records. You can view all of the information in a history table, but you may have to perform a few different queries to view the information of interest to you. Regular users can only view the information for their own accounts. The operations personnel can view the information for all of the accounts.

Detail blocks and some specialized forms also enforce restricted queries. When a lower (detail) block in a form or a pop-up window block is dependent on the current record displayed in the upper (master) block, the queries in the detail block are restricted. In the ISTP Users and Privileges Forms, for example, the access privileges and certify privileges displayed are always for the user name currently displayed in the account information block above the privileges information. An entire form is not considered to be restricted unless the master block only allows restricted queries. In the User Interface and the Operator Interface, a few specialized forms, such as the Scheduler File Selection Form, also restrict queries.

#### 3.5.8.1 How To Perform Restricted Queries

In forms with restricted queries, the first block is a small query criteria block. The Enter Query function is disabled for query criteria blocks. Some default values may appear in these blocks based on defaults set up for your account and the current date. These defaults can be overwritten. The List function may also be available for some of the fields. In a few of the forms, special function keys will allow you to query using a couple of different query criteria blocks. The usage of wild cards (%) in character fields for restricted queries is form dependent, but “K%” is usually allowed to represent all KP data types. To perform a query, enter valid values (validation is performed for restricted queries) for each field in the block and invoke the Next Block function. A query will automatically be performed based on the values you specified. If no records match your query criteria, the cursor will be returned to the query criteria block allowing the criteria to be respecified. Otherwise, your cursor will reside on the first matching record.

#### 3.5.8.2 How To Perform Unrestricted Queries

Many of the forms allow unrestricted queries, which are very flexible. You can retrieve all of the records, or you can specify a simple or complex query criterion.

##### 3.5.8.2.1 Retrieving All Records

To retrieve all records, simply invoke the Execute Query function without specifying a criterion. It does not matter whether or not you are in Enter Query mode when you invoke Execute Query. However, you should commit any database changes that you have performed before performing the query.

### 3.5.8.2.2 Selective Queries

To retrieve records based on a certain criteria, you must be in Enter Query mode first. If your status line does not indicate ENTER QUERY on it, invoke the Enter Query function after you have committed any record changes that you have made. You can then proceed to specify your query criteria using one or more of the fields in the block. The List function may be available for some of the fields, but no field validation checks are performed on the values you enter. If you enter invalid field values, the query will not return any matching records and the form will remain in Enter Query mode.

For character fields, you have a choice of entering an exact value or a string pattern with wild cards. The wild card for ORACLE is a percentage symbol (%) which represents any combination of characters including no characters. The underscore symbol (\_) is also available to represent a single wild-card character. The following list contains examples of string patterns and matches:

<b>Pattern</b>	<b>Possible Matches</b>
GE_LZ%	GE_LZ_PWI_19920101_V01, GE-LZ-PWI
%KPGS%	KPGS_IT, GE_PWI_KPGS_PROGRAM, CDHF_KPGS
S_AR_	SMART, SHARK
_IN%S	BINS, WINNERS
KPGS	KPGS

When you have completed your selection criteria for a query, invoke the Execute Query function, which will return any matching records. SQL\*Forms will display a “Working...” message until the query is completed. If records are retrieved, use the Down and Up functions to review them.

### 3.5.8.2.3 Advanced Query Techniques

Once you have mastered basic queries, a few advanced query features are available for unrestricted queries while in Enter Query mode. These advanced features allow you to reexecute the last query and to execute complex query criteria.

#### 3.5.8.2.3.1 Retrieving the Last Query Criterion

To retrieve the query criterion you used for your previous query in a block, invoke Enter Query a second time. The previous criterion will be displayed. You can change the criterion, as required, and invoke Execute Query to retrieve the matching records.

#### 3.5.8.2.3.2 Using Relational Operators

Within the field-length restrictions, you can specify query criteria values with relational operators rather than specific values. For example, you can retrieve all KPGS programs with more than one output file by simply specifying >1 in the field corresponding to the number of

output files. For character and date fields, you must include single quotes around your value. The following list contains the relation operators available:

<b>Operator</b>	<b>Meaning</b>	<b>Example</b>
=	Equal to	= 'DDF'
<>	Not equal to	<> 'DDF'
>	Greater than	> 1
>=	Greater than or equal to	>= 2
<	Less than	< 3
<=	Less than or equal to	<= 2
BETWEEN	Between two values (inclusive)	BETWEEN 2 and 5

Unfortunately, this feature often cannot be used because a field length is too small. In such cases, the SQL Where Clause feature can be used instead.

### 3.5.8.2.3.3 Creating a SQL Where Clause

If you are familiar with SQL, another feature is available that allows you to build a complex SQL Where clause as your query criterion. This feature is useful for expressing compound conditions, null value conditions, and relational conditions that cannot fit into a query field. Because the feature uses a special pop-up window similar to an Edit window, a very large Where clause can be specified, including nested Select statements.

To invoke the Query Where pop-up window after the form is in Enter Query mode, enter a colon (:) immediately followed by an alphabetic variable name in one or more fields and invoke Execute Query. Unless you are familiar with the table column names, you should put a colon and variable name in each field you need to reference in the Where clause. When the Query Where pop-up window appears, you can proceed to enter your SQL Where clause conditions, but you do not need to type Where first. When you have completed the Where clause, invoke Accept to retrieve the corresponding records. The following list contains example Where clauses for five prespecified variables (:PROG, :VER, :IDATE, :DESC, and :FILE#):

<b>Purpose</b>	<b>Where Clause</b>
Retrieve all programs with no description or an installation date greater than January 1, 1993.	:DESC IS NULL OR :IDATE > '01-JAN-93'
Retrieve all programs that have more output files than skeleton files.	:FILE# > (SELECT COUNT(*) FROM DATA_OUTPUT_RELATION WHERE PROGRAM_NAME = PROCESS_PROGRAM.:PROG AND PROGRAM_VERSION = PROCESS_PROGRAM.:VER)

## 3.5.9 How To Modify the Database

Unless you are a read privilege user, you will probably want to modify parts of the database eventually. This section explains how to create, update, and delete a record, the three types of database modifications available. To perform any type of modification, it is first necessary to understand the concept of Commit and Rollback.

### 3.5.9.1 Commit and Rollback Overview

This section explains the commit and rollback concept and how it works.

#### 3.5.9.1.1 What Is Commit and Rollback

When you modify records in a form, you are not directly modifying the database. Instead, you are modifying your own private working buffer area based on the database. These changes can only be viewed by you until they are saved to the database. SQL\*Forms automatically manages any conflicts between users by locking each record as it is changed. If you attempt to change a record that another user has already changed in another buffer area, SQL\*Forms will not let you change the record until the other user saves his changes and you requery the record.

When you are satisfied with your changes, you can save them in the database by performing a commit.



A commit will process all record inserts, updates, and deletes completed in all blocks of your form since your last commit. A commit is an all-or-nothing transaction. If there are any errors, none of the changes will be saved in the database. Therefore, you must resolve any errors so the other changes can be committed.

A rollback is an undo of any or all changes made in your buffer area. It can be accomplished by clearing a record, block, or entire form. You cannot roll back a change once it is committed to the database. When you accidentally commit an incorrect change, you can repair the database by deleting an unnecessary record, updating a record to restore previous field values, or creating a replacement record for a record accidentally deleted. You can also contact the DBA to see if a restoration of certain data is possible.

#### 3.5.9.1.2 How To Commit Database Modifications

Once you are ready to save your changes to the database, simply invoke the Commit function. When a commit is processing, it may perform various validation checks and other SQL statements. If an error is detected, a message and the associated record will be displayed for correction. When the correction is completed, you must invoke Commit again.

Although SQL\*Forms can buffer a few hundred record changes, you should commit frequently. For example, you should commit after one large entry or a few small entries. If you do not commit frequently, you risk losing a lot of work because of one error or an unexpected system problem. In addition, you potentially prevent other users and processes from completing their changes. Finally, you should commit any changes you want to save before invoking the following functions:

- Enter Query
- Execute Query
- Exit/Cancel
- Clear Block
- Clear Form/Rollback
- Count Query Hits

If you have made changes that have not been committed or rolled back when you invoke these functions, a commit alert pop-up window will appear. For example, if you accidentally enter a query criteria while in Insert mode instead of Enter Query mode and then invoke Execute Query, a commit alert will be displayed because SQL\*Forms thinks you forgot to commit a new entry. If you respond “Yes” to the commit alert, the changes will be committed, and the function will proceed. If you respond “No,” the changes will be rolled back, and the function will proceed. If you respond “Cancel,” the function that you just invoked before the commit alert will be aborted.

### **3.5.9.1.3 How To Roll Back Database Modifications**

To undo all changes made in all blocks of a form, invoke the Clear Form function. To roll back all changes within one block only, invoke the Clear Block function. To roll back a new or updated entry, invoke the Clear Record function. The only way to roll back a record deletion (after the Delete Record function but before Commit function) is to invoke Clear Form or Clear Block in the applicable block. Answer “No” to the commit prompt displayed by the Clear Block and Clear Form functions to complete the rollback.

### **3.5.9.2 How To Create New Records**

To create a new record, complete the following steps:

1. If your cursor is not on a blank record, either invoke the Insert Record function or invoke the Down function until your cursor is on the record after the last nonblank record. If you cannot access a blank record with these functions, you do not have insert privilege for the form.
2. Enter values into the fields for the record. Typically, the first few fields are mandatory while the remaining fields may be optional. SQL\*Forms will inform you if you did not enter a value in a required field. It will also inform you if you have entered incorrect values.
3. If there is a detail block or pop-up window in the form, you may need to create entries that correspond with the entry you just made in the master block. It is optional to commit the master block record first.
4. Commit your entries before proceeding to a new set of entries.

### **3.5.9.3 How To Update a Record**

To update a record, complete the following steps:

1. The database record you want to update must be in your working buffer first. If it is not in your buffer, you must perform a query to retrieve it.
2. Once your cursor is on the record you want to update, you can make the changes directly on top of the previous values. The fields that uniquely identify a record cannot be changed. They are always the first field(s) in the form. If you do not have update privilege on a field, you also will be unable to change it. If you want to change a field so it has no value, invoke the Clear Field function in that field. SQL\*Forms will perform field validations for updates as well as inserts.
3. When you have completed your update(s), commit your changes before completing other changes or queries.

### **3.5.9.4 How To Delete a Record**

To delete a record, complete the following steps:

1. The database record you want to delete must be in your working buffer first. If the record is in your buffer already and it has never been committed, you only need to invoke the

- Clear Record function to remove it from your buffer. If it is not in your buffer, you must perform a query to retrieve it.
2. Once your cursor is on the record you want to delete, invoke the Delete Record function. If the Delete Record function is disabled, you do not have delete privilege. If the record is not in a pop-up window, you will be prompted to confirm the deletion. If you answer the prompt with a “Y,” the record will disappear and be marked for deletion. If you answer the prompt with an “N,” the record deletion is aborted. When you delete a record with dependencies, the deletion may be prevented or the dependencies may also be deleted, as documented for each form in Section 4.1.2.
  3. To make the deletion permanent in the database, you must commit the deletion.

### **3.5.10 Editing Capabilities**

#### **3.5.10.1 Inserting, Replacing, and Deleting Characters**

SQL\*Forms has two modes for working with characters: Insert and Replace. The current mode is always on the status line, and it can be toggled by invoking the Insert/Replace function. To insert, replace, or delete characters, complete the following steps:

1. To insert characters between existing characters, change the character mode to Insert and type the new characters. You should change the character mode back to Replace immediately after inserting characters. No character will be inserted if the field is full.
2. To replace characters, change the character mode to Replace and type over the characters to be replaced. Replace mode also works well when entering characters into blank fields.
3. To delete characters, put the cursor to the right of the characters to be deleted and invoke the Delete Backward function.

#### **3.5.10.2 Working With Large Text Fields (Edit Window)**

When working with truncated fields or fields with more than 60 characters, invoke the Edit function. It will redisplay the full field in a multiline pop-up window complete with automatic wordwrapping. Additionally, several edit functions are available in an edit window such as Search, Select, Cut, Copy, and Paste.

Sections 3.5.4.4.5 and 3.5.7.5 describe in detail the editing functions and navigation.

### **3.5.11 Screen Prints**

To print the current screen display, invoke the Print function. A pop-up screen will be displayed with three print options. The first item contains a default filename for the screen output. The name can be changed. By invoking the Next Field function (Tab), access the other two options. To print the file on the large printer in the CDHF computer room, invoke the Select function or type **X** in the second option. To write the keypad map to the output file instead of the current screen, invoke the Select function or type **X** in the third option. When all the options are correct, invoke the Accept function or press **[RETURN]**.

### **3.5.12 Screen Redisplay**

If the screen display is overwritten by broadcast messages or bad communication signals, refresh the screen by invoking the Refresh function.

### **3.5.13 Common Errors**

This section describes the messages or symptoms for common SQL\*Forms errors and the corresponding reason and/or solution for each. If you encounter other errors that you cannot

resolve, contact the DBA for a resolution. Most errors appear directly on the message line only, but more information can be obtained for some errors, especially ORACLE errors, by invoking the Display Error function. The messages that only appear in the Display Error information are identified accordingly.

Symptom/Message	The commit prompt window appears when a query is attempted.
Explanation	You may have forgotten to put the form into Enter Query mode before you specified the query criteria. Consequently, SQL*Forms believes you forgot to commit a new entry. Alternatively, you have changed data without committing it.
User Action	If you forgot to put the form into Enter Query mode, answer “No” to the commit prompt, invoke the Enter Query function, re-enter your criteria, and invoke the Execute Query function. If you did forget to commit data modifications, answer “Yes” to the commit prompt.
Symptom/Message	The commit prompt window appears when you have not made any deliberate or accidental data modifications.
Explanation	This behavior should not occur.
User Action	Answer “No” to the commit prompt, and report the form name and the function invoked to the DBA.
Symptom/Message	Function key is disabled for this block.
Explanation	In many of the form blocks, keys are disabled either because they are not applicable to the block or because the current user’s privileges does not allow the function. For example, Enter Query and Execute Query are disabled for query criteria blocks because they are not applicable to restricted queries. If you believe that you should have privilege for a disabled function, contact the DBA for a resolution.
Symptom/Message	Insufficient privileges to perform this database change operation. or ORA-01031 insufficient privileges (Display Error)
Explanation	Your user-privilege classification does not allow you to perform the type of data modification attempted. If you believe that you need the privilege, contact the DBA for a resolution.
Symptom/Message	No user information exists for this account. Contact the DBA. or A fatal error occurred setting up form. Contact the DBA.
User Action	Inform the DBA that your VAX account is not set up in the ISTEP_USER table. Alternatively, a database error occurred when the common globals variables were initialized upon entry into the Database Interface System.
Symptom/Message	Upon entry into the Database Interface System, a screen appears prompting you for a user name as password.

User Action	This symptom should not occur unless you have been issued a specific user name and password for ORACLE usage. If you have multiple VAX accounts, make sure you are using the one that was set up for ORACLE usage. Otherwise, inform the DBA that an ORACLE account needs to be created for your VAX account.
Symptom/Message	The function key mappings displayed when you invoke Show Keys ([CONTROL], K) do not map to your terminal, or the functions do not activate.
User Action	Be sure to review the terminal support information in Section 3.5.3.1.2. If you are using an emulator, you may need to review your emulator documentation to determine how the emulator maps DEC terminal keys to your terminal. You may need to set up the declaration for the VT100 emulator keypad mapping in your LOGIN.COM to avoid emulator keypad mapping problems.
Symptom/Message	You cannot move the cursor down until this record is entered or deleted.
Explanation	SQL*Forms will not let you move down past the first blank record.
Symptom/Message	Field cannot be updated - primary key or insufficient privileges.
User Action	All fields that uniquely identify a record cannot be updated. You need to delete the record and insert it again with the correct primary key values. Alternatively, you tried to change a field for which you do not have update privilege. Contact the DBA if you believe you should have update privileges on the field.
Symptom/Message	ORA-00001 duplicate key in index (Display Error)
User Action	Another record with the same primary key or alternate key values has already been created. Either adjust the primary key values accordingly or invoke Clear Record to remove the record from your change buffer. Invoke the Commit function again if other records were changed.
Symptom/Message	Field is full. Cannot insert character. Check if in Insert character mode.
User Action	The field only allows a fixed number of characters which you have exceeded. If your character mode on the status line indicates Insert, you may need to change it to Replace (Insert/Replace function) so you can type over characters already entered.
Symptom/Message	No records match the query criteria. Correct criteria or use Abort Query.
User Action	There are no records in the database that match the query criteria you specified. After you recheck and correct your query criteria, you can invoke the Execute Query function again. If you do not want to query again, invoke the Exit/Cancel function to terminate the Enter Query mode.
Symptom/Message	Record changed by another user. Requery to see change.



User Action                      Since you performed your query, another user has updated at least one of records you have queried (but not changed). Commit any changes you have completed and reexecute your query to view the latest record values.

## **3.6 How To Use ORACLE Reports**

ORACLE reports are an alternative, view-only representation of the CDHF database that allow users to write data in a fixed format to an output file. The output file may be displayed to the screen, printed on a system printer, or transferred to remote sites. Although many of the reports allow you to specify various report query criteria parameters, all the reports operate in the same general manner. This section describes how to generate a report, how the output files are named, and how to view a report. Section 4.1.3 describes the purpose, contents, width, and user-definable criteria for each report.

### **3.6.1 Defining the Report Output Directory**

By default, the report output files will be generated in your home directory (SYS\$LOGIN), the directory you are in when you first log in to your VAX account. You can route the reports to a different directory by defining the DBI\_RPT\_DIR logical in your LOGIN.COM.

The report output filenames generated cannot be customized. You can use the DCL RENAME command to change a report name after it is generated. All report output filenames have the following format:

DBI\_xxxx.RPT

The xxxx represents the acronym associated with a particular report.

### **3.6.2 Selecting the Report Mode**

Before you generate a report, you can choose between two report modes, interactive or batch. The interactive mode generates the report while you wait, then prompts you to indicate whether you want the output file displayed to your screen and whether you want it printed on your default system printer. The batch mode submits a job to the batch queue and allows you to continue other operations while it is executing. When the batch report is completed, you will be informed by a broadcast message, but you must exit to the DCL prompt to view the contents of the output file generated.

The current report mode is always displayed in the upper, left corner of the submenus. If a report has an associated user-definable criteria form, the current report mode is also displayed in the form. To change the report mode in a submenu, invoke the special function key SF1, which will toggle the mode between interactive and batch. When the report mode is changed, the new mode will be used for all reports generated until you change the mode again or exit the Database Interface System.

### **3.6.3 Selecting the System Printer**

By default, if you choose to print a report when prompted by the interactive report mode, it will be printed on the large printer in the ISTP CDHF computer room. You can permanently route the reports to a different printer by defining the DBI\_PRINTER logical in your LOGIN.COM. Section 4.1.1.2 contains the instructions for setting up this change. The printer selected, however, must be a printer recognized by the VAXcluster. Alternatively, you can use the System Printer Selection Form in the Database Interface System main menu to change your default printer selection using the list of values feature to display all the system printers. The printer selection will be active for all reports generated until you change it again or until the current login session is terminated.



Please note that the printing of reports on the CDHF computer systems will not be very useful for remote users. Most users will want to create a report file and then transfer the file to a local system.

### 3.6.4 Activating a Report

To activate a report, navigate through the menu tree until your cursor is on the menu item associated with the report. The reports and the associated menu tree paths are listed in Section 4.1.1. Once your cursor is on the correct report and the selected report mode is set, invoke the Accept function or press **[RETURN]**.

If your report does not allow any user-definable report criteria, it will execute immediately. If your report does allow criteria to be specified, a query criteria form will be displayed. Query criteria forms work in the same manner as query criteria blocks for restricted queries (no form modes). Simply enter valid values for the fields displayed. Many fields have lists of values available by invoking the List function. When you have finished entering the values, invoke the Accept function, which will execute the report with the criteria. If you want to cancel the report generation instead, invoke the Exit/Cancel function.

### 3.6.5 Displaying a Report on the Screen

If you generate the report using the interactive report mode, you can choose to display the report on the screen when you are prompted. The screen width will automatically be adjusted to the report width, and the report will be displayed one screen page at a time. You can press **[RETURN]** to view the other screen pages until the end of the report, or press **[CONTROL]** and **Z** to abort the display. If you generate the report using the batch report mode, you can only view the report using an editor or the **DCL TYPE** command after you exit to the DCL prompt.

Notes:

1. When using an emulator, the screen width may not be adjusted properly to the report width. Some emulators do not respond to the VT terminal width commands.
2. At the beginning of each page in a report output file, there is a form-feed control character allowing reports to be printed properly. Because screen page sizes are smaller than printed page sizes, the control characters are displayed rather than interpreted when you display the report to your screen.
3. If your terminal supports window lengths greater than 24 lines (VT1200s and VAXstations), the **DCL SET TERM/PAGE=#** command is recommended before entering the User Interface so your reports are displayed correctly. Alternatively, the customize window option can be used for VT1200s and VAXstations to set the page length to 45 lines or greater. If the page length is not set to 45 lines or greater, the screen may flash, and the last page of the report may not display.

### 3.6.6 Printing a Report

If you generate the report using the interactive report mode, you can choose to print the report when you are prompted. If you generate the report using the batch report mode, you can only print the report using the **DCL PRINT** command after you exit the User Interface. If your printer is not recognized by the VAXcluster, such as remote site printers, you will need to transfer the report and print it locally.

### 3.6.7 Transferring a Report

You can transfer a report using the Data Transfer Services (Create Transfer Request for User Files option) in the User Interface. If your computer is not recognized by the network (as an

authorized RDAF), such as the case with some modem users, you can use a file transfer utility such as Kermit. Most communication packages include a file transfer utility. A manual copy command to the RDAF may be required if the RDAF does not support DECnet proxy accounts or TCP/IP anonymous accounts.

## SECTION 4—USER INTERFACE SYSTEM

This section provides a detailed description of the functions, services, and usage of the UI. There is a subsection corresponding to each of the items of the main menu (Figure 4–1).

```
INTERNATIONAL SOLAR-TERRESTRIAL PHYSICS PROGRAM
CENTRAL DATA HANDLING FACILITY USER INTERFACE SYSTEM
**** MAIN MENU - Release 6.0 ****

CDHF Queries and Reports
User Data Transfer Services
Update Key Parameter Quality Information
Certify Key Parameter Generation Software
Decommutation Specifications
Invoke Theory Programs
Extract NRT Level Zero Data
Plot Orbit Data

Use UP and DOWN to position cursor. Use ACCEPT or RETURN to select menu item.
Count: *9          v          <Replace>
```

Figure 4–1. CDHF User Interface Main Menu

The following list summarizes the menu items and their functions.

- **CDHF Queries and Reports**—Provides a form-based interface to the CDHF database used to query the database for information and to generate reports from the database.
- **User Data Transfer Services**—Provides the user with the capability to request the transfer of ISTP data from the CDHF to a user-specified destination.
- **Update Key Parameter Quality Information**—Provides authorized users with the capability to insert a quality flag into the CDHF database for key parameter files.
- **Certify Key Parameter Generation Software** —Provides authorized users with the capability to insert a flag indicating that Key Parameter Generation Software is generating key parameters suitable for distribution.
- **Decommutation Specifications**—Allows the user to specify minor frame and byte extraction masks to be applied to level-zero files requested through the User Data Transfer Services.
- **Invoke Theory Programs**—Allows the user to choose which theory program to run.
- **Extract NRT Level Zero Data**—Provides the user with the capability to extract near-real-time (NRT) decommutated level-zero (LZ) data.
- **Plot Orbit Data**—Provides the user with the capability to plot orbit data.
- **Access the NEWS Bulletin Board**—Invokes the CDHF bulletin board.

## 4.1 CDHF Queries and Reports

### 4.1.1 Introduction

The CDHF database maintains information on the receipt and processing of science data; the attribute information on science data; the DDF distribution history; and the user account and privilege information. The CDHF Queries and Reports menu item allows users to view this information and allows controlled updates of the data.

The Queries and Reports menu consists of integrated menus, forms, and reports. The menus divide the database into the various functional areas and invoke the forms and reports within an area. The forms and reports allow users to view the information of interest.

In most cases, users can view a certain piece of information by either invoking a form or a report. Thus, each user has to make a choice whether to use a form or report to obtain this information. Each method has different advantages.

A report strictly executes a standard query, and writes the information in a fixed format to an output file. Many of the reports do allow the user to specify a range of values. For novice users, reports are considerably easier to use than forms. Another advantage of reports is that the output files can be transferred to remote sites for evaluation or printing.

A form usually allows ad hoc queries and controlled database modifications. A screen print can be generated from a form, but only the information currently displayed is written to the output file. The advantage of forms is that they allow a user to quickly retrieve, review, and modify information in an ad hoc manner and without the generation of output files. However, a user must become familiar with the basic SQL\*Forms components and functions to use a form.

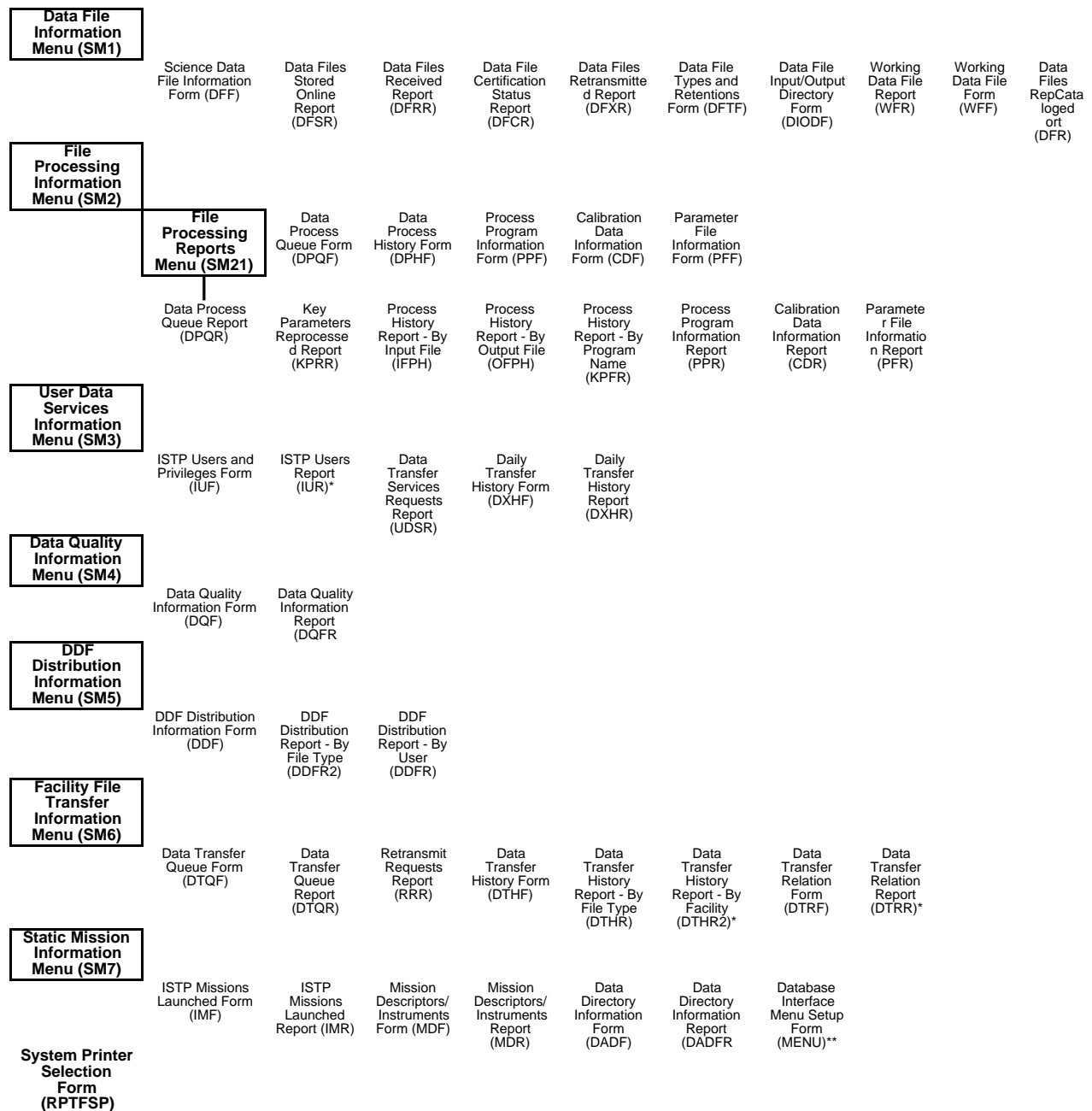
Under the main menu for Queries and Reports, seven submenus represent the functional areas within the database:

1. The Data File Information menu contains forms and reports about the scientific data files routinely cataloged on the CDHF.
2. The File Processing Information menu includes forms and reports for process queue information, process history information, process program information, calibration data file information, and parameter file information.
3. The ISTEP Users and Privileges form allows users to set up default query criteria and to view their access privileges.
4. The Data Quality Information menu contains forms and reports for the quality data extracted from level-zero quality files.
5. The DDF Distribution Information menu contains forms and reports for the DDF distribution status including user distribution list and file content for each data set.
6. The Static Mission Information menu contains forms and reports for miscellaneous data such as the active missions and descriptors/instruments.
7. The System Printer Selection form allows local GSFC users to select a CDHF printer for reports.

Figure 4–2 contains a graphical representation of the menu tree for the Queries and Reports menu.

### 4.1.2 Database Interface System Forms (Including KPGS Certification)

This section contains an overview, a picture of the main screen, the usage restrictions, and the detailed usage guidelines for each form in the Queries and Reports menu.



\* Accessible by DPS/DBA only

\*\* Accessible by DBA only

**Figure 4-2. Queries and Reports Menu Tree**

#### 4.1.2.1 Science Data File Information Form (UI\_DFF)

This form is used to display information about the science data files. The data file information form is used for query only. However, any user with the appropriate certification privilege may update key parameter information.

Format:

```

UDFF-----DATA FILE INFORMATION-----
Mission Name  Data Type  Descriptor  Start Date  End Date
  █          █          █          15-DEC-1993 00:00:00  15-JAN-1994 00:00:00

Logical Identifier █          Online(Y/N) █
Span Start Date  █
Span End Date    █
Catalog Date     █          Group Size(Bytes) █
Expire Date      █          Proprietary Expire Date █

SF1 - View Reference File(s)
SF2 - View KP Certification Information
SF3 - View FDF Differences(PA Data Types Only)
EXIT - Exit Form
  
```

**Enter a valid mission short name. List of values available.**  
 Count: \*0 <List><Replace>

```

UDFF-----DATA FILE INFORMATION-----
UDFF-----REFERENCE FILES LIST-----

Logical Identifier  GE_LZ_PMT_19920102_U01

File Extension  File Size  Span Start Date  Span End Date
  █            2048  01-JAN-1992 21:33:58  02-JAN-1992 21:33:58

Exit - Return To Data File Screen
  
```

**Enter a valid file extension. For example ".CDF" quotes not needed.**  
 Count: \*1 <Replace>

### Usage Restrictions:

- Queries may only be performed from the first block. Enter query criteria and press Next Block to view data file information. If the user has a default mission, data type, and descriptor, it will be displayed as a default query criteria.
- Regular users may only view the information for science data files, unless they have certification privilege for a mission instrument.
- Users with key parameter certification privilege are allowed to update key parameter information.

### Detailed Usage Guidelines:

- Wild cards (%) are allowed for the Mission Name, Data Type, and Descriptor in the query criteria block. The only wildcard allowed for data type is K% (all KP files).
- For the query criteria block, the Mission Name, Data Type, Descriptor, Start Date, and End Date must be specified. Date ranges should be limited to 90 days or less to avoid excessive queries.
- For queries with multiple versions of a logical identifier, only the most recent version will be displayed by default. To view all versions of a logical identifier, the user must change the “Query All Versions” attribute in the ISTP User Information and Privileges form to “Y”.
- Online determines the catalog status of the file. If online is set to “N”, the physical files are not available on the CDHF, but they may be retransmitted from the DDF.
- Start Date and End Date contain the first and last dates and times associated with the header file. They represent the telemetry span dates of all the reference files associated with the header file.
- Catalog Date and Expire Date indicate the date and time the file is cataloged and the date the file is to be taken offline, respectively.
- Group Size indicates the sum of the file sizes in bytes, associated with all the files in the logical group.
- Proprietary Expire Date is the date the file is no longer proprietary. It usually applies to level-zero files only. Explicit access privileges are required to transfer files that are still proprietary.
- The special function key SF1 allows users to view a list of associated reference files. Press SF1 to invoke the pop-up. Press Exit to return to the main screen. This pop-up is for viewing reference files only.
- The special function key SF2 allows users to view the KP certification information. The access is limited to K% data types only. Press SF2 to invoke this pop-up. Press Exit to return to the main screen. Only users with certification privileges may update the quality indicator (RED, YELLOW, GREEN) and the comment. Other users may only view certification information, if any is available.
- The special function key SF3 allows users to view Flight Dynamics Facility (FDF) despun platform attitude difference information. Press SF3 to invoke this pop-up. Press Exit to return to the main screen. Access is limited to the PA data type only.



Format:

UDFF DATA FILE INFORMATION				
Mission Name	Data Type	Descriptor	Start Date	End Date
PO	KO	SPHA	01-MAY-1994 00:00:00	22-JUL-1994 00:00:00
Logical Identifier		PO_KO_SPHA_19940521_U07	Online(Y/N) Y	
KP Certification Information				
KP Quality Indicator		GREEN		
KP Certified By		DPS_IT	KP Certify Date 17-JUN-1994	
Certify Comment				
EXIT - Return To Data File Screen				
ACCEPT - Commit Changes EDIT Key - View Additional Comments				
<b>Enter a Key Parameter quality indicator (RED, GREEN, YELLOW)</b>				
Count: *1				<Replace>

Format:

UDFF DATA FILE INFORMATION				
Mission Name	Data Type	Descriptor	Start Date	End Date
PO	KO	SPHA	01-MAY-1994 00:00:00	22-JUL-1994 00:00:00
Logi	Comment entered here in edit mode			
KP Certified By		DPS_IT	KP Certify Date 17-JUN-1994	
Certify Comment				
EXIT - Return To Data File Screen				
ACCEPT - Commit Changes EDIT Key - View Additional Comments				
<b>Press Do to accept changes, PF4 to cancel.</b>				
Count: *1				<Replace>

#### 4.1.2.2 Working Data File Form (WFF)

This form is used to display information about the working orbit/attitude data files. The working data file form is used for query only.

Format:

```
WFF-----ORBIT/ATTITUDE WORK FILE-----
Mission Name  Data Type  Descriptor  Start Date  End Date
  █           █         █         02-JUL-1995 00:00:00  02-AUG-1995 00:00:00
                                NEXT BLOCK - TO EXECUTE QUERY
Mission Name █          Data Type █          Descriptor █
File Date   █          File Version █
Logical Identifier █
Physical File Name █
Start Date  █          End Date  █
Catalog Date █        Expire Date █
File Size  █
```

Enter a valid mission short name. List of values available.  
Count: \*0 <List><Replace>

Usage Restrictions:

- Queries may only be performed from the first block. Enter query criteria and press Next Block to view working data file information.
- User may only view the working data file entries.
- No inserts, updates, or deletes are allowed in the second block.

Detailed Usage Guidelines:

- For the query criteria block, the Mission Name, Datatype, Descriptor, Start Date, and End Date must be specified. Date ranges should be limited to 90 days or less to avoid excessive queries.
- For queries with multiple versions of logical identifiers or multiple entries, only the most recent will be displayed by default. To view all versions of a logical identifier, the user must use the Down key.
- Start Date and End Date contain the first and last dates and times associated with the header file.
- Catalog Date and Expire Date indicate the date and time the file is cataloged and the date the file is to be taken offline, respectively. File size indicates the size of the file in bytes.

#### 4.1.2.3 Data Process History Form (DPHF)

This form displays the data process history. The data process history entries are created by an ICSS routine upon successful completion of key parameter generation. A user can query the data

process history information by process program name, by an input file (primary or support file), or by an output product file (key parameter file).

Format:

```

DPHF----- DATA PROCESS HISTORY -----
+-----+-----+-----+-----+
| Program Name          | Completed | Completed | SF1-Query Input File |
|                      | Start Date| End Date  | Process History      |
| ██████████          | 31-OCT-1993 | 30-NOV-1993 |                      |
|                      | DD-MON-YYYY | DD-MON-YYYY | SF2-Query Output File|
|                      |              |              | Process History      |
+-----+-----+-----+-----+
| Sequence Number ██████████ | Logical Identifier ██████████ |
| Program Name ██████████ |
| Program Version ████████ | Schedule Type ████████ | |
| Requested Date ██████████ | Scheduled Date ██████████ |
|                      | DD-MON-YYYY HH:MI | DD-MON-YYYY HH:MI |
| Completed Date ██████████ | Job Id ██████████ |
|                      | DD-MON-YYYY HH:MI |
| Process Summary ██████████ |
| SF1 - Query Input File Process History | SF3 - View Process Input Files |
| SF2 - Query Output File Process History | SF4 - View Process Output Files |
+-----+-----+-----+-----+
Enter process program name. List of value is available.
Count: *0                                     <List><Replace>

```

Usage Restrictions:

- Users may only view the data process history entries.
- Pop-up windows for special function keys SF1 and SF2 are view only. No inserts, updates, or deletes are allowed in their second block.

Detailed Usage Guidelines:

- To query the process history information by a program name, enter the program name, process completed start date, and process completed end date, the mandatory query criteria. DBA and DPS users are allowed to enter wild card (%) for the program name.
- To query the process history information by an input file, use the special function SF1 to bring up the pop-up window. Press the Next Block key after entering a specific input filename. To view the detailed information for any entry in the pop-up window, place the cursor on the entry and press the Accept key. The cursor will return to the main window and the detailed information for the entry selected will be displayed. To exit the pop-up window without selecting an entry, press the Exit key.
- To query process history information by an output product file, use the special function SF2 to bring up the pop-up window. Press the Next Block key after entering a specific output product filename. To view the detailed information for any entry in the pop-up window, place the cursor on the entry and press the Accept key. The cursor will return to the main window and the detailed information for the entry selected will be displayed. To exit the pop-up window without selecting an entry, press the Exit/Cancel key.
- The special function key SF3 displays a pop-up window with the input support files used by the process entry currently displayed in the main window. Press the Exit key to return to the main screen.

- The special function key SF4 displays a pop-up window with the output product files generated by the process entry currently displayed in the main window.
- The process summary field is not active now.

#### 4.1.2.4 Process Program Information Form (PPF)

The form displays the information for each file processing program in the operational baseline. Currently, all the file processing programs are used for key parameter generation. The Scheduler will only complete processing if all the information is provided for a program. With the exception of KPGS "Certify Status" and associated "Program PI Comment," which are the PI's (or other authorized user's) responsibility, the DBA maintains the information in this form based on information provided by the PIs and the Key Parameter Integration Test Team.

Format:

PPF				PROCESS PROGRAM			
Program Name	[REDACTED]			Program Version	[REDACTED]		
Program Location	[REDACTED]						
Effective Start Date	[REDACTED]	Effective End Date	[REDACTED]				
	DD-MON-YYYY		DD-MON-YYYY				
Output Data Type	[REDACTED]	No. Of Output Files	[REDACTED]	Output Descriptor	[REDACTED]		
No. Of Input Calibration Files	[REDACTED]	Installed Date	[REDACTED]				
			DD-MON-YYYY				
Secondary Required	[REDACTED]	Certify Status	[REDACTED]	Certify Date	[REDACTED]	Uax User ID	[REDACTED]
					DD-MON-YYYY		
Process Queue Name	[REDACTED]						
Program Description	[REDACTED]						
SF1 - To View All Process Program				SF3 - To View Input Support Files			
SF2 - To View Program Process Data Type				SF4 - To View Output Information			
NEXT BLOCK - To Enter Certification Comment				ACCEPT - To Commit Request			
<b>Enter a query; press Find to execute, PF4 to cancel.</b>							
Count: *0		ENTER QUERY				<List><Replace>	

Usage Restrictions:

- A user with key parameter certification privilege may certify the KPGS program that generates the key parameters.
- Regular users may only view the program information. The queries in this form are unrestricted.
- A DBA user may create, update, or delete the program information.
- A DPS user may update the Process Queue Name field.

##### 4.1.2.4.1 Detailed Query Usage Guidelines

- For non-DBA users, the form is in Enter Query mode upon entry. A query criteria, if any, can be entered followed by the Execute Query key to view the program information. To view all the programs and versions that match the query criteria, press the Down key until the end of the list.
- For a brief view of several programs simultaneously, use the first special function key (SF1). Warning: If you are in Enter Query mode, you must press Exit/Cancel first to terminate the Enter Query mode. Use the Down or Scroll Down key to view the complete list of programs. To view the detailed information for any entry in the pop-up window,

place the cursor on the entry and press the Accept key. The cursor will return to the main window and the detailed information for the entry selected will be displayed. To exit the pop-up window without selecting an entry, just use the Exit/Cancel key.

- The second special function key (SF2) displays a pop-up window with the data file types for the primary input files used by the program version currently displayed in the main window. Any type of input file such as level-zero and SIRIUS that requires regular processing by a program must have this data file type information. The Cataloger will automatically build entries in the Data Process Queue table/form based on these entries. Press the Exit key to return to the main window.
- The third special function key (SF3) displays a pop-up window with the data file types used as input support files during processing by the program version currently displayed in the main window. For example, orbit, attitude, calibration, parameter, and level-zero housekeeping data may be required to complete key parameter generation. The information is used by the Scheduler and the ICSS routines to retrieve the applicable data files with this information. Press the Exit key to return to the main window.
- The fourth special function key (SF4) displays a pop-up window containing the CDF skeleton table (format) files required for each file generated by the program version currently displayed in the main window. The number of entries must match the number of output files generated starting with file number zero for the K0 output file. Press the Exit key to return to the main window.
- When a new version of a program is approved for the operational baseline, a new set of entries is required with the appropriate changes for the new version. Thus, the requirements for a program can be changed with new releases of a program. The Scheduler will use the highest version of a program that has an effective date range for the primary input file. The effective dates must be carefully assigned to allow the newest version to be used for new data files and to allow older versions to be used, as necessary, for reprocessing older data files. The program version is composed of a “V” and up to a four-digit real number, such as V1.0.
- The program location is the complete physical filename for the executable associated with the logical program name. The program location name should be slightly different for each new version of a program. The physical filenames specified for program location and the CDF format files must be existing, online files.
- Currently, the output data types are always KP, representing the K0 through K9 data types, and PA, representing platform attitude. The output descriptor is the instrument or subcomponent that the generated files represent. The logical filename for the output files is composed of the mission name of the primary input file, the output data type (i.e., “K” and the output file number starting with K0), the output descriptor, the file date of the primary input file, and a version (V01 if new, highest version plus one if reprocessed).
- The secondary required flag indicates that the input files for the previous day are also required. Secondary files are not applicable for calibration and parameter data files.
- If the number of input calibration files is greater than zero, a single data file type dependency must be declared in the input support data file types pop-up window with CD as the data type.
- If orbit or attitude files are required as input support files, the descriptor should always be specified as definitive (DEF). The Scheduler will automatically use the predictive version of a file if the definitive file is not available.
- The skeleton table format files are used to generate the appropriate CDF format for the generated key parameter output files. The physical filenames for skeleton table files should include the disk/directory logical and the filename, but no file extension.

#### 4.1.2.4.2 KPGS Certification Guidelines

- The Certify Status indicates whether the KPGS program has been certified (i.e., the program is believed to be generating key parameters suitable for distribution).
- Users with certification privilege for the key parameters generated by a KPGS program also have certification privilege for the program itself.
- An uncertified program will generate key parameter files that will be cataloged in the system. However, files generated by uncertified programs will not be sent to the DDF for distribution on CD-ROM (although they will be sent to NSSDC for archiving). Once a KPGS program is certified, the latest versions of all files generated by that program are sent to the DDF for distribution.

Exception: If a new version of a program is delivered, installed, and certified before the previous version has been certified, then all files generated by the previous version will be removed from the system and will not be sent to the DDF.

- Once a KPGS program has been certified, it may not be uncertified.
- The username (VAX user ID) of the person certifying the KPGS program and the date certified are automatically entered when the program is certified. A comment field, with room for several lines of text, is provided for entering comments about the program.



Refer to page QT-11 in the "Quick Tour of the CDHF User Interface" for a step-by-step example of how to certify a KPGS program.

Format:

```
PPF-----PROCESS PROGRAM-----
Program PI Comment
test certification
  Place comment for KPGS program certification here. The
  field is large enough for several lines
  Prev Blk - Return To Page 1
  Exit - Exit Form
  Accept - Commit
  Edit Key - View Additional Comment
Press Do to accept changes, PF4 to cancel.
Count: 20      ^ v                                <Replace>
```

#### 4.1.2.5 Calibration Data Information Form (CDF)

This form displays calibration data file information for file processing. Because calibration files are relatively static for a long period of time, they are manually cataloged by the DBA, separate from the regular scientific files, after key parameter generation integration testing.

Format:

```
-----CDF----- CALIBRATION DATA PROCESSING -----
Mission Name █ Instrument Name █
File Date █ File Version █
      DD-MON-YYYY      Instrument Component █
Catalog Date █ Logical Identifier █
      DD-MON-YYYY HH:MI
Physical Filename █
Effective Start Date █
      DD-MON-YYYY HH:MI
Effective End Date █
      DD-MON-YYYY HH:MI
Enter a query; press Keypad-8 to execute, PF4 to cancel.
Count: *0 ENTER QUERY <List><Replace>
```

Usage Restrictions:

- Regular users may only view the calibration data entries.
- Only a DBA user may create, update, or delete the calibration data entries.

Detailed Usage Guidelines:

- For non-DBA users, the form is in Enter Query mode upon entry. A query criteria, if any, can be entered followed by the Execute Query key to view the calibration data information. To view all calibration information that matches the query criteria, press the Down key until the end of the list.
- The data type attribute does not appear on the form because it is always CD, for calibration data. Thus, CD should be used as the data type in the Logical Identifier and the Physical Filename.
- The mission name and instrument name attributes should be the same for the Logical Identifier and the Physical Filename.
- The Logical Identifier is composed of the mission name; data type, which is CD for calibration data, instrument name; file date; and data file version.
- The Physical Filename is the complete physical filename for the calibration data file. It is composed of the disk/directory logical, the logical identifier, and the file extension. The instrument component is recommended as the file extension.
- For a given mission instrument, multiple calibration files can be used for key parameter generation. Each file is distinguished by a different instrument component. Each file can also have multiple versions to specify different effective date ranges.
- The calibration files for the mission instrument with the highest version for each component having the effective dates in the range of the process file (e.g., level-zero file) are selected for processing.

#### 4.1.2.6 Parameter File Information Form (PFF)

This form displays the parameter file information for the file processing. Parameter files are a type of input support file available for the key parameter file generation. The physical filename is retrieved during the initialization of the key parameter file generation. Because parameter files are relatively static for a long period of time, they are manually cataloged by the DBA, separate from the regular scientific files, after key parameter integration testing.

Format:

```

PFF-----PARAMETER FILE-----
Mission Name      [REDACTED]          Instrument Name [REDACTED]
File Date         [REDACTED]          Version Number [REDACTED]
                  DD-MON-YYYY
Logical File Name [REDACTED]
Physical File Name [REDACTED]
Catalog Date      [REDACTED]
                  DD-MON-YYYY HH:MI
Effective Start Date [REDACTED]
                  DD-MON-YYYY HH:MI
Effective End Date [REDACTED]
                  DD-MON-YYYY HH:MI
-----
Enter a query; press Keypad-8 to execute, PF4 to cancel.
Count: *0                                ENTER QUERY                                <List><Replace>

```

Usage Restrictions:

- Regular users may only view the parameter file entries.
- DBA users may create, update, and delete parameter file entries.

Detailed Usage Guidelines:

- For creating a new parameter file entry, the physical file must exist on the disk.
- The logical filename must consist of the mission name, data type (PF), and instrument name.
- Although there may be multiple versions of a parameter file, only one parameter file can be used for a given mission instrument during key parameter generation. The highest version of the parameter file having effective dates in the range of the primary process file date is selected.

#### 4.1.2.7 ISTEP Users and Privileges Form (IUF)

This form displays the account information and access/certify privileges for each ISTEP user. Regular users will be able to view the information for their own account upon entry into the form. Each user must have an account entry in this form for most CDHF applications to function. A user must have access privilege for a file type to decommutate or transfer a file. A user must have certification privilege for a file type to update the key parameter quality information.



Format:

```

IUF----- ISTEP USER INFORMATION AND PRIVILEGES FORM -----
VAX User ID SLEE          DB User ID DPS$SLEE
First Name STEPHANIE     Last Name LEE
Title                   Experimenter ID SL02   Query All
                          Daily Transfer Quota 300000  Versions?
Privilege Group USER    Query All Versions? Y
Default Mail Address ISTEP::SLEE
Default Destination ISTEP::CDNF_ST:[TEST.SLEE.VIreceipt]
Default Mission Name    Default Data Type    Default Descriptor
-----
Mission  ACCESS PRIVILEGES          CERTIFY PRIVILEGES
Name     Data      Descriptor          Name      Instrument
GE      %      %              GE      EPI
IB      %      %              IB      MAG
-----
Enter the VAX user name of the ISTEP user. (MAX)
Count: *1                                     <Replace>

```

Usage Restrictions:

- Regular users may only view the information for their own VAX account. The account information is automatically displayed for regular users upon entry into the form.
- Regular users may update their Default Mission Name, Data Type, and Descriptor. They may also set the Query All Versions flag, as needed.
- DPS may update the Daily Transfer Quota, Default Mail Address, Default Destination, Query All Versions, Default Mission Name, Default Data Type, and Default Descriptor for any account.
- Only a DBA user may create or delete the account information and privileges.

Detailed Usage Guidelines:

- You may have more access or certify privileges than displayed at once. Use the Next Block and Down keys to view any additional privileges.
- Wild cards (%) are allowed for access privileges to reduce the number of file types that need to be entered. Because level-zero files contain proprietary data, the only wild card that should be used generally for data type is K% (all KP files). Wild cards may be assigned by the DBA for mission name and descriptor, as appropriate.
- For certify privileges, specific mission and instrument combinations must be specified (no wild cards). In general, only the users on the team for an instrument may have the associated certification privilege.
- The Query All Versions item allows you to specify whether you want all versions of a file (Y) or just the most recent version of a file (N) when a query is performed. Toggle this value to suit your query requirements in the other forms.
- If a default mission, data type, and descriptor are selected, these values will automatically be displayed in many of the other forms as default values to reduce data entry.
- The Default Mail Address and the Default Destination (network node identifier and/or directory) are used for UDS transfer requests if specific values are not specified for a request. Transfers to a user directory on the ISTEP computers require a complete directory path for the destination. For TCP/IP transfers, a node name recognized by the network

should be specified. For DECnet transfers, a node name and directory can be specified. See Sections 4.2.4 and 4.2.5 for information on network address specifications.

- The Daily Transfer Quota is the maximum number of VMS blocks (512 bytes/block) that a user may transfer in a 24-hour period. The Data Files Stored On-line Report has file size information. The Daily Transfer History Form has information about transfer requests completed in the last 24 hours.
- The Privilege Group determines the user's database privileges. Regular PI users are assigned the USER privilege. Users who may not perform any database modifications are assigned the READ privilege. DPS or DBA privileges may be assigned to the CDHF operational personnel.
- The First Name, Last Name, Title, and Experimenter ID are currently used only for the DDF distribution information. The Experimenter ID is the unique user identifier used by the DDF. It is composed of the users first-name initial, last-name initial, and a two-digit number in case multiple users have the same initials. The assignment of experimenter IDs must be coordinated with the DDF.
- The DB User ID is the ORACLE account corresponding to a user's VAX user name. The VAX user name is used in all the forms and reports to identify a user. A VAX account must exist before the account information is created. Likewise, the ORACLE account should be created first.

#### 4.1.2.8 Data Quality Information Form (DQF)

This form displays the data quality information and corresponding data gaps. The data quality gaps are the top 10 frame gaps per data quality file. The data quality information and corresponding data gap entries are created from the data quality file by the EXTRACT\_LZ\_QA task. The data quality file is typically generated once a day per mission, but it may be generated more frequently by incrementing the version.

Format:

```

DQF----- Data Quality Information -----
+-----+-----+-----+
| Mission Name | File Date | File Date |
|              | Start Date | End Date  |
|              | 38-NOV-1993 | 38-DEC-1993 |
|              | DD-MON-YYYY | DD-MON-YYYY |
+-----+-----+-----+
| Mission Name | File Date | Version Number |
|              | DD-MON-YYYY |                |
+-----+-----+-----+
| Logical Identifier |
+-----+-----+-----+
| Number Of Major Frames |
+-----+-----+-----+
| Number Of Data Gaps |
+-----+-----+-----+
| Number Of Perfect Frames |
+-----+-----+-----+
| Number Of Good Frames |
+-----+-----+-----+
| Number Of Fill Frames | SF1 - View Data Gaps |
+-----+-----+-----+
Enter a valid mission name. List of values is available.
Count: *0 <List><Replace>

```

Usage Restrictions:

- Regular users may only view the data quality information and corresponding data gaps.

Detailed Usage Guidelines:

- Mission Name, File Start Date, and File End Date are mandatory query criteria.
- The special key SF1 displays a pop-up window with the data gaps corresponding to the data quality entry currently displayed in the main window. The length (in seconds) of each gap field in the pop-up window is calculated by the form.

#### 4.1.2.9 DDF Distribution Information Form (DDF)

This form displays the DDF distribution information. The form includes information about the distribution and its media contents. Regular users will be able to view the dataset distribution information.

Format:

DDF		DDF DISTRIBUTION	
VAX User ID SLEE	SF1 - Query by Logical Identifier	SF2 - Query by Dataset Name and Distribution Number	
Dataset Name	Dataset Distribution Number		
VAX User ID	Media ID	Production Date	
Logical Identifier			
[Redacted]			

Enter VAX username. Use SF1 or SF2 for different query criteria.  
Count: \*0 <List><Replace>

Usage Restrictions:

- Regular users may only view DDF dataset distribution information. The user is placed in the first query criteria block upon entry into the form and the user's VAX ID will be automatically displayed. The user may use the Next Block key to view dataset information.

Detailed Usage Guidelines:

- You may only retrieve dataset distribution information from the first block. This form provides three criteria for retrieving DDF dataset distribution information. You may retrieve information by VAX user ID or use one of the two special function keys to query by Logical Identifier, or by Dataset Name and Distribution Number, respectively.
- To view DDF dataset distribution information using the VAX User ID, enter the VAX ID, if it is not already specified, and press the Next Block key. Use the Down key to view all records that match that criteria.
- The Logical Identifier will automatically be required for each entry to match the distribution displayed. Use the Next Block and Scroll Down functions to view the complete list of logical identifiers.

- The special function key SF1 allows users to bring up a pop-up window to enter a logical identifier as a query criteria. Press SF1 to invoke the pop-up. Enter the logical identifier or use the List function to obtain a logical identifier from a list of values. After the logical identifier is entered, press Next Block to retrieve DDF dataset distribution information based on the specified logical identifier. Use the Down key to view all records that match that criteria.
- The special function key SF2 allows you to bring up a pop-up window to enter a dataset name and distribution number as a query criteria. Press SF2 to invoke the pop-up. Enter the dataset name and distribution number. You may obtain dataset names from a list of values. After the dataset name and distribution number are entered, press Next Block to retrieve DDF dataset distribution information based on the specified dataset name and distribution number. Use the Down key to view all records that match that criteria.
- The Dataset Name is the DDF data file group classification. Each time a new set of files is ready to be distributed for a dataset, the distribution number is incremented. The Media ID uniquely identifies a particular tape sent to a user.
- The Production Date is the date the distribution is made. The date is automatically generated but may be overwritten.

#### 4.1.2.10 ISTEP Missions Launched Form (IMF)

This form displays the active missions and associated information. This information is used to validate and generate SFDU headers and to provide list of values for mission names.

Format:

```

IMF----- ISTEP MISSION -----
Mission Name          GE
Mission Long Name     GEOTAIL
Mission Description   GEOMAGNETIC TAIL
Mission Launch Date   01-SEP-1992 12:23
                     DD-MON-YYYY HH:MI
Mission Operation Date 01-OCT-1992 00:00
                     DD-MON-YYYY HH:MI
Project Name          ISTEP
Spacecraft ID         24
Satellite Identification Code 3194
Enter a mission name.
Count: *1                                     <Replace>

```

Usage Restrictions:

- Regular users may only view the active mission information.

Detailed Usage Guidelines:

- Mission Name is the two-character acronym for the satellite.
- Mission Long Name is the formal name of the satellite.
- Project is the abbreviated name of the project supporting the mission.

- Spacecraft ID is the unique spacecraft number identifier used by level-zero files associated with the mission.
- Satellite Identification Code is the unique spacecraft identification code used by orbit and attitude files associated with the mission.

#### 4.1.2.11 Mission Descriptors/Instruments Form (MDF)

This form displays active mission descriptors/instruments and associated information. This information is used primarily for lists of values, mail message distribution for key parameter generation completed, SFDU header generation/validation, and database administration. The information is relatively static. Users with certify privilege are allowed to update mail information.

Format:

```

MDF ----- MISSION DESCRIPTORS -----
Mission Name  93          Descriptor  CPI
Descriptor Name  CPI
Descriptor Description  COMPREHENSIVE PLASMA COMPOSITION
Discipline  SPACE PHYSICS
Sub-Discipline  INTERPLANETARY STUDIES
Descriptor Type (M/I)  I          Mail (Y/N)  N
User Message Directory
Instrument Number  7          # of Minor Frames  512
# of Bytes (normal)  36          # of Bytes (maneuver)  36
Enter value for Mission Name. List of values available.
Count:  8          v          <List><Replace>

```

Usage Restrictions:

- Any user with certify privilege on a given mission instrument will be able to update the mail and user message directory information.
- All other users may only view mission descriptors. If the user has a default mission and descriptor, they will be displayed and the query will be automatically performed. If the user does not have defaults, the form will be in enter query mode upon entry.

Detailed Usage Guidelines:

- The Mission Name and Descriptor fields are primarily used for validation. The Descriptor is the encoded name for an instrument or a more detailed description of a data type, such as PRE for predicted orbit and attitude data. The Descriptor Name is the entire acronym for a descriptor. It is often the same as the descriptor. The Descriptor Description is the full name or description for a descriptor.
- The Descriptor Type indicates if the descriptor is mission dependent (M) or instrument dependent (I).
- Discipline and Sub-Discipline are primarily used in the generation and validation of SFDU headers. Discipline identifies the field or type of physics associated with a descriptor and Sub-Discipline identifies the science, studies, or observations associated

with a discipline. Although the discipline is mandatory, specification of a subdiscipline is optional.

- Mail indicates whether a mail message is sent to the PIs associated with a mission instrument when a related key parameter file is generated.
- User Message Directory is the directory that will receive the KPGS user message files and that contains the distribution list file (must be named DISTRIB.DIS) of users to be notified by E-mail if the mail flag is set. This location must be specified as a full disk and directory path, as shown in the following example:

```
ISTP_USER:[WL_3DP.SAM.UMSG]
```

The user is responsible for the creation of this directory. In order for the system to create the user message file in this directory, access rights must be granted to the ICSS. This is done by issuing the **SET\_UMSG** command.

If you need to decommutate the level-zero files for the mission instrument, the instrument number, number of minor frames, and number of bytes (normal and maneuver) must have values in them. The values for each mission instrument are specified in the *Data Format Control Document Between the ISTP Program Information Processing Division Ground Data Processing System and the ISTP Mission Investigators*.

### 4.1.3 Database Interface System Reports

This section contains the purpose, usage restrictions, user-definable criteria, and column width for each report in the Database Interface System.

Those reports generated with a start and end date will include this information on the report.

#### 4.1.3.1 Data Files Stored On-Line Report (DFSR)

This report displays the information about data files that are online for a given mission, data type descriptor, and data span time range. The information includes the mission name, descriptor, logical filename, physical filename, the record size, and file size in VMS blocks. The report also calculates the total number of VMS blocks used by the selected files.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (wild card allowed)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### 4.1.3.2 Data Files Received Report (DFRR)

This report displays the information about data files received for a given mission name, data type, descriptor and catalog date range. The information includes the data file logical filename, physical filename, online flag, data span start date, data span end time, catalog date, expiration date, reference file physical filenames, reference file data span start dates, and reference file data span end dates.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (wild card allowed)
3. Descriptor (wild card allowed)
4. Catalog start date (no wild cards, format DD-MON-YYYY)
5. Catalog end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.3 Data File Certification Status Report (DFCR)**

This report displays the certification status information for selected KP data files as specified by a file date range, mission, and instrument. The information includes the mission name, descriptor, logical filename, file date, version, quality indicator, certification date, user ID of person who certified, and KP comment.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (always K%)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.4 Data File Summary Report (DSUM)**

This report displays a summary of the data files that are cataloged for a given mission, data type, descriptor, and data span time range. The summary includes the mission name, data type, descriptor, first and last dates for which there are data, and total number of days for which there are data.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed by DPS and DBA users)
2. Data type (wild card allowed by DPS and DBA users)
3. Descriptor (wild card allowed by DPS and DBA users)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 80

#### **4.1.3.5 Working Data File Report (WFR)**

This report displays a summary of the working data files that are cataloged for a given mission, data type, descriptor, and time range. The summary includes the mission name, data type, descriptor, logical filename, span start date, span end date, catalog date, and expiration date.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (always W%)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.6 Cataloged Data File Report (DFR)**

This report displays information about data files in the CDHF catalog for a given time range. The information includes the mission name, descriptor, online flag, logical file name, span start time, span stop time, record size, and data file size.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (wild card allowed)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.7 Key Parameters Reprocessed Report (KPRR)**

This report displays information about KP data files that have been reprocessed for a given date range, mission, and descriptor. The information includes the mission name, descriptor, logical identifier, file date, version, quality indicator, certification date, certifier, and the PI comment.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (always K%)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.8 Process History Report—By Input File (IFPH)**

This report displays the process history information about the input data files and the corresponding output product files for the date range, mission, data type, and descriptor specified as the input data file criteria. The information includes the logical identifier of the input data file, the program name and version that was used to process the input data file, the process completion date, and the process summary.

Usage Restrictions: This report is available to all users.



User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (wild card allowed)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.9 Process History Report—By Output File (OFPH)**

This report displays the process history information about the output product files and the corresponding primary input data file for the date range, mission, and descriptor specified as the KP data file criteria. The information includes the logical identifier of the output product file, the program name and version that was used to generate the output product file, the process completion date, and the process summary.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (always be K%)
3. Descriptor (wild card allowed)
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.10 Process History Report—By Program (KPR)**

This report displays the process history information plus the corresponding input support files and output product files for key parameter files generated in a given date range with a given program name. The process information includes process program, version number of the process program, primary input file, process requested date, process scheduled date, process completed date, and schedule type. The key parameter files generated and the input support files are also included for each process history entry.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Program name (wild card allowed by DBA or DPS users)
2. Process completed date range (DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.11 Process Program Information Report (PPR)**

This report displays all of the process program information including the primary input data file types and the input support data file types associated with each program. The information for each program also includes the program name, program version, program location, program effective start date, program effective end date, output file type, number of output files, output

file descriptor, secondary input file required flag, number of input calibration files, program installation date, and the CDF skeleton files associated with each output file.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: None

Report Column Width: 132

#### **4.1.3.12 Calibration Data Information Report (CDR)**

This report displays all of the calibration data file information. The calibration data file information includes mission name, instrument name, file version, instrument component, logical filename, physical filename, catalog date, file effective start date, and file effective end date.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: None

Report Column Width: 132

#### **4.1.3.13 Parameter File Information Report (PFR)**

This report displays all of the parameter file information. The parameter file information includes mission name, instrument name, file version, logical filename, physical filename, catalog date, file effective start date, and file effective end date.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: None

Report Column Width: 132

#### **4.1.3.14 Data Quality Information Report (DQR)**

This report displays the information about the quality of level-zero data and the top 10 data gaps on a given date range for a given mission name. The information includes mission name, version, file date, logical filename of the data quality file, number of major frames, number of data gaps, number of perfect frames, number of good frames, number of fill frames, and the frame start and end date of the data gaps.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild card allowed)
2. Data type (always 'LZ')
3. Descriptor (always 'QAF')
4. Span start date (no wild cards, format DD-MON-YYYY)
5. Span end date (no wild cards, format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.15 DDF Distribution Report—By User (DDFR)**

This report displays the information about DDF dataset distributions. The information includes user's name, user's title, dataset name, distribution number, production date, media ID, and logical identifier included in the dataset. Additional details about the DDF distribution information are available in the DDF Distribution Form section.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: VAX user ID (wild card allowed by DPS and DBA users)

Report Column Width: 132

#### **4.1.3.16 DDF Distribution Report—By File Type (DDFR2)**

This report displays DDF distribution information about the DDF distributions and associated media contents. This report is based on logical identifiers requested by a user.

Currently this report does not support SIRIUS data files. SIRIUS data files are named differently between DDF and CDHF. Only one logical identifier will exist on the CDHF for multiple logical identifiers on DDF. SIRIUS data can be viewed in the DDF format using the DDF Dataset Distribution Form.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria:

1. Mission name (wild cards allowed)
2. Data type (wild cards allowed)
3. Descriptor (wild cards allowed)
4. Start date (required, no wild cards) (format DD-MON-YYYY)
5. End date (required, no wild cards) (format DD-MON-YYYY)

Report Column Width: 132

#### **4.1.3.17 ISTP Missions Launched Report (IMR)**

This report displays the ISTP active mission information. The ISTP mission information includes mission name, mission long name, mission description, mission launch date, mission operation date, project name, support identification code (SIC), and spacecraft identification number. This information is used to validate and generate SFDU headers.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: None

Report Column Width: 132

#### **4.1.3.18 Mission Descriptors/Instruments Report (MDR)**

This report displays all of the mission descriptor/instrument information. For each mission descriptor, the report includes the mission name, descriptor, descriptor long name, descriptor description, descriptor type, discipline, subdiscipline, key parameter generation mail flag, and user message directory. This information is used to validate and generate SFDU headers and to schedule key parameter generation jobs for a mission instrument.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: None

Report Column Width: 132

## 4.2 User Data Transfer Services

The User Data Transfer Services allow the user to request the electronic transfer of files from the CDHF to a specified network node. The CDHF supports both the DECnet and TCP/IP protocols for the transfer of data files, and supports the staging of data files on the CDHF for remote access from the RDAF.

### 4.2.1 Data Transfer Request Types

The Data Transfer Services supports the following three types of transfer requests:

- **User File Requests**—Allow users to transfer files for which they either own or have read access privileges. For example, CDHF database reports or other files generated in the user's directory can be transferred using this option. Due to proprietary requirements, cataloged science data files cannot be transferred with this option because they are not directly accessible to the user community.
- **Cataloged File Requests**—Allow users to transfer science data files that are already cataloged in the CDHF database. For each logical identifier selected, all the associated physical filenames are transferred. If offline files are requested, a DDF retransmit request is automatically created, which may require a day to process. When offline files are selected, they will be verified that the data file requested was archived on the DDF system. If a selected file was never sent to the DDF, that file will be unselected and no request to retransmit will be made from the DDF. Once the offline files are retransmitted for a request, the request will execute. If online files are requested, the request must either be executed immediately or before any of the files selected expire. For any level-zero files selected, a decommutation specification and/or an extraction time range can be specified as an alternative to transferring an entire level-zero file.
- **Standing Requests**—Allow users to periodically transfer science data files that have been newly cataloged since the last execution of a request. Each time a standing request executes, it generates a new cataloged file request with a file list automatically generated based on the files newly cataloged for the mission, data type, and descriptor associated with the request. For example, a request can be created to automatically send newly generated key parameter files for a mission instrument every 2 days. If the standing request is for level-zero files, a decommutation specification and/or an extraction time range can be specified as an alternative to transferring entire level-zero files.



User file requests and cataloged file requests are automatically deleted either when all the associated files are successfully transferred or when the maximum number of transfer attempts is exceeded. Standing requests, however, are active until they are deleted by the requester.

### 4.2.2 Data Transfer Process Overview

The processing of a transfer request involves a three-stage process to accept, schedule, and process a transfer request. All three stages interface with the CDHF database.

#### 4.2.2.1 Data Transfer Services User Interface

The user interface consists of forms and reports to allow users to create, query, and modify requests. The forms provide database assistance in creating requests and ensure that all the information is valid, including file access privileges, before the request is saved in the database. Only remote mail and destination addresses are not validated until the transfer is actually attempted. The Data Transfer Services user interface is the only means for accessing science data

files. The creation or modification of a transfer request automatically results in the invocation the Transfer Handler.

#### **4.2.2.2 Transfer Handler**

The Transfer Handler is a resident task that creates and submits jobs in the system transfer queue for all transfer requests based on the execution date/time requested. In addition to being invoked by the user interface, the Transfer Handler automatically executes several times a day to submit standing requests and requests that were created with deferred execution date/times. Every time the Transfer Handler is invoked, it checks all the requests in the database that do not have job IDs to determine the requests, if any, that are scheduled to be executed in the next few hours, as defined by the UDS\_TIME system parameter. The Transfer Handler then creates and submits jobs for the requests determined. A job submitted for a request will not actually execute until the execution time. Therefore, a job for a request may appear in the system queue anywhere from a few hours before the execution time to a few seconds before it. Requests created with the current time as the execution time are processed immediately. If the Transfer Handler is unavailable for a time period, all requests requiring processing will be submitted to the system queue as soon as the Transfer Handler is available again. If a cataloged file request has offline files associated with it, the Transfer Handler will not submit a job for the request until all the offline files are either retransmitted from the DDF or deleted from the request.

#### **4.2.2.3 Transfer Files Task**

The transfer files task, UXFER\_FILES, is executed for a request when the submitted job executes. It determines the files to be transferred and performs the transfer. For standing requests, the task generates a cataloged file request after it determines the transfer file list based on newly cataloged files. The new cataloged file request is then processed immediately, and the dates for the standing request are updated to set up the next periodic execution. For the user file and cataloged file requests, the task determines the transfer file list from the requester's selections in the database. This task also performs the decommutations and time extractions if they are declared for any level-zero files associated with the request. After the transfers are performed or attempted, the request is updated in the database, as appropriate, and a status message is electronically mailed to the requester. Section 4.2.7.1 contains an explanation for all the status messages. If a user file request or cataloged file request is successful, the request is deleted. If the request is requeued because of a failure, the execution date is updated and the Transfer Handler is invoked.

#### **4.2.3 Science Data Files Access Privileges**

The CDHF is required to restrict access to proprietary science data files. For cataloged file requests, any file for which the proprietary date has not expired cannot be selected unless the requester has explicit access privileges. Science data files that do not have a proprietary expiration date do not require explicit access privileges. The proprietary expiration date for a file, if any, can be viewed using the Data File Information Form. Access privileges are controlled by the CDHF DBA. A user can view the access privileges for his/her account using the ISTEP Users and Privileges Form. For standing requests, explicit access privileges are required for all data file types selected because the proprietary expiration date is not available for files that have not been received yet by the CDHF.

#### **4.2.4 Mail Addresses**

The CDHF will electronically mail status files for file transfer requests to a mail destination or distribution list. VAX mail over DECnet and Simple Mail Transfer Protocol (SMTP) mail over TCP/IP are supported. Each user has a default E-mail address specified in the user's profile information in the database. This default address is specified by the user but set by the CDHF

operations personnel. Any change to the default mail address must be made via a request to the operations personnel. The default address can be overridden by the user on a per-transfer-request basis.



The CDHF software will attempt to send mail to the specified mail address. If mail cannot be sent to the specified address, the mail will be sent to the user's local CDHF mailbox. For this reason, do not forward mail from the CDHF by using the **SET FORWARD** command of the VMS mail utility. If the primary E-mail address is unreachable and mail is forwarded from the CDHF and the forwarded address is unreachable, then no mail can be sent and you will not receive notification of the status of the attempted transfer.

The format of the mail destination for VAX mail follows the standard VMS conventions (i.e., nodename::username). A single user can be specified or a list of users can be specified, as shown in the following examples:

LEPVAX::SMITH (send mail to a single user)

LEPVAX::SMITH,NSSDCA::JONES (send mail to a list of users)

To send mail using SMTP over TCP/IP, the addresses must be included in a distribution list file. The mail utility will not correctly process mail addresses using SMTP if they are entered directly in the mail address field. The format of the address is SMTP%“user@hostname”. To specify that mail should be sent to user Whitman at host groucho.gsfc.nasa.gov, the following address would be entered into the distribution list file:

SMTP%“whitman@groucho.gsfc.nasa.gov”

The name of the distribution list file is then entered in the mail address field. If the distribution list file is called MYLIST.DIS and is located on disk and directory ISTEP\_USER:[DARN.BAKER], then the following is entered in the mail address field:

“@ISTEP\_USER:[DARN.BAKER]MYDIST.DIS”

Note that the full device and directory path must be specified for the distribution list file and that the double quotes (“ ”) are part of the specification and must be included.

When using a distribution list file, both VAX mail addresses and SMTP addresses can be mixed. The following example shows the contents of a distribution list file with mixed addresses:

LEPVAX::SMITH  
NSSDCA::JONES  
SMTP%“whitman@groucho.gsfc.nasa.gov”

#### 4.2.5 Destination Addresses

The Data Transfer Services of the CDHF provide the user with the capability to request the transfer of data files from the CDHF to a specified destination. The CDHF will transfer files to an RDAF (or other remote computer system), or will stage the data files at the CDHF where the user can then copy the files to the desired location. Transfers to remote systems are supported using DECnet COPY and TCP/IP ftp. The protocol used in transferring the data files is determined from the destination address format.

#### 4.2.5.1 Staged Transfers

Staged transfers are file transfers to a user-controlled area on the CDHF. Staged transfers are requested by specifying the destination of the transfer as `ISTP::disk:[directory]`. Users may specify any directory for which they have write access to as the destination for staged files. Users will be allocated a directory and disk space on a staging disk on request. This disk and directory can then be used as the user's staging area. Staged files will be owned by the user that made the transfer request. The management of the user's staging area is the responsibility of the user. Users should delete files from the staging area once they have been transferred to their final destination. Failure to delete files from the staging area could result in the user's disk allocation being exceeded during subsequent transfers.

The staging disk on the CDHF is called XSTAGE. A user that has been given a directory on the staging disk called `[GEOTAIL.PWI]` would specify `ISTP::XSTAGE:[GEOTAIL.PWI]` as the destination for a transfer request. When the request is processed, the requested data files are moved to `XSTAGE:[GEOTAIL.PWI]` and the user is notified via E-mail in the usual manner. The user may then copy the files remotely using DECnet COPY or ftp, or log into the CDHF and access the files directly.

Files older than 3 days will be deleted from the staging disk.

#### 4.2.5.2 RDAF Transfers

Transfers to RDAFs or other remote computer systems from the CDHF are accomplished by a process that "pushes" the data files from the CDHF to the specified remote node and location. The CDHF can "push" data to a remote system in the following three ways:

- A remote system supporting DECnet PROXY can set up a proxy account for the transfer of data files. The account on the CDHF that handles the "pushing" of data files is called `DPS_OPBATCH`. The establishment of a proxy for `ISTP::DPS_OPBATCH` will allow the transfer of files from the CDHF to a specified account on the remote system. The transferred files are owned by the proxy account. The user may specify the destination in any of the following forms:

`node::` Files are copied to the root directory of the proxy account.  
`node::disk:[directory]` Files are copied to the specified disk and directory if the proxy account has write access to `disk:[directory]`.

- A remote system supporting DECnet can set up the default DECnet account to accept incoming file copies. The user specifies the destination as follows:

`node::` Files appear in the root directory of the default DECnet account and are owned by the default DECnet account.

- A remote system can set up an anonymous ftp account with no password that allows incoming file copies. The user specifies the destination as a valid TCP/IP node address, as shown in the following example:

`buster.gsfc.nasa.gov` Files are copied to the root directory of the anonymous account.

`buster.gsfc.nasa.gov/incoming` Files are copied to the specified directory relative to the anonymous account. The destination directory specification is separated from the node address by a `/`. To test whether the destination has been correctly specified, perform an ftp to the node, log in as anonymous, and do a `cd` to each string separated by a `/`.

For example, to test whether `buster.gsfc.nasa.gov/incoming/istp` is a correct specification

```
ftp buster.gsfc.nasa.gov
log in anonymous
cd incoming
cd istp
```

Users prevented from using any of these three options due to system management policies at their sites should select staged transfers.



Do not include your username and password in the destination string for DECnet transfers. This information is stored in clear text form in the database. It will also appear in the status message sent out when files are transferred. For security reasons, the handling of remote systems' usernames and passwords on the CDHF is not supported.

#### 4.2.6 Data Transfer Services User Interface

The menu for the Data Transfer Services allows users to access various forms and reports to create, modify, and query transfer requests. The menu can be accessed from the CDHF User Interface Main Menu or by entering the Transportable Applications Environment (TAE) command, `FILEXFER`. The individual forms cannot be directly accessed without accessing the User Data Transfer Services Menu, which performs required initializations. Like the Database Interface System (CDHF Queries and Reports), the Data Transfer Services menu, forms, and reports were developed using the ORACLE SQL\*Forms and report tools. Section 3 outlines the terminal support requirements and the usage of the ORACLE tools. Under the User Data Transfer Services Menu (Figure 4–3), there are eight menu items.

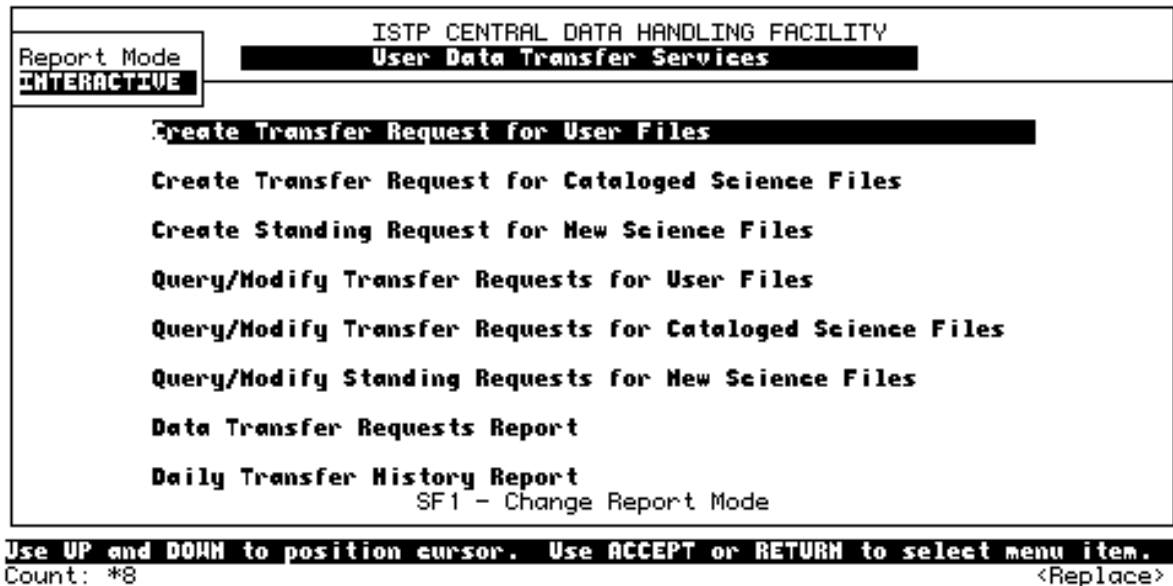


Figure 4–3. User Data Transfer Services Menu

- Create Transfer Request for User Files—Allows users to create new transfer requests for files either owned by or accessible by the user.



- Create Transfer Request for User Files—Allows users to create new transfer requests for files either owned by or accessible by the user.
- Create Transfer Request for Cataloged Science Files—Allows users to create new transfer requests for files that are already cataloged in the CDHF database.
- Create Standing Request for New Science Files—Allows users to create standing transfer requests for new science files as they are cataloged on the CDHF.
- Query/Modify Transfer Requests for User Files—Allows users to query and modify existing transfer requests for files either owned by or accessible by the user.
- Query/Modify Transfer Requests for Cataloged Science Files—Allows users to query and modify existing transfer requests for files that are already cataloged in the CDHF database.
- Query/Modify Standing Requests for New Science Files—Allows users to query and modify existing standing transfer requests.
- Data Transfer Requests Report—Displays all the current requests for a user including user file requests, cataloged science file requests, and standing requests.
- Daily Transfer History Report—Displays a summary of all the requests successfully completed for a user in the last 24 hours.

#### 4.2.6.1 Create Transfer Request for User Files

This form allows users to create new transfer requests for files either owned by or accessible by the user. For example, reports generated from the Database Interface System can be transferred using this option. For each request, one or more physical filenames can be specified for transfer. Cataloged science data files, however, cannot be transferred using this form because the files are not directly accessible. This form allows users only to create new requests. No queries, updates, or deletions are allowed.

Format:

```

CFRF----- CREATE TRANSFER REQUEST FOR USER FILES -----
Request ID      Request By      Request Date
10 12        SLEE        30-NOV-1993 18:30

Execution Date  30-NOV-1993 18:30
                (DD-MON-YYYY HH:MI)

Mail Address    _____

Transfer Destination _____

                NEXT BLOCK - To Enter Physical File Name Of User Files

Enter Date/Time the request is to be executed.
Count: *0                                           <Replace>

```

```

USER FILE REQUEST LIST
Physical File Names Of User Files
CDNF_ST:[TEST.SLEE]REPORT.TXT_
PREVIOUS BLOCK - Return To Previous Screen   EXIT - Exit Form
ACCEPT - Save Request And Return To Previous Screen
Enter full path(disk/directory/filename/extension) of the file for transfer.
Count: *0                                     <Replace>

```

#### Usage Restrictions:

- Read-only users may not access this form.
- Queries, updates, and deletions cannot be performed by any user.
- For any physical filename entered, the user must have read privilege for the file. Cataloged science data files cannot be specified unless they have already been copied to a staging area by another request. Use the Create Transfer Requests for Cataloged Science Files Form for this purpose.
- The Commit function is not allowed in the first block. Users must first proceed to the next block and complete the request by entering one or more physical file names.
- Each request must be saved using the Commit function before another request can be created.

#### Detailed Usage Guidelines:

- The Request ID, Request By, and Request Date are automatically generated for new requests. These fields cannot be accessed or updated. The Request ID is supplied by a number generator shared by all users. Two requests created back to back may not have sequential numbers, but the newer request will always have the higher number.
- Default values are provided for the Execution Date, Mail Address, and Transfer Destination as you cursor to the respective fields. This information may be changed by the user as required for each request. The default mail address and transfer destination for your account may be changed by contacting the DPS.
- The Execution Date is the date and time the request should execute. It cannot be earlier than the current date. Mail Address is the requester's mail address for electronic transfer status messages. Multiple addresses can be specified if they are separated by a comma. Section 4.2.4 contains additional information on setting up mail addresses. Destination Address is the destination node and/or directory for transferred files.
- For staged requests, you must enter into the Destination Address "ISTP::" followed by a complete disk/directory path to which you have write access. To transfer a file to an RDAF, you must, as a minimum, specify the DECnet or TCP/IP node ID for the RDAF. Section 4.2.5 contains more information on file transfers to an RDAF.

- To enter the physical filenames associated with the request, invoke the Next Block function. Your default home directory (as defined by the value of the SYSS\$LOGIN VMS logical) is displayed upon entry into the field as the default disk/directory. You can easily append the subdirectory and filename by invoking the End of Line function to move the cursor to the end of the default directory. You can change the disk/directory specification as necessary.
- The physical filenames must include the disk/directory, file name, and file extension.
- You must have read privilege on each file you have requested for transfer.
- The request will not be created if no physical filenames are entered by the user.
- Once all the information has been entered for a request, you can save it by invoking the Commit function. The Transfer Handler will then be invoked to process the request unless a message indicates that the request may be delayed due to the unavailability of the Transfer Handler. Once the request is successfully saved, you can proceed to create another request or to exit the form.

#### 4.2.6.2 Create Transfer Request for Cataloged Files

This form allows users to create requests for file transfers. Only science data files that are already cataloged in the CDHF database may be requested for transfer using this form. The user may specify level-zero extraction timespans and/or level-zero decommutation specification filenames when requesting level-zero files. This form is only used for creating requests; editing and deleting are not permitted. To complete the file selection process, the user may query science data files for which he or she may or may not have access privileges. However, the user may only select files for which he/she has access privileges unless the proprietary date has expired or the data file type is not proprietary.

Format:

```

CARF----- CREATE TRANSFER REQUEST FOR CATALOGED FILES -----
Request      Request      Request
  ID          By          Date
  10 14      SLEE      30-NOV-1993 18:34
-----
Execution
Date      30-NOV-1993 18:34
          DD-MON-YYYY HH:MI

Mail
Address   _____

Transfer
Destination _____

          NEXT BLOCK - To Enter Query Criteria
-----
Enter date and time to execute the request.
Count: *0                                     <Replace>

```

QUERY CATALOGED SCIENCE FILES

---

Mission Name <b>GE</b>	Data Type <b>LZ</b>	Descriptor <b>PHI</b>
Span Start Date <b>31-JAN-1992 00:00:00</b> DD-MON-YYYY HH:MI:SS		
Span End Date <b>31-DEC-1992 00:00:00</b> DD-MON-YYYY HH:MI:SS		
SF3 - Enter Default LZ Extraction Time		NEXT BLOCK - To Execute Query
SF4 - Enter Default LZ Decom Spec File		PREVIOUS BLOCK - Previous Screen

Enter Query Criteria to retrieve files to select for transfer

**Enter a valid mission short name. List of values available.**  
 Count: \*0 <List><Replace>

SELECT LZ CATALOGED SCIENCE FILES

---

Daily Remaining Quota **254295** (Blocks)

Logical Identifier	File Expired/Offline	File Selected	LZ Extraction	LZ Decom
GE_LZ_PHI_19920925_U01	0			

SF1 - Select/unselect current file	E - Indicates file has expired
SF2 - Select all files	0 - Indicates file is offline
SF3 - Add/Edit LZ Extraction Time Span	* - Indicates selected
SF4 - Add/Edit LZ Decom Spec File	ACCEPT - Commit/Save requested files

**Use SF1 to select individual files or SF2 to select all files.**  
 Count: \*1 <Replace>

**Usage Restrictions:**

- Users with read-only privilege may not access this form.
- Queries may only be performed from the second block to generate a list of available file selections.
- Creating a single request from multiple queries is not allowed. The user may create one request per query. Each request must be saved (Commit function) before another request can be created.
- Inserts of files in addition to the ones queried are prohibited. The user may only select files using special function keys SF1 and SF2 to create transfer requests.
- If the data file type queried is proprietary and the proprietary date has not expired for the file, the user must have access privileges for the mission, data type, and descriptor

combination to select the file. Access privileges may be viewed using the ISTP Users and Privileges Form.

- Users are not permitted to update or delete existing transfer requests using this form. Modifications and deletions are done from the Modify Transfer Request for Cataloged Files Form.
- The Commit function can only be invoked from the Select LZ Catalog Science Files and Select Catalog Science Files screens if at least one file has been selected.
- Each request must be saved using the Commit function before another request can be created.

#### Detailed Usage Guidelines:

- The Request ID, Request By, and Request Date are automatically generated for new requests. These fields cannot be accessed or updated. The Request ID is supplied by a number generator shared by all users. Two requests created back to back may not have sequential numbers, but the newer request will always have the higher number.
- Default values are provided for the Execution Date, Mail Address, and Transfer Destination as you cursor to the respective fields. This information may be changed by the user as required for each request. The default Mail Address and Transfer Destination for a user account may be changed by contacting the DPS.
- The Execution Date is the date and time the request should execute. It cannot be earlier than the current date. Mail Address is the requester's mail address for transfer status messages. Multiple addresses can be specified if they are separated by a comma. Section 4.2.4 contains additional information on setting up mail addresses. Destination Address is the destination node and/or directory for transferred files.
- For staged requests, you must enter into the Destination Address "ISTP:." followed by a complete disk/directory path to which you have write access. To transfer a file to an RDAF, you must, as a minimum, specify the DECnet or TCP/IP node ID for the RDAF. Section 4.2.5 contains more information on file transfers to an RDAF.
- To proceed to the second page to enter the file selection list query criteria, invoke the Next Block function.
- For the Query Cataloged Science Files screen (query criteria block), the Mission Name, Data Type, Descriptor, Start Date, and End Date must be specified. If you have a default mission, data type, and descriptor, it will automatically be displayed to reduce data entry. The Query Start Date and End Date will be provided as defaults as well. Query Start Date will be the current date less 30 days, and the Query End Date will be the current date. All defaults provided may be changed to alter the query.
- Wild cards (%) are allowed for mission name, data type, and descriptor in the query criteria block to reduce the number of requests that need to be created. The wild cards allowed are "K%" (all KP files) for data type and "%" for mission name and descriptor (all instruments/descriptors).
- The special function key SF3 allows users to add or edit level-zero extraction timespans. Invoke SF3 to enter the pop-up. Invoke the Exit function to return to the previous screen. This pop-up can only be invoked if the user is requesting level-zero (LZ) files. If LZ extraction time is entered from the Query Cataloged Science Files screen, it is used as a default for every LZ file returned by the query. LZ extraction timespans may be added or updated for individual file selections from the Select LZ Cataloged Science Files screen. If LZ timespans are specified, an asterisk appears under the LZ Extraction column for each applicable file. The extraction times are relative to the file date of the LZ file being processed.
- The special function key SF4 allows users to add or edit LZ decommutation specification names. Invoke SF4 to enter the pop-up. Invoke the Exit function to return to the previous

screen. This pop-up can only be invoked if the user is requesting LZ files. If an LZ decommutation specification name is entered from the Query Cataloged Science Files screen, it is used as a default for every LZ file returned by the query. LZ decommutation specification names may be added or updated for individual file selections from the Select LZ Cataloged Science Files screen. If an LZ decommutation specification name is specified, an asterisk appears under the LZ Decom column for each applicable file. The List of Values function within the pop-up displays the decommutation specifications for which the user has access privileges.

- After the query criteria are entered, you may view the qualifying data files available for transfer by invoking the Next Block function.
- When a query is performed, your daily remaining transfer quota is displayed on the Cataloged Science Files screen. The remaining quota informs the user of the amount of available 24-hour transfer quota in VMS blocks. The daily transfer quota is informational only. It does not prevent you from transferring files when the daily transfer quota is exhausted.
- For queries with multiple versions of a logical identifier, only the most recent version will be displayed by default. To view all versions of a logical identifier, change the Query All Versions attribute in the ISTP User Information and Privileges form to “Y”.
- If an LZ data type is specified, the Select LZ Cataloged Science Files screen will appear when the query is executed. If a non-LZ data type is specified, the Select Cataloged Science Files screen will appear when the query is executed. However, if no files match the query criteria, the cursor will remain in the query criteria block to allow modifications to the criteria.
- A File Expired/Offline column exists on the Select LZ Catalog Science Files and Select Catalog Science Files screens. An “O” indicates the file is offline and an “E” indicates that the file is currently online, but it will expire before the request is executed. A file is considered to be expired if it will expire within 6 hours of the execution date. A blank indicates that the file is online and that it will not expire before the execution date.
- The special function key SF1 allows users to select or unselect the current file. Press SF1 to select or unselect the file. If the file is selected, an asterisk (\*) appears under the File Selected column and the file is selected for transfer. If the file is unselected, the asterisk is removed and the current file is no longer selected for transfer.
- The special function key SF2 allows the user to select all files for transfer that were returned by the query. Press SF2 to select all files. An asterisk will appear under the File Selected column for all files returned by the query. Use the special function key SF1 to unselect undesired files. If more files are returned by the query than can be displayed at one time, invoke the Scroll Down function to view the other files.
- Once all the desired files have been selected, you can save the request by invoking the Commit function. The Transfer Handler will then be invoked to process the request unless a message indicates that the request may be delayed due to the unavailability of the Transfer Handler.
- If an expired file is selected and the execution date has been changed from the default value (current date/time), a small pop-up will appear, when the Commit function is invoked, in the bottom right corner of the screen displaying the current date/time as the revised execution date. You have the option to change the displayed execution date, if desired. However, the form will not permit you to enter an execution date greater than 6 hours before the earliest expiration date for the selected file(s). In other words, to select expired files, the request must be executed either immediately or before any of the files selected expires (i.e., a file selected has already expired and subject to deletion, or the file will expire before the request executes). You must invoke the EXIT function to exit from the pop-up and continue the commit process.

- If you request an offline file, the form will verify whether the data file requested was archived on the DDF system. Selected files that were never sent to the DDF will be unselected, and a message will indicate that the file was never sent to the DDF. The request form retransmit file list will be deleted.  
 If you request an offline file that is available from the DDF, the form will automatically generate a DDF retransmit request and send a mail message to the DPS when the request is committed. You will be warned that you have requested offline files. The request will not execute until the file(s) are retransmitted from the DDF, even if some of the files requested are already online. Retransmit requests for files that have been expired for less than 30 days are automatically approved.
- After successfully creating a request, a message will appear informing you that the request has been successfully created. In addition, this message displays the request ID that was created and the approximate number of blocks that were requested for transfer. The number of blocks requested is based on the file size of the files selected for transfer. The number of blocks requested does not reflect LZ extractions and LZ decommutations. You can then proceed to create another cataloged file request or can exit the form.

#### 4.2.6.3 Create Standing Requests for New Science Files

This form allows users to create standing transfer requests. Standing requests provide users with a method of receiving specific types of newly cataloged files on a routine basis. For example, a user can request that key parameter files for a certain mission and instrument be transferred every 2 days. Then, a cataloged file request will automatically be generated and executed every 2 days based on the key parameter files newly cataloged in that time period for the mission instrument. This form is only for creating standing requests, not querying or modifying requests. The user must have access privileges for the mission, data type, and descriptor combination selected.

Format:

```

    ┌──────────────────────────────────┐
    │                                │
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    │                                │
    │                                │
    │                                │
    │                                │
    └──────────────────────────────────┘
    SELECT LZ CATALOGED SCIENCE FILES
    ───────────────────────────────────
    Daily Remaining Quota 254295 (Blocks)
    ───────────────────────────────────

```

Logical Identifier	File Expired/Offline	File Selected	LZ Extraction	LZ Decom
GE_LZ_PMI_19920925_U01	0			

```

    ───────────────────────────────────
    SF1 - Select/unselect current file          E - Indicates file has expired
    SF2 - Select all files                      0 - Indicates file is offline
    SF3 - Add/Edit LZ Extraction Time Span     * - Indicates selected
    SF4 - Add/Edit LZ Decom Spec File          ACCEPT - Commit/Save requested files
    ───────────────────────────────────
    Use SF1 to select individual files or SF2 to select all files.
    Count: *1                                  <Replace>

```

Create Standing Transfer Request - Data File Attributes		
Mission Name	Data Type	Descriptor
Effective Catalog Start Date/Time for Request		Time Interval Between Transfers
30-NOV-1993 18:38 (DD-MON-YYYY HH:MI)		(days)
<p>The mission name, data type, descriptor and catalog date determine what files are transferred.</p> <p>SF1 - Enter Decommutation Specification (LZ Data Types Only)  SF2 - Enter Extraction Times (LZ Data Types Only)  PREVIOUS BLOCK - Return to Page 1  COMMIT - Complete/Save Request  EXIT - Exit Form</p>		

Enter mission name for files to be transferred. List of values available. (MAN)  
Count: \*0 <List><Replace>

#### Usage Restrictions:

- Read-only users may not access this form.
- A user can only create a standing request for a mission, data type, descriptor combination for which he/she has access privileges. Access privileges may be viewed using the ISTEP Users and Privileges Form.
- No queries, updates, or deletions are allowed in this form.
- A standing request cannot be created for files already cataloged. Use the Create Transfer Requests for Cataloged Science Files Form for this purpose.
- Each request must be saved using the Commit function before another request can be created.
- The Commit function cannot be invoked from the first block of the form. It must be invoked from the second block after all the request information is entered.

#### Detailed Usage Guidelines:

- The Request ID, Request By, and Request Date are automatically generated for new requests. These fields cannot be accessed or updated. The Request ID is supplied by a number generator shared by all users. Two requests created back to back may not have sequential numbers, but the newer request will always have the higher number.
- The default Execution Date displayed for new requests is 1 day greater than the current system time. The default value may be changed, but it must be greater than the effective catalog start date/time on the second page. The first execution of the standing request will transfer all files for the data file type that are newly cataloged between these two dates. Each time the transfer task processes the request, it updates the execution date based on the time interval specified for the standing request.
- Upon entry into the Mail Address and Destination Address fields, the default values assigned to the user account will be displayed. The values may be changed as required for each request. The default values for your account may be changed by contacting the DPS. The Mail Address determines where the transfer status message is electronically mailed after the request is processed. Section 4.2.4 contains more information on setting up mail addresses. The Destination Address determines where the files selected are transferred.



- For staged requests, you must enter into the Destination Address “ISTP::”, followed by a complete disk/directory path to which you have write access. To transfer a file to an RDAF, you must, as a minimum, specify the DECnet or TCP/IP node ID for the RDAF. Section 4.2.5 contains more information on file transfers to an RDAF.
- To proceed to the second page to complete a request, invoke the Next Block function.
- To view the list of Mission Names, Data Types, and Descriptors for which you have access privileges, invoke the List of Values function from the corresponding fields.
- If an instrument has multiple key parameter files, “K%” can be entered for the Data Type to receive them all. Likewise, a “%” can be entered for the Descriptor to receive all of the descriptors that apply to the mission and data type. No other wild cards are allowed.
- You cannot have two active standing transfer requests for the same mission, data type, and descriptor combination. For example, you cannot enter one request with the data file type, GE LZ %, and another request with the data file type, GE LZ EPI, because the second data file type is redundant with the first data file type, which selects all instruments.
- The Effective Catalog Start Date/Time entered for the request must be greater or equal to the current date. It represents the earliest catalog date evaluated to determine which files have been newly cataloged. Each time the transfer task processes the request, it updates the Effective Catalog Start Date to be the system date/time just after the file list is determined for the previous execution of the request. It tends to be slightly greater than the Execution Date for the previous execution of the request.
- The time interval determines how often the standing request is executed after the initial request execution. An interval between 0.04 and 7 days may be selected. If the specification consists of 3 digits to the right of the decimal, it will be rounded to 2 digits to the right of the decimal. The rounded number will not appear until the request is viewed in the Query/Modify Standing Requests for New Science Files form.
- For LZ file requests, you may select a decommutation specification and/or an extraction time range to be applied to all LZ files transferred by the standing request using the special function keys SF1 and SF2, respectively. Use the List of Values function for the Logical Decommutation Specification Name field to display the ones for which you have access privileges. The extraction times are relative to the file date of the LZ file being processed.
- Once all the information has been entered for a request, you can save it by invoking the Commit function. The Transfer Handler will then be invoked to process the request unless a message indicates that the request may be delayed due to the unavailability of the Transfer Handler. Once the request is successfully saved, you can then proceed to create another standing request or you can exit the form.

#### **4.2.6.4 Query/Modify Transfer Requests for User Files**

This form allows users to query and modify transfer requests for user files. This form can only be used to modify existing requests. To create requests, the user must use the Create Transfer Requests for User Files Form. Regular users may only view their own requests and make minor updates to the requests such as changing the execution time or transfer destination for a request. Alternatively, regular users may delete any of their own requests or a particular file for a request. The DPS may view requests for all users, but can only delete jobs from the VMS system queue as required for recovery purposes.

Format:

```
MFRF----- MODIFY TRANSFER REQUEST FOR USER FILES -----
Request ID           Transfer Job ID       Request By
1019                                        SLEE

Execution Date       Number of Attempts   Initial
01-DEC-1993 18:52    3                   30-NOV-1993 18:52
(DD-MON-YYYY HH:MI)

Mail Address
ISTP::SLEE

Transfer Destination
ISTP::CDHF_ST:(TEST.SLEE.U)RECEIPT

ACCEPT - Save Changes      DELETE_RECORD - Delete Entire Request
NEXT BLOCK - View Physical File Name    EXIT - Exit Form
SF1 - Delete Job From Queue(Clear Job ID)
NO UPDATES/DELETES ARE ALLOWED IF A JOB ID EXISTS FOR THE REQUEST

Enter date time(=>today) you would like the next transfer to be executed.
Count: *1                ISTP                <Replace>
```

```
USER FILE REQUEST LIST

Physical File Name Of User Files
CDHF_ST:(TEST.SLEE)LOGIN.COM

PREVIOUS BLOCK - Return to Previous Screen    ACCEPT - Save Changes
DELETE RECORD - Delete Selected File From Request    EXIT - Exit Form

Enter the user file physical name(full path).
Count: *1                ISTP                <Replace>
```

Usage Restrictions:

- Read-only users may not access this form.
- Inserts are prohibited in this form. Use the Create Transfer Requests for User Files to request new files.
- A request cannot be updated or deleted if a job ID is assigned to the request. The job must be deleted first using the special function key SF1. The job will not be deleted from the VMS system queue if the request is already executing.
- A request must have at least one file associated with it. Therefore, the last and only file associated with a request cannot be deleted unless the entire request is deleted.

- Regular users may only view and modify their own requests. The Execution Date, Mail Address, and Destination Address are the only fields that may be updated. Regular users may also delete any of their own requests or individual files associated with a request.
- In addition to viewing all requests, the DPS is only allowed to delete jobs associated with requests from the VMS system queues.
- DBA users may view all requests, and they may update the Number of Transfer Attempts in addition to the fields that are updateable by regular users. The DBA may also delete requests as required.

#### Detailed Usage Guidelines:

- For DBA and DPS users, the form is in Enter Query mode upon entry. A query criteria, if any, can be entered followed by the Execute Query function to view transfer requests.
- For regular users, a query is automatically performed upon entering the form. The query will only return the users own requests. If no transfer requests exist, the user is informed that he or she has no requests, and the form will exit.
- When a query is performed, the most recent request is displayed first. Use the Down function to view any older requests.
- When the form is in Enter Query mode, fields such as Request ID, Transfer Job ID, and Request By are enterable to allow queries for specific requests or users.
- If the request currently displayed has a job ID, the values in the enterable fields cannot be changed. To modify the request before it executes, invoke the special function key SF1 to delete the job. If the job is in a holding/pending state, the Job ID field will be cleared and the job will be deleted from the system queue. If the job is not found in the system queue, the Job ID field will be cleared. If the job is in an executing state, a message will be displayed and the job will not be deleted from the system queue.
- You cannot invoke the special function key SF1 if there are any uncommitted changes. You must either commit their changes or perform the query again to clear their changes in order to attempt SF1 again.
- The Execution Date is the date and time the request should be executed. Mail Address is the requester's mail address for transfer status messages. Multiple addresses can be specified if separated by a comma. Destination Address is the destination node and/or directory for transferred files.
- The transfer execution date cannot be earlier than the current system date.
- For staged requests, enter into the Destination Address "ISTP::", followed by a complete disk/directory path to which you have write access. To transfer a file to an RDAF, as a minimum, specify the DECnet or TCP/IP node ID for the RDAF. Section 4.2.5 contains more information on file transfers to an RDAF.
- You may delete an entire request by invoking the Delete Record function from the first screen of the form.
- To view all the user files associated with a request, invoke the Next Block function. You can delete a file from a request by placing the cursor on it and invoking the Delete Record function, but cannot add new files to a request.
- To save any updates or deletions made to a request, invoke the Commit function.
- If you modify any requests while you are in the form, the Transfer Handler will be invoked when you exit the form to submit requests as necessary.
- If the transfer task processes your requests after you perform the query, you may be warned, when attempting to modify the request, that another user has modified it. You should commit any changes already completed and perform the query again to view the current status for your request.

#### 4.2.6.5 Query/Modify Transfer Requests for Cataloged Files

This form allows users to query and modify transfer requests for cataloged files. This form can only be used to modify existing requests. To create requests, the user must use the Create Transfer Requests for Cataloged Files Form. Regular users may only view their own requests and make minor updates to the requests such as changing the execution time or transfer destination for a request. Alternatively, regular users may delete any of their own requests or a particular file for a request. The DPS may view requests for all users, but they can only delete jobs from the VMS system queue as required for recovery purposes.

Format:

```

MARRF ----- MODIFY TRANSFER REQUEST FOR CATALOGED FILES -----
Request ID          Transfer Job ID          Requested By
1017                [REDACTED]          SLEE

Execution Date     Number of Transfer Attempts     Requested Date
01-DEC-1993 18:48  3                30-NOV-1993 18:48
(DD-MON-YYYY HH:MI)

Mail Address       ISTEP::SLEE

Transfer Destination ISTEP::CDNF_ST:[TEST.SLEE.UIRECEIPT]

NEXT BLOCK - To view requested files          SF1 - Delete job from queue
ACCEPT - To save changes                     DELETE RECORD - Delete entire request
NO UPDATES/DELETES OF THE REQUEST IF JOB ID EXISTS

Enter valid execution date for this request.
Count: 1          v          ISTEP          <Replace>

```

```

----- MODIFY CATALOGED SCIENCE FILES -----
Logical Identifier          Online
GE_K0_EPI_19930605_V01    1
[REDACTED]

ACCEPT - To save changes          SF2 - Modify LZ Decom Spec File
DELETE RECORD - Delete selected file  SF3 - Modify LZ Extraction Time

Use delete record to remove this file from the request.
Count: *1          ISTEP          <Replace>

```

Usage Restrictions:

- Read-only users may not access this form.

- Inserts are prohibited in this form. Use the Create Transfer Requests for Cataloged Files to request new files.
- A request cannot be updated or deleted if a job ID is assigned to the request. The job must be deleted first using the special function key SF1. The job will not be deleted from the VMS system queue if the request is already executing.
- A request must have at least one file associated with it. Therefore, the last and only file associated with a request cannot be deleted unless the entire request is deleted.
- Regular users may only view and modify their own requests. The Execution Date, Mail Address, Destination Address, Level Zero Decommuration Specification, and Level Zero Extraction Start/Stop Times are the only fields that may be updated. Regular users may also delete any of their own requests or individual files associated with a request.
- In addition to viewing all requests, the DPS is only allowed to delete jobs associated with requests from the VMS system queues.
- DBA users may view all requests, and they may update the Online status and Number of Transfer Attempts, in addition to the fields that are updateable by regular users. The DBA may also delete requests as required.

#### Detailed Usage Guidelines:

- For DBA and DPS users, the form is in Enter Query mode upon entry. A query criteria, if any, can be entered followed by the Execute Query function to view transfer requests.
- For regular users, a query is automatically performed upon entering the form. The query will only return the user's own requests. If no transfer requests exist, you are informed that you have no requests, and the form will exit.
- When a query is performed, the most recent request is displayed first. To view any older requests, use the Down function.
- When the form is in Enter Query mode, fields such as Request ID, Transfer Job ID, and Request By are enterable to allow queries for specific requests or users.
- If the request currently displayed has a job ID, the values in the enterable fields cannot be changed. To modify the request before it executes, invoke the special function SF1 to delete the job. If the job is in a holding/pending state, the Job ID field will be cleared and the job will be deleted from the system queue. If the job is not found in the system queue, the Job ID field will be cleared. If the job is in an executing state, a message will be displayed and the job will not be deleted from the system queue.
- Users cannot invoke the special function key SF1 if there are any uncommitted changes. Users must either commit their changes or perform the query again to clear their changes in order to attempt SF1 again.
- On the Modify Transfer Request for Cataloged Files screen, you may only update the Execution Date, the Mail Address, and the Transfer Destination.
- The Execution Date is the date and time the request should be executed. Mail Address is the requester's mail address for transfer status messages. Multiple addresses can be specified if separated by a comma. Destination Address is the destination node and/or directory for transferred files.
- The transfer execution date cannot be earlier than the current system date.
- For staged requests, enter into the Destination Address "ISTP::", followed by a complete disk/directory path to which you have write access. To transfer a file to an RDAF, you must, as a minimum, specify the DECnet or TCP/IP node ID for the RDAF. Section 4.2.5 contains more information on file transfers to an RDAF.
- An entire request may be deleted by invoking the Delete Record function from the Modify Transfer Request for Catalog Files screen.

- To view all the files associated with a request, invoke the Next Block function. You can delete a logical identifier from a request by placing the cursor on it and invoking the Delete Record function, but you cannot add new files to a request.
- The special function key SF2 allows you to add or edit LZ decommutation specification names for each logical identifier associated with the request. To display the pop-up, invoke SF2. To return to the previous screen, invoke the Exit function. This pop-up can only be invoked if you are modifying level-zero files. The List of Values function displays the decommutation specifications for which you have access privileges.
- The special function key SF3 allows you to add or edit LZ extraction timespans for each logical identifier associated with the request. To display the pop-up, invoke SF3. To return to the previous screen, invoke the Exit function. This pop-up can only be invoked if you are modifying level-zero files.
- To save any updates or deletions made to a request, invoke the Commit function.
- If you modify any requests while you are in the form, the Transfer Handler will be invoked when you exit the form to submit requests as necessary.
- If the transfer task processes your request after you performs the query, you may be warned, when attempting to modify the request, that another user has modified it. You should commit any changes already completed and perform the query again to view the current status for your request.

#### 4.2.6.6 Query/Modify Standing Requests for New Science Files Overview

This form allows regular and operational users to query and modify existing standing transfer requests. To create new requests, the Create Standing Requests for New Science Files Form must be used. Regular users may view all of their own requests and make minor updates to the requests, such as accelerating or deferring the execution of a request or changing the time interval between request executions. Alternatively, regular users may use the form to delete any of their own requests that are no longer required. DPS users may query all requests and delete jobs associated with the requests as required for recovery purposes.

Format:

```

MSRF-----MODIFY STANDING TRANSFER REQUEST FORM-----
Request ID      Transfer Job ID      Request By
1021           [REDACTED]      SLEE [REDACTED]

Date/Time of Next      Number of Transfer      Initial
Request Execution      Attempts                 Request Date
31-DEC-1993 18:57      3                       30-NOV-1993 18:57
(DD-MON-YYYY HH:MI)

Mail Address(es) for Transfer Status Messages
*STP::SLEE

Destination Address for Transferred Files
*STP::CDNF_ST:[TEST.SLEE.U]RECEIPT

NEXT BLOCK - View Data File Attributes (Page 2)
ACCEPT - Save Request Modifications
DELETE RECORD - Delete Entire Request
SF1 - Delete Job From Queue (Clear Job ID)
NO UPDATES/DELETES OF THE REQUEST ARE ALLOWED IF A JOB ID EXISTS

Specify date/time (>= today) you would like the next transfer to execute. (MAN)
Count: 1          v          ISTP          <Replace>

```

Modify Standing Transfer Request - Data File Attributes		
Mission Name <b>3E</b>	Data Type <b>30</b>	Descriptor <b>3P2</b>
Effective Catalog Start Date/Time for Request <b>30-NOV-1993 18:57</b> (DD-MON-YYYY HH:MI)		Time Interval Between Transfers <b>7</b> (days)
<p>The mission name, data type, descriptor and catalog date determine what files are transferred.</p> <p>SF2 - Change Decommuration Specification (LZ Data Types Only)  SF3 - Change Extraction Times (LZ Data Types Only)  PREVIOUS BLOCK - Return to Page 1  ACCEPT - Save Request Modifications  EXIT - Exit Form</p>		
<b>Enter the number of days (1 - 7) between transfer executions. (MAX)</b>		
Count: 1	v	ISTP <Replace>

#### Usage Restrictions:

- Read-only users may not access this form.
- New requests cannot be created using this form.
- A request cannot be updated or deleted if a job ID is assigned to the request. The job must be deleted first using the special function key SF1. The job will not be deleted from the VMS system queue if the request is already executing.
- Regular users may only view and modify their own requests. The Execution Date, Mail Address, Destination Address, Level Zero Decommuration Specification, Level Zero Extraction Start/Stop Times, and Time Interval are the only fields that may be updated. A new request must be created to receive a different type of data file. Regular users may also delete any of their own requests that are no longer required.
- DPS users may view all requests, but they may only delete jobs associated with requests from the VMS system queue.
- DBA users may view all requests, and they may update the Effective Catalog Date and Number of Transfer Attempts in addition to the fields that are updateable by regular users. The DBA may also delete requests as required.

#### Detailed Usage Guidelines:

- For DBA and DPS users, the form is in Enter Query mode upon entry. A query criteria, if any, can be entered followed by the Execute Query function to view transfer requests.
- For regular users, a query is automatically performed upon entering the form. The query will only return the user's own requests. If no transfer requests exist, you are informed that you have no requests, and the form will exit.
- When a query is performed, the most recent request is displayed first. To view any older requests, use the Down function.
- When the form is in Enter Query mode, fields such as Request ID, Transfer Job ID, and Request By are enterable to allow queries for specific requests or users.
- If the request currently displayed has a job ID, the values in the enterable fields cannot be changed. To modify the request before it executes, invoke the special function SF1 to delete the job. If the job is in a holding/pending state, the Job ID field will be cleared and the job will be deleted from the system queue. If the job is not found in the system queue,

the Job ID field will be cleared. If the job is in an executing state, a message will be displayed and the job will not be deleted from the system queue.

- You cannot invoke the special function key SF1 if there are any uncommitted changes. You must either commit your changes or perform the query again to clear your changes in order to attempt SF1 again.
- The Execution Date is the date and time the request should be executed. Mail Address is the requesters mail address for transfer status messages. Multiple addresses can be specified if separated by a comma. Destination Address is the destination node and/or directory for transferred files.
- The Execution Date/Time must be greater than the Effective Catalog Start Date/Time on the second page and greater than or equal to the current date. The next execution of the standing request will transfer all files for the data file type that are newly cataloged between these two dates. Each time the transfer task successfully processes the request, it updates the execution date based on the time interval specified for the standing request.
- For staged requests, enter into the Destination Address "ISTP::", followed by a complete disk/directory path to which you have write access. To transfer a file to an RDAF, as a minimum, specify the DECnet or TCP/IP node ID for the RDAF. Section 4.2.5 contains more information on file transfers to an RDAF.
- An entire request may be deleted by invoking the Delete Record function.
- To proceed to the second page to view the rest of the request information, invoke the Next Block function.
- The Time Interval determines how often the standing request is executed after the initial request execution. You may select an interval between 1 and 7 days.
- For level-zero file requests, you may change or add a decommutation specification and/or extraction time range to be applied to all level-zero files transferred by the standing request using the special function keys SF2 and SF3, respectively. Use the List of Values function for the logical decommutation specification name field to display the ones for which you have access privileges. The extraction times are relative to the file date of the level-zero file being processed.
- To save any updates or deletions made to a request, invoke the Commit function.
- If you modify any requests while in the form, the Transfer Handler will be invoked when you exit the form to submit requests as necessary.
- If the transfer task processes your requests after you perform the query, you may be warned, when attempting to modify the request, that another user has modified it. You should commit any changes already completed and perform the query again to view the current status for your request.

#### **4.2.6.7 Data Transfer Requests Report**

This report displays the UDS request information including user file requests, cataloged science file requests, and standing requests for newly received science files. The information includes the request ID, requester, mail and destination addresses, request type, requested date, execution date, number of attempts, job ID, file list or type, extraction times, and associated decommutation files. Regular users may only view their own requests, while operational users may view all requests.

Usage Restrictions: This report is available to all users.

User-Definable Report Criteria: Requester VAX user ID (wild card allowed for DBA or DPS users)

Report Column Width: 132



#### 4.2.6.8 Daily Transfer History Report

This report displays a summary of the User Data Transfer Service requests successfully completed for each user in the last 24 hours. The information is primarily used to enforce user transfer quotas on a daily basis. The report includes the transfer requester, request ID, number of VMS blocks transferred per request, request completion date/time, and sum of all VMS blocks transferred per user.

Usage Restrictions: This report is available to all the users.

User-Definable Report Criteria: Requester VAX user ID (wild card allowed for DBA or DPS users)

Report Column Width: 80

#### 4.2.7 Data Transfer Services Error Handling and Recovery

The Data Transfer Services software will trap all errors associated with the processing of a transfer request and the transfer of the data files. The user is provided with a status file that is electronically mailed to the specified mail address at the completion of the transfer attempt. Section 4.2.7.1 below lists all the messages along with an explanation.

Transfer attempts can be unsuccessful for several reasons. The most common problem is the unavailability of the destination node, either due to network problems or to the remote node being down. Another possibility is that the log-in information (proxy or anonymous ftp) is not valid at the remote node or there is insufficient disk space at the remote node to receive the data files. In any of these cases, the result is a failed transfer attempt. In these cases, the transfer request is simply requeued to try again later. A single transfer request will be retried up to MAX\_XFER\_TIMES. This system parameter can be tuned by the operations personnel. A typical value is five attempts. The interval between retry attempts is controlled by the system parameter DELTA\_XFER\_TIME minutes.



If a transfer request is partially successful (i.e., some files transferred and some not), then it is possible that an SFDU file will be successfully transferred and the associated data file(s) not transferred. It may also result in a temporary condition where a partial file group exists on the destination computer. In cases where a partial transfer of a file group occurs, the entire file group is retried at a later time. On systems that support file versions, multiple versions of individual files can result. A purge will eliminate this duplication. On file systems that do not support multiple file versions, the earlier files are overwritten. It is important to check the status file that is electronically mailed to the user for any messages indicating that some files were not transferred.

Users are reminded that requests that include files that are currently not online in the CDHF will not be processed until all files in the request have been retrieved and placed online. It can take 1 or 2 days to retrieve data files from the DDF.

Users of the staging are reminded to delete files from the staging directories after the files have been transferred to their final destinations.

If you have a problem with a transfer or a question concerning the status of a transfer request, the operations personnel can provide assistance. The request number for the transfer request in question should accompany any queries about the request.

#### 4.2.7.1 Status Messages in the Transfer Status

This section lists all of the status and error messages that can appear in the transfer status file that is electronically mailed to the user at the completion of a transfer attempt. A short explanation is provided for each message and the recommended user action, if any.

- **[account] has exceeded transfer quota by [number] bytes**

This message informs the user that the transfer quota was exceeded. The requested files were transferred.

- **[filename] not transferred, will be requeued**

The specified file was not transferred due to an error. The request for this file will be requeued.

- **[filename] successfully transferred**

The specified file was successfully transferred.

- **[node address] is an unknown internet address**

The specified node address is an unknown internet address. This message will occur if the specified internet address is not known to the CDHF or if an incorrectly formatted network address was entered. Because the CDHF will not be able to process the request, it will be requeued for the next day. The user should log in and correct the destination address using the appropriate query/modify form for the request.

- **[num files] files transferred out of [tot files] files attempted**

The transfer request was partially satisfied with [num files] out of [tot files] successfully transferred. The files not transferred will be requeued unless the user exceeded the maximum number of retries or exceeded the transfer quota.

- **An error occurred processing this request. It will be requeued to execute again in one day.**

An error occurred in attempting to satisfy the transfer request. The request will be requeued and will be attempted again in 24 hours.

- **Data files will be transferred to: [node address]**

This status message indicates the requested destination for the file transfer request.

- **Logical file identifier [file id] is not online.  
Files belonging to this logical file identifier will not be included in this request.**

This message is associated with the processing of a standing request. The files associated with the logical file identifier [file id] are not online in the CDHF, therefore they will not be included in this transfer. A retransmission request will not be automatically generated for this logical file ID. To request retransmission of this file, the user should use the Create Transfer Request for Cataloged Files form to enter a new request.

- **Maximum attempts to transfer this request exceeded. Request has been deleted.**

The maximum number of retries to transfer the requested files has been exceeded and the request has been deleted. This will occur if the network path to the specified destination is not up or the destination node is not available for an extended period of time. Failed transfer requests will be requeued MAX\_XFER\_TIMES (a system parameter). Each retry will be separated by DELTA\_XFER\_TIME minutes (a system parameter).

- **New transfer request number [request number] has been created from standing transfer request number [request number]**

This informational message indicates the request number of the new request that has resulted from the processing of the specified standing transfer request. The request numbers are primarily for tracking purposes in the database but are provided as status information to the user because they can be useful in identifying specific requests when multiple requests from the same user have been made.

- **No online file found for standing transfer request number [request number] at execution date [date:time]**

This informational message indicates that the standing transfer with request number [request number] was executed at [date:time] and the processing of the query resulted in no matches for online files in the database, hence no files to transfer.

- **Processing transfer request number [request number] for user [username] at [date:time]**

This informational message gives the request number, requesting username, and the date and time that the request is being processed. This is the first message in the status file.

- **Requested file [filename] not found**

The request file was not found. If the file was a file in a user directory, it may have been deleted before the request was processed. If the file was a cataloged file, then there was an error on the CDHF. The operations personnel would have been notified by the software, but it would not be inappropriate to forward the mail message to them.

- **Request [request number] no files found for this request**

This error message indicates that an inconsistency exists in the database. The operations personnel would have been notified by the software, but it would not be inappropriate to forward the mail message to them.

- **Request completed successfully, [num files] files transferred**

The request was successfully completed and a total of [num files] was transferred.

- **The request has been requeued for [date:time]**

If a request is not fully satisfied, it will be requeued. This status message indicates that the specified request has been requeued and will be retried at the specified time.

### 4.3 Update Key Parameter Quality Information

The update key parameter service allows the user to update quality information for the specified key parameter file within the CDHF catalog.

The user makes updates to key parameter file quality information within the CDHF catalog either by using a form or by specifying all the changes in a file processed by the user interface. Figure 4-4 illustrates the Update Key Parameter Quality Information menu. Information to determine the key parameter catalog entry to update, the updated comment, the updated quality flag, or the file that contains this information is required.

For access through menus, choose the Update Key Parameter Quality Information option from the CDHF User Interface main menu. From the next menu displayed, choose whether to perform updates via a form or a file. You must have certification privilege for the mission instrument associated with each key parameter file to be updated.



A user with certification privilege for key parameters also has certification privilege for the KPGS program that generated them. Refer to Section 4.1.2.4.2 for KPGS certification guidelines.

```

ISTP CENTRAL DATA HANDLING FACILITY
Report Mode  Update Key Parameter Quality Information
INTERACTIVE

Key Parameter Update Form
Process Key Parameter Update File

SF1 - Change Report Mode

Use UP and DOWN to position cursor. Use ACCEPT or RETURN to select menu item.
Count: *2          ISTEP          <Replace>
```

Figure 4-4. Update Key Parameter Quality Menu

#### 4.3.1 Key Parameter Quality Update Form

The Key Parameter Quality Update Form allows users with certification privilege for a mission and instrument to update the Key Parameter (KP) Quality Indicator and KP PI Comments for any corresponding KP files. This form is set up for USER privileged users.

Usage Restrictions:

- Read-only users cannot access this form because they do not perform key parameter quality updates.
- Inserts and deletes are prohibited in this form.

- Queries are restricted. They must be performed using either of the query criteria blocks in the top part of the form.
- The user must have certification privilege for the Mission Name and Descriptor combination entered in the first block, or the Program Name and Program Version entered in the second query criteria block must correspond to a Mission Name and Descriptor for which the user has certification privileges.

Detailed Usage Guidelines:

- For the first query criteria block, the Mission Name, Data Type, Descriptor, Start Date, and End Date must be specified. The default values displayed may be changed as required. For the second query criteria block, the Program Name, Program Version, Start Date, and End Date must be specified. The SF1 key toggles between the first and second query criteria block. The performance of the second query criteria block may take additional time due to the number of database tables used to perform the query.
- To view allowable field values, invoke the list of values function in the Mission Name, Data Type, and Descriptor fields in the first query criteria block and in the Program Name and Program Version fields in the second query block. After the information in the query criteria block is entered, invoke the Next Block function to query the list of corresponding key parameter file information.
- The wildcard, "K%" (all KP files), is allowed for Data Type in the first query criteria block to reduce the number of KP data types that need to be entered. No other wildcards are allowed.
- Information for several KP files may be returned by the query; invoke the down function to view the information for the other files.
- The logical identifier identifies the key parameter file. This field cannot be updated.
- The KP Quality Indicator indicates whether the file is code RED, YELLOW, or GREEN. To change the status, the file has to first be selected and the user must press the SF4 key.
- The Program Version field indicates the version of the program that generated the file. This field cannot be updated.
- The Select Flag field indicates whether a file is selected for update or not. Blank indicates that the file is not selected. By pressing the SF1 key, the file can be selected/deselected. By pressing the SF2 key, all files are selected.

Format:

```
KQUF-----KP-Quality-Update-Form-----
Mission Name  Data Type  Descriptor  Start Date  End Date
  PQ          [X]       SPHA       05-JUN-1994 00:00:00 06-JUL-1994 00:00:00
SF1-Query By Program Information          Next Block-Execute Query

Logical Identifier  KP Quality Indicator  Program Name  Program Version  Select Flag
[REDACTED]         [REDACTED]          [REDACTED]   [REDACTED]       [REDACTED]

SF1 - Select/Unselect Current File          SF3 - Display KP Details
SF2 - Select All Files                      SF4 - Update Quality Info
Exit - Exit Form

Enter a mission name for which you can certify. List of values available.
Count: *0                                     <List><Replace>
```

```
KQUF-----KP-Quality-Update-Form-----
Program Name  Version  Program Start Date  Program End Date
[REDACTED]    [REDACTED]  17-MAY-1994 00:00:00 17-JUN-1994 00:00:00
SF1-Query By KP File Information          Next Block-Execute Query

Logical Identifier  KP Quality Indicator  Program Version  Select Flag
[REDACTED]         [REDACTED]          [REDACTED]     [REDACTED]

SF1 - Select/Unselect Current File          SF3 - Display KP Details
SF2 - Select All Files                      SF4 - Update Quality Info
Exit - Exit Form

Enter the program name. List of values available
Count: *0                                     <List><Replace>
```

- To view or display KP details, press the SF3 key. When the SF3 key is pressed, a new screen appears. This screen is for display only. No changes are allowed to this screen. Press the EDIT key to view additional comments.

Format:

Key Parameter File Details			
Logical Identifier	<b>PO_KO_SPHA_19940521_V10</b>		
Span Start Date	<b>21-MAY-1994 00:00:00</b>	Span End Date	<b>21-MAY-1994 00:00:55</b>
Program Name	<b>GENERATE_POLAR_SP INPH</b>	Program Status	<b>N</b>
Program Version	<b>V1.0</b>	KP Quality Indicator	<b>RED</b>
KP Vax User ID	<b>DPS_IT</b>	KP Certify Date	<b>12-JUN-1994</b>
KP PI Comment	<b>[REDACTED]</b>		
Exit-Return to Previous Screen		EDIT Key - View Additional Comments	

Exit - Exit Form

**This screen is for display only. Use the KP Accept Screen for updates**  
Count: \*0 <Replace>

- Once the file(s) are selected, press the SF4 key to enter and/or update the KP Quality Information and KP PI Comments. When the SF4 key is pressed, a new screen will appear.
- To update the KP Quality Indicator, the Update KP Quality field must be set to "Y" for YES. When Update KP Quality is set to "N," changes to the KP Quality Indicator are disabled. If the KP Quality is updated, the KP Certify Date is set to the current date and the KP VAX User ID is set to the current VAX user.
- To update the KP PI Comments, the Update KP PI Comments field must be set to "Y" for YES. When Update KP PI Comments is set to "N," changes to the KP PI Comments are disabled. Press the EDIT key to add additional comments.

Format:

```
KQUF-----KP-Quality-Update-Form-----  
  
Key Parameter Accept Screen  
  
Update KP Quality      KP Quality Indicator  KP Certify Date  KP Vax User ID  
  Y                    RED                13-JUN-1994      DPS_IT  
  
Update KP PI Comments  KP PI Comment  
  Y                    One line can be added here or press the Edit key to pop up  
  
Accept - Commit  
Exit - Return to KP List Block  
EDIT Key - Add/Update Additional Comments
```

```
Enter Any Observations Pertaining To The KP File. Edit Key Available.  
Count: *0 <Replace>
```

```
KQUF-----KP-Quality-Update-Form-----  
  
Key Parameter Accept Screen  
  
Update Qualit  ID  
  Y            [One line can be added here or press the Edit key to pop up a larger window so that more than a one line comment can be entered.]  
  
Update PI Com  pop up  
  Y  
  
Accept - Commit  
Exit - Return to KP List Block  
EDIT Key - Add/Update Additional Comments
```

```
Press Do to accept changes, PF4 to cancel.  
Count: *0 <Replace>
```

#### 4.3.2 Process Key Parameter Update File

The File Key Parameter Quality Updates form, illustrated below, can be invoked by selecting the Process Key Parameter Update File option from the Update Key Parameter Quality Information menu. This form allows users to update key parameters by processing an input file. The file must reside on the CDHF, but it can be created at a remote facility (and transferred) or on the CDHF using a VAX editor.



Format:

```
-----KPF-----FILE KEY PARAMETER QUALITY UPDATE FORM-----
Enter Physical File Name Containing KP Indicators

Input File
██████████████████████████████████████████████████████████

Accept/Commit - Process File
Exit - Exit Form (Cancel Processing)

Enter Physical File Name Containing KP Indicators
Count: *0 ISTEP <Replace>
```

#### Usage Restrictions

- This is a data entry form only.
- Queries are not allowed.

#### Detailed Usage Guidelines:

- Enter the full physical filename of the file that contains the updates to the key parameter quality information [i.e., `ISTP_USER: (DOE.KP) KPUPDATE.DAT` or, if the current default directory contains the file, simply `KPUPDATE.DAT`].
- The input file must be set up to comply with the format illustrated in Figure 4–5. Failure to comply will result in the file not being processed and errors being displayed on the screen.
- Currently, only one 80-character comment may be entered using the input file.

An example of an input file is as follows:

```
KEY PARAMETER QUALITY UPDATE FILE FOR USER my_user_name
WI_KO_EPA_19930912_V02
GREEN
Maneuver at 1407
WI_KO_EPA_19930912_V01
RED
Excessive noise
WI_KO_EPA_19930911_V01
```

This file is not evaluated

Header Record	Key Parameter Quality Update File for User [db_user_id]	80 column record
Entry # 1	logical_file_name (max 26 chars -- KP filename)	80 column record
	KP_quality_update (max 6 chars -- RED, YELLOW, GREEN)	80 column record
	PI_comment (max 80 chars -- KP quality comment)	80 column record
	.	
	.	
	.	
Entry # n	logical_file_name	
	KP_quality_update	
	PI_comment	

**Figure 4–5. KP Quality Update File Format**

#### 4.4 Create Decommulation Specifications Form

This form allows users to create, modify, and delete decommutation specifications for level-zero files. The decommutation specifications are used to specify a set of bytes to extract from a level-zero file for transfer to the user. This will ensure that the quantity of level-zero data is kept to a minimum. The decommutation specifications created can be referenced in the Create Transfer Request for Cataloged Science Files and Create Standing Request for New Science Files forms.

The decommutation specification will consist of a list of minor frames and the bytes within those minor frames from which data is to be extracted.

Several frames and bytes may be specified for extraction for a single decommutation specification.

You may only create decommutation specifications for mission instruments for which you have the appropriate access privilege as indicated in the ISTP Users and Privileges form. If you create the decommutation specification, you may allow other users to reference your specification.

Only the creator and the DBA are allowed to delete decommutation specifications. Additionally, the DBA may create decommutation specifications. The DPS may only view decommutation specifications.

Format:

```
-----DSF-----Decommutation Specification Forms-----
Decommutation Specification Name SE_CPI
Owner SLEE Creation Date 29-NOV-1993 Last Update 29-NOV-1993
Mission Name SE Instrument CPI Mode ]
Specification Number 1 of 1 Byte Ranges to Extract 3 35
Starting Minor Frame Number 3 34 35
Ending Minor Frame Number 311
Increment Between Minor Frames 1
Insert - Create New Decommutation Specification
Delete - Remove Decommutation Specification
Accept - Commit/Save Decommutation Specification
SF1 - View Authorized Users
Enter decom spec name. Use mission/instrument in spec name.
Count: 1 v ISTD <Replace>
```

#### Usage Restrictions:

- Read-only users may not access this form.
- Only the owner is allowed to modify a decommutation specification.
- Users are only allowed to create decommutation specifications for mission instruments in which they have access privilege.
- Decommutation specifications can only be created for the mission instruments listed in Table 4-1.

#### Detailed Usage Guidelines:

- A query will automatically be performed upon entering the form. The query returns all decommutation specifications that you created and the ones that you are allowed to reference in transfer requests.
- When a query is performed, you may cursor to the desired decommutation specification by using the Down key. Once you find the desired decommutation specification, you may use the Next Block key to access the lower level blocks.
- If a deletion is made from the first block, the entire decommutation specification will be deleted.
- The special function key SF1 allows the owner to add and delete authorized users to access the decommutation specification. The authorized users have access to use the decommutation specification when transferring level-zero files. The owner is automatically given access privilege when a new decommutation specification is created.
- The Decommutation Specification Name identifies the unique name associated with the decommutation specification. It is recommended that the mission and instrument be used to construct the name.
- The Owner, Creation Date, and Last Update are automatically generated for new decommutation specifications. You are not allowed to modify fields in the first block. Additionally, the Last Update attribute is updated with the current date each time a modification to the decommutation specification is made.

**Table 4–1. Valid Byte Ranges**

<u>Instrument</u>	<u>Normal</u>	<u>Maneuver</u>
<b>GEOTAIL</b>		
CPI	0–35	0–35
EFD	0–7	0–7
EPIC	0–19	0–19
HEP	0–12	0–12
LEP	0–15	0–15
MGF	0–7	0–7
PWI	0–10	0–10
SCR	0–10	0–10
<b>WIND</b>		
EPACT	0–23	0–22
KONUS	0–5	0–5
MFI	0–24	0–22
SMS	0–41	0–34
SWE	0–44	0–1
TGRS	0–20	0–20
WAVES	0–44	0–60
3DPLASMA	0–49	0–35
SCR	0–12	0–53
<b>POLAR</b>		
CAMMICE	0–9	0–9
CEPPAD	0–17	0–17
EFI	0–12	0–12
HYDRA	0–23	0–1
MFE	0–5	0–5
PIXIE	0–23	0–10
PWI	0–20	0–20
SEPS	0–23	0–10
TIDE	0–20	0–20
TIMAS	0–20	0–20
UVI	0–57	0–48
VIS	0–50	0–54
SCR	0–6	0–49

- The Mission and Instrument identifies the mission and instrument associated with the decommutation specification for level-zero extraction. You can only specify a mission/instrument combination in which you have access privilege. No wild cards are allowed.
- The Specification Numbers identify the number of minor frame specifications that exist. As you cursor through a set of minor frame specifications, the specification numbers indicate the specification number currently being viewed and the total number of specifications that exist.
- The Starting Minor Frame Number specifies the first minor frame in which bytes are to be extracted. The Ending Minor Frame Number specifies the last minor frame in which bytes are to be extracted. The Increment Between Minor Frames attribute identifies the increment between frames in the minor frame extraction. When you type in the starting minor frame, a default value for the ending minor frame is automatically displayed to be the same as the starting minor frame. A default value of 1 is automatically displayed for Increment Between Minor Frames. You may overwrite both default values.
- The range of valid minor frame number is as follows:
 

GEOTAIL	0-511
WIND	0-249
POLAR	0-249
- The Byte Ranges To Extract attribute identifies a range of bytes to extract for each frame. Single bytes or a range of bytes may be specified. The starting byte and the last byte are to be specified. Once the starting byte has been entered, a default value that is the same as the starting byte will be displayed for the ending byte. You may overwrite the default ending byte. Table 4-1 lists the valid byte ranges for each instrument and mode.
- Frame and byte range specifications can be modified or deleted; however, each frame specification number must have at least one byte range, each decommutation specification number must have at least one byte range, and each decommutation specification must have at least one frame specification number.
- If an incomplete decommutation specification is entered, the commit function will fail. You must complete the specification indicated in the failure message. If the specification causing the failure is not your own specification, contact the DPS personnel for a resolution.
- After identifying a range of bytes to extract, a user may decide to change the mission/instrument fields or the instrument field before committing the form. After committing the form, if the ending minor frame or ending extract byte is invalid for the newly changed mission/instrument fields or instrument field, a message indicating this will appear. After acknowledging the message, the cursor will appear either in the starting minor frame of the invalid record or the starting extract byte of the invalid record. The user will make the change and commit the form. Refer to Table 4-1 for valid byte ranges.

## 4.5 Invoke Theory Programs

When you select the Invoke Theory Programs item from the main menu of the User Interface, the menu shown in Figure 4-6 is displayed. This menu lists the available theory programs. Use the cursor keys to select the desired program and press [RETURN] to invoke the program. The theory groups provide their own online help for these programs: the User Interface does to provide this help.

## 4.6 Extract NRT LZ Data

The extract NRT LZ service provides the capability to extract NRT decommutated LZ data via the User Interface form or the command line (if the NRT filename is known).

```

ISTP CENTRAL DATA HANDLING FACILITY
Report Mode
INTERACTIVE
Invoke Theory Programs

UCLA Magnetohydrodynamics Simulation Results
UCLA Magnetotail Stochastic Processes Simulation Results
UCLA Broadband Electrostatic Noise Simulation Results
UCLA Tsyganenko Magnetic Field Model

SF1 - Change Report Mode

Use UP and DOWN to position cursor. Use ACCEPT or RETURN to select menu item.
Count: *4          ISTP          <Replace>

```

Figure 4-6. ISTP Theory Programs Menu

#### 4.6.1 Query LZ Form

The query LZ form allows you to list NRT LZ files that are available for data extraction. The filename indicates the instrument and date/time the pass was received in CDHF. Once you have listed the files, the SF1 key can be used to select files for data extraction. You may press the Accept key to extract data into output files for all selected files. This form does not allow changes to the database.

Format:

```

QLZ          QUERY LEVEL ZERO
Mission Name  Descriptor  File Type
  █          █          ACTIVE
Selected  File Identifier  Start Date  End Date
█          █          █          █

SF1 - Select Files for Extraction
Accept - Extract LZ Data
Exit - Exit Form

Enter a valid mission short name. List of values available.
Count: *0          ISTP          <List><Replace>

```

### Usage Restrictions:

- Inserts are prohibited in this form.
- Once files have been queried, they cannot be updated or deleted.
- Queries may only be performed from the first block. Enter the query criteria and press Next Block to view NRT LZ files.
- If you have a default mission and descriptor, they will be automatically displayed as a query criteria. The file type will be set to “ACTIVE” as a default. “ACTIVE” indicates that the current file is opened by the NRT software during an NRT pass.
- You may select a maximum of 10 files at one time.

### Detail Usage Guidelines:



Refer to page QT-1 in the “Quick Tour of the CDHF User Interface” for terminal setup information, including keyboard mapping. Use [**CONTROL**] **K** to show key definitions from any SQL\*Form. Refer to page QT-10 for a step-by-step example of how to extract NRT data from an active file.

- Wild cards (%) are allowed for descriptor and file type in the query criteria block.
- File type may be specified as “ACTIVE” which will only query current files that are opened during a pass or “%” for files that exist in the specified descriptor directory.
- You may query NRT LZ files for the specified query criteria by pressing the Next Block key.
- Use special function key SF1 to select or unselect files for data extraction. When the files are selected, an “S” appears under the selected column for that file. Unselect a selected file by pressing the same key. Pressing SF1 for a selected file removes the “S” from the “Selected” column. The cursor will automatically advance to the next row after a file has been selected or unselected.
- When a file has been selected, the start and end dates are displayed. When a file is unselected, the start and end dates are erased from the screen. The amount of data extracted can be adjusted by changing the start and end times. The file must be selected before the start and end dates can be modified. Press [**TAB**] to advance to the next field.
- Extracted data will be written to an output file in the SYS\$LOGIN directory logical. The name of the output file will be the same as the physical filename of the selected file with an “X” appended to the end of the file (e.g., WI\_LZ\_3DP\_19930707\_V01.1212X).



One second has been added to the end time extracted from the NRT LZ file to ensure that all of the data are extracted for that file. When entering end time for an extracted file, add 1 second to the time. In both cases, the additional second is required to compensate for the milliseconds that are truncated by the User Interface.

### Level-Zero Data File Information:



The level-zero data file that is opened by the NRT software during an active pass also is available for data extraction. Note that the file label record (FLR) contains information related to start of the pass until the pass is completed. At the end of a pass, the first 176 bytes (i.e., through the instrument filename field) are updated. (The remainder of the FLR remains zero filled because it is not used for NRT files.) Then, the file is closed and the file is renamed to include its date and time.

## 4.6.2 EXTRACT\_NRT\_LZ Command

NRT LZ extraction can also be performed from the command line without going through the UI. The EXTRACT\_NRT\_LZ command is described in the following paragraphs.

### FORMAT

```
$ EXTRACT_NRT_LZ/INPUT=inputFile/OUTPUT=outputFile -  
/START=startTime/END=endTime
```

### PARAMETERS

There are no parameters for EXTRACT\_NRT\_LZ

### DESCRIPTION

EXTRACT\_NRT\_LZ extracts the data from the selected time period from the specified NRT LZ input file and writes the data and an updated file label record to the output file.

Normally, a User Interface SQL\*Form is used for selecting the input file and invoking this command. The form aids in finding the active and nonactive LZ files and in finding the start and stop times for the files for nonactive files (or the start time only for active files).

Messages regarding the extraction process are written to the standard output (normally the screen).

### QUALIFIERS

- /INPUT=inputFile  
The inputFile is the full physical filename of the input NRT LZ file from which the data are to be extracted. This qualifier and inputFile name are required. When using EXTRACT\_NRT\_LZ from the command line to extract level-zero data, the input filename should be specified along with the logical name that points to the location of the level-zero data file (e.g., NRT\_WI\_3DP).
- /OUTPUT=outputFile  
The outputFile is the full physical filename of the output file to which the extracted data are to be written. This qualifier and outputFile name are required.
- /START=startTime  
The startTime is a date and time in VAX/VMS format (“dd-mmm-yyy hh:mm:ss”) for the first major frame to be extracted. (The double quotes are needed, since the string contains a blank.) If this qualifier and startTime are not supplied, the data will be extracted starting at the start of the inputFile.
- /END=endTime  
The endTime is a date and time in VAX/VMS format (“dd-mmm-yyy hh:mm:ss”) for the last major frame to be extracted. (The double quotes are needed, since the string contains a blank.) If this qualifier and endTime are not supplied, the data will be extracted ending at the end of the inputFile.

### EXAMPLES

- \$EXTRACT\_NRT\_LZ/INPUT=NRT\_WI\_3DP:WI\_LZ\_3DP.NRT-  
/OUTPUT=WI\_LZ\_3DP.NRT\_A-  
/START=“21-APR-1994 22:10:00”-  
/END=“21-APR-1994 22:22:00”



In this example, a user invokes `EXTRACT_NRT_LZ` from the DCL command line to extract data from an active NRT LZ file starting at 21-apr-1994 22:10:00 and ending at 21-apr-1994 22:22:00 and to place the output in the file `WI_LZ_3DP.NRT.A`. In order for data to be extracted, the user must know that data are in the file for the requested span.

If no `/START` or `/END` qualifiers are provided, then the entire file is copied.

- `$ EXTRACT_NRT_LZ /INPUT=NRT_WI_3DP:WI_LZ_3DP_19940421_V01.2250 - /OUTPUT=extracted_data.dat.`

In this case, a user invokes `EXTRACT_NRT_LZ` from the DCL command line to extract the entire file and place the output in the output file `extracted_data.dat`.

- `$ EXTRACT_NRT_LZ /INPUT=NRT_WI_3DP:WI_LZ_3DP_19940421_V01.2250 - /OUTPUT=extracted_data2.dat /START="21-apr-1994 22:22:00"`

In this case, a user invokes `EXTRACT_NRT_LZ` from the DCL command line to extract the file starting at 21-apr-1994 22:22:00 and ending at the end of the file and to place the output in the file `extracted_data2.dat`.

- `$ EXTRACT_NRT_LZ /INPUT=NRT_WI_3DP:WI_LZ_3DP_19940421_V01.2250 - /OUTPUT=extracted_data3.dat /END="21-apr-1994 22:42:00"`

In this case, a user invokes `EXTRACT_NRT_LZ` from the DCL command line to extract the file starting at the start of the file and ending at 21-apr-1994 22:42:00 and to place the output in the file `extracted_data3.dat`.

- `$ EXTRACT_NRT_LZ /INPUT=NRT_WI_3DP:WI_LZ_3DP_19940421_V01.2250 - /OUTPUT=extracted_data4.dat /START="21-apr-1994 22:12:00" - /END="21-apr-1994 22:22:00"`

In this case, a user invokes `EXTRACT_NRT_LZ` from the DCL command line to extract the file starting at 21-apr-1994 22:12:00 and ending at 21-apr-1994 22:22:00 and to place the output in the file `extracted_data4.dat`.



When an NRT pass is completed (indicated by the file extension's change from "NRT" to the `hhmm` format), a network copy can be used to transfer the entire file.

## 4.7 Plot Orbit Data

This orbit plot services provide the capability to plot orbit files.

### 4.7.1 Orbit Plot Form

The orbit plot form allows you to query daily and working orbit files for plotting. Once you have queried the files, the `SF1` key can be used to select files for data plotting. You may press the `Accept` key to plot the selected files. This form does not allow changes to the database.

Format:

```
OFF----- ORBIT PLOT FORM -----
Mission Name  Data Type  Descriptor  Start Date  End Date
  █           █         █         02-JUL-1995 00:00:00  02-AUG-1995 00:00:00

Logical Identifier  Online  Start Date  End Date  Selected
██████████████████  █       ██████████  ██████████  █

SF1 - To Select Files For Plotting
ACCEPT - To Plot Orbit Files
EXIT - To Exit Form

Enter a valid mission short name. List of values available.
Count: *0                                     <List><Replace>
```

Usage Restrictions:

- Inserts are prohibited in this form.
- Once files have been queried, they cannot be updated or deleted.
- Queries may only be performed from the first block. To view orbit files, enter the query criteria and press Next Block.
- If you have a default mission, data type, and descriptor, they will be automatically displayed as query criteria to reduce data entry.
- You may select a maximum of 10 files at one time.
- Only CDF orbit files may be plotted.
- Online file status is not available for working orbit files.

Detail Usage Guidelines:

- Wild cards (%) are allowed for mission and descriptor in the query criteria block.
- Special function key SF1 can be used to select or unselect files for plotting. When the files are selected, an “S” appears under the “Selected” column for that file. A selected file can be unselected by pressing the same key. Pressing SF1 for a selected file removes the “S” from the “Selected” column. The cursor will automatically advance to the next row after a file has been selected or unselected.

Supported Devices:

The names of the device types can be abbreviated if the abbreviations are not ambiguous; in most cases, the first two letters are sufficient. To display plots on your terminal, you must be using a supported graphics device and enter the corresponding PGPLOT device type, as shown in Table 4-2.

Example:

You will be prompted with a series of questions once the Accept key has been pressed to plot the files. The following text in bold will appear on screen. The text not in bold shows possible user responses.

**Gathering data**

**Graphics device/type (? to see list): ?**

**PGPLOT v4.9D Copyright 1990 California Institute of Technology**

**Legal PGPLOT devices are:**

<b>/GF (Graph On)</b>	<b>/HIDMP</b>	<b>/FILE</b>	<b>/NULL</b>
<b>/PK</b>	<b>/PS</b>	<b>/PRINTRONIX</b>	<b>/PERITEK</b>
<b>/RETRO</b>	<b>/TEK4010</b>	<b>/TFILE</b>	<b>/TK4100</b>
<b>/VPS</b>	<b>/VT125</b>	<b>/WSO</b>	<b>/X11 (Landscape)</b>

**Graphics device/type (? to see list): /tek4010**

**Select coordinate system: GCI, GSE, GSM**

**Cntrl-Z to exit**

GSM

**Select plot axis: X-Y, X-Z**

X-Z

**Table 4–2. Supported Graphics Devices**

<b>Device Description</b>	<b>PGPLOT Device Type</b>
Metafile	/FILE
GraphOn GO-230 terminal	/GF
Houston Instruments HIDMP pen plotter	/HIDMP
Null device (no graphical output)	/NULL
Peritek Corp. VCH-Q frame-buffer video	/PERITEK
Peritek Corp. VCK-Q frame-buffer video	/PK
Printronix P300 pr P600 printer	/PRINTRONIX
PostScript device (landscape mode)	/PS
Retrographics modified VT100 terminal (VT640)	/RETRO
Tektronix 4006/4010 storage-tube terminal	/TEK4010
Tektronix 4014 (12-bit addressing)	/TFILE
Tektronix 4100-series color terminal	/TK4100
PostScript device (portrait mode)	/VPS
DEC VT125, VT240, or VT340 terminal (REGIS)	/VT125
VAX/VMS workstations	/WSO
X-terms	/X11

## 4.8 Access the NEWS Bulletin Board

The UI provides access to the ISTEP Bulletin Board utility. This bulletin board is implemented using the public domain ANU NEWS utility. It contains news groups of interest to the ISTEP community.

When you invoke the NEWS utility for the first time, it displays all of the news groups. The groups named **Control** and **Junk** are used by the NEWS utility for its housekeeping, and you should not be concerned with these two groups. When you move the cursor with the arrow keys to any other new group and press [ENTER], a directory of all news items in that news group is displayed. You can move the cursor to the news item and press [ENTER] to read that item. After the complete news item is displayed, press [ENTER] again to return to the directory of the news group. To read another item in this news group, repeat the process. If you are interested in this news group, enter the command **REGISTER** to register to that news group. Now you can return to the main directory by the **DIR/NEWS** command. By moving the cursor to any other news group, you can repeat the above process. Upon completion, exit NEWS with the **EXIT** command.

Additional commands may be used as follows:

- **POST**—Posts a news item. Users with write access to a particular news group can post an item in that news group.
- **EXTRACT**—Copies the selected item to a file.
- **PRINT**—Prints a news item to a print queue.
- **MAIL**—Sends a news item to a given user.
- **HELP**—Provides more details on the above commands and other commands.

To request establishment of a new news group, send E-mail to ISTEP::KNIGHT. Again, online help is available from within the NEWS utility by entering the **HELP** command.

If the command **\$NEWS/SCAN** is included in your LOGIN.COM, the NEWS utility will automatically notify you when there is a new news item. If you want to start an interactive session automatically when there are any unseen news items, use the **\$NEWS/UNSEEN2** command in your LOGIN.COM.

The NEWS utility creates a file named NEWSRC. in your login directory for housekeeping.

## APPENDIX A—KEYBOARD MAPPINGS

---

This appendix provides keyboard mappings for various terminals, keyboard types, and emulators.

# SQL\*FORMS KEYPAD VT100

Delete Backwards - Backspace Delete  
 Line (E) - Gold BackspaceFirst Line (E)  
 - Gold, Gold, UpInsert/Replace -  
 CTRL-ALast Line (E) - Gold, Gold,  
 DownNext Field - ReturnNext Field/Exit  
 Edit - TabPrevious Field - Gold  
 ReturnPrint Screen - CTRL-PScroll  
 Left - Gold, Gold, LeftScroll Right -  
 Gold, Gold, RightShow Keys - CTRL-K  
 Refresh Screen - CTRL-R

<b>Up</b>	<b>Down</b>	<b>Right</b>
Scroll Up	Scroll Down	End of Line
Up	Down	Right
<b>Left</b>	<b>Down</b>	<b>Right</b>
Begin. of Line	Scroll Down	End of Line
Left	Down	Right

PF1	PF2	PF3	PF4
Gold	Help Show Keys	Display Error Commit/ Accept	Exit/ Cancel
Copy	Paste	Cut	-
Enter Query	Execute Query	Previous Field	
SF4	Insert Record	Delete Record	,
Clear Field	Clear Record	Clear Block	
SF1	SF2	SF3	<b>Enter</b>
Next Block	Previous Block	Edit	Search (E)
Menu	0	InsertLine (E)	
List		Insert/ Replace	Select

KEY:

Gold Stroke
Single Stroke

(E) = Edit window only

# SQL\*FORMS KEYPAD VT220

<b>F11</b> First Line (E) Menu	<b>F12</b> LastLine (E) Edit	<b>F13</b> Search (E) List	<b>F14</b> InsertLine (E) Insert/ Replace	<b>HELP</b> Help Show Keys	<b>DO</b> Commit/ Accept	<b>F17</b> SF1	<b>F18</b> SF2	<b>F19</b> SF3	<b>F20</b> SF4
--------------------------------------	------------------------------------	----------------------------------	--	----------------------------------	--------------------------------	-------------------	-------------------	-------------------	-------------------

<b>F7</b> Clear Field	<b>F8</b> Clear Record	<b>F9</b> Clear Block	<b>F10</b> Clear Form	<b>Find</b> Copy Execute Query	<b>Ins. Here</b> Paste Insert Record	<b>Remove</b> Cut Delete Record	<b>PF1</b> Gold	<b>PF2</b> Previous Field	<b>PF3</b> Display Error	<b>PF4</b> Exit/C ancel
				<b>Select</b> Select Enter Query	<b>Priv. Scrn.</b> Scroll Left Previous Block	<b>Nxt. Scrn.</b> Scroll Right Next Block	7	8	9	-
					<b>Up</b> Scroll Up Up		4	5	6	,
				<b>Left</b> Begin. of Line Left	<b>Down</b> Scroll Down Down	<b>Right</b> End of Line Right	1	2	3	<b>Enter</b>
								0	.	

- Delete Backwards - Backspace
- Delete Line (E) - Gold
- Backspace/Insert/Replace -
- CTRL-ANext Field - ReturnNext
- Field/Exit Edit - TabPrevious Field -
- Gold ReturnPrint Screen -
- CTRL-PShow Keys - CTRL-K
- Refresh Screen - CTRL-R

**KEY:**

Gold Stroke
Single Stroke

(E) = Edit window only

# SQL \*FORMS KEYPAD VT220 Emulation on Mac Extended Keyboard

<b>F2</b> Clear Field	<b>F3</b> Clear Record	<b>F4</b> Clear Block	<b>F5</b> Clear Form	<b>F6</b> First Line (E) Menu	<b>F7</b> Last Line (E) Edit	<b>F8</b> Search (E) List	<b>F9</b> InsertLine (E) Insert/ Replace	<b>F10</b> Help Show Keys	<b>F11</b> Commit/ Accept	<b>F12</b> SF1	<b>F13</b> SF2	<b>F14</b> SF3	<b>F15</b> SF4
--------------------------	---------------------------	--------------------------	-------------------------	-------------------------------------	------------------------------------	---------------------------------	---	---------------------------------	---------------------------------	-------------------	-------------------	-------------------	-------------------

<b>help</b> Copy Execute Query	<b>home</b> Paste Insert Record	<b>page up</b> Cut Delete Record	<b>clear</b> Gold	<b>del</b> Select Enter Query	<b>end.</b> Scroll Left Previous Block	<b>page down</b> Scroll Right Next Block	<b>=</b> Previous Field	<b>/</b> Display Error	<b>*</b> Exit/ Cancel
<b>Up</b> Scroll Up Up	<b>Down</b> Scroll Down Down	<b>Right</b> End of Line Right	<b>7</b>	<b>4</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>6</b>	<b>3</b>
<b>Left</b> Begin. of Line Left								<b>0</b>	<b>•</b>
									<b>Enter</b>

- Delete Backwards - Backspace
- Delete Line (E) - Gold
- BackspaceInsert/Replace -
- CTRL-ANext Field - ReturnNext
- Field/Exit Edit - TabPrevious Field -
- Gold ReturnPrint Screen -
- CTRL-PShow Keys - CTRL-K
- Refresh Screen - CTRL-R

KEY:

Gold Stroke
Single Stroke

(E) = Edit window only



## SQL\*FORMS KEYPAD VT100 Emulators

Accept/Commit	- ^A	Last Line	- Esc Esc D
Beginning of Line	- Esc Esc L	Left	- Left
First Line	- Esc Esc U		- ^L
Clear Block	- Esc B		- Keypad 4
Clear Field	- Esc F	List	- ^V
Clear Form/Rollback	- Esc A	Menu	- Esc M
Clear Record	- Esc R	Next Block	- ^N
Copy Cut	- Esc C	Next Field	- Tab
Delete Backwards	- Esc X	Paste	- Esc T
	- Delete	Previous Block	- ^P
	- Keypad .	Previous Field	- ^B
Delete Record	- Esc D	Print	- Esc P
Display Error	- Esc V	Refresh	- ^F
Down	- Down	Return	- Return
	- ^D	Right	- Right
	- Keypad 2		- ^R
Edit	- ^E		- Keypad 6
End of Line	- Esc Esc R	Scroll Down	- Esc Down
Enter Query	- Esc Q		- Esc W
Execute Query	- Esc E	Scroll Left	- Esc Left
Exit	- ^Z	Scroll Right	- Esc Right
Help	- Esc H	Scroll Up	- Esc Up
Insert Record	- Esc I		- Esc U
Insert/Replace	- Esc O	Search	- Esc G
SF1	- Esc 1	Select	- Enter
SF2	- Esc 2		- Esc S
SF3	- Esc 3	Show Keys	- ^K
SF4	- Esc 4	Up	- Up
			- ^J
			- Keypad 8

^ = CTRL

Note: Some terminal emulators will not pass the Esc key

## APPENDIX B—NEAR-REAL-TIME DATA ACCESS

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The ISTP CDHF supports the receipt and processing of WIND and POLAR telemetry data in near-real time. During each Deep Space Network (DSN) contact, telemetry data is forwarded to the CDHF where the data is edited and decommutated into instrument major frames. The decommutated data is written to online storage on the CDHF for access by authorized investigators. In addition, WIND near-real-time data for the MFI, SWE, and 3DP instruments is processed into key parameters in real time for the SWIM investigation. These NRT key parameters are sent to specified remote sites in real time and are written to online storage in the CDHF for access by authorized investigators.

### B.1 WIND and POLAR NRT Telemetry

The WIND and POLAR decommutated near-real-time telemetry files are written to separate directories by instrument. These files are created in the same format as the playback level-zero data files. Authorized investigators are granted direct access to the appropriate NRT directory. The locations of the files are listed below.

<b>WIND NRT Telemetry</b>		<b>POLAR NRT Telemetry</b>	
<u>Instrument</u>	<u>Location</u>	<u>Instrument</u>	<u>Location</u>
3DP	NRT_WI_3DP	CAM	NRT_PO_CAM
EPA	NRT_WI_EPA	CEP	NRT_PO_CEP
KON	NRT_WI_KON	EFI	NRT_PO_EFI
MFI	NRT_WI_MFI	HYD	NRT_PO_HYD
SCR	NRT_WI_SCR	MFE	NRT_PO_MFE
SMS	NRT_WI_SMS	PIX	NRT_PO_PIX
SWE	NRT_WI_SWE	PWI	NRT_PO_PWI
TGR	NRT_WI_TGR	SCR	NRT_PO_SCR
WAV	NRT_WI_WAV	TID	NRT_PO_TID
		TIM	NRT_PO_TIM
		UVI	NRT_PO_UVI
		VIS	NRT_PO_VIS

The NRT telemetry files are named in the same manner as the playback level-zero files, with the exception that the file extension contains a time stamp. For example:

WI\_LZ\_MFI\_19940419\_V01.1420

This is a WIND MFI level-zero near-real-time file for the real-time contact at 1420 Greenwich mean time (GMT) on April 19, 1994.

PO\_LZ\_HYD\_19950503\_V01.0445  
PO\_LZ\_HYD\_19950503\_V01.1518

These are two POLAR HYD level-zero data files for real-time contacts at 0445 and 1518 GMT on May 3, 1995.

### **B.1.1 Access to NRT Telemetry Data**

The active WIND and POLAR near-real-time level-zero files can be accessed by investigators during a real-time pass. The files can be accessed through the UI (see Section 4.6) or by user software. When accessed from a user program the files must be opened with READONLY and SHARED attributes. Figure B-1 shows a sample FORTRAN program for reading and extracting major frames of data from active near-real-time files.

Files from completed real-time passes can be transferred at any time using the ftp or COPY commands.

## **B.2 Near-Real-Time Key Parameters**

Key parameters are generated in near-real time for the WIND 3DP, MFI, and SWE instruments as part of the SWIM investigation. These data are transmitted electronically in near-real time to specified SWIM sites. In addition, near-real-time key parameter files are created on the CDHF. The data in these files is created in Institute of Electrical and Electronics Engineers (IEEE) format. Access to the near-real-time key parameter files is provided to authorized investigators. Access is by file transfer at the end of a pass, although, in principle, the same program shown in Figure B-1 could be used to read the active near-real-time key parameter file.

The near-real-time key parameter files are found the directories listed below.

### **WIND NRT Key Parameters**

<u>Instrument</u>	<u>Location</u>
3DP	NRT_WI_3DP_KP
MFI	NRT_WI_MFI_KP
SWE	NRT_WI_SWE_KP

The NRT key parameter files are named in the same manner as the key parameter files generated from playback data, with the exception that the file extension contains a time stamp and all files are of type KP (multiple key parameter output files are not supported in the NRT subsystem). For example:

WI\_KP\_MFI\_19940419\_V01.1420

This is a WIND MFI near-real-time key parameter file for the real-time contact at 1420 GMT on April 19, 1994.

```

character*255 lz_file,out_file
character*25 prompt
integer*4 clen,rec_len,rec_size
byte lz_rec(20000)

prompt = 'Enter name of input file: '
status = lib$get_input(lz_file,prompt,clen)

open(file=lz_file(1:clen),unit=10,status='old',readonly,
1    shared,access='sequential',form='unformatted')

inquire(unit=10,recl=rec_len)
rec_size = rec_len*4 ! to get bytes

prompt = 'Enter output file name: '
status = lib$get_input(out_file,prompt,clen)

open(file=out_file(1:clen),status='new',unit=11,
1    access='sequential',form='unformatted',
2    recordtype='fixed',recl=rec_len)

call extract(lz_rec,rec_size)

close(unit=10)
close(unit=11)
stop
end

subroutine extract(lz_rec,rec_size)
integer    rec_size
byte lz_rec(rec_size)

do while (.true.)
    read(10,end=999) lz_rec
    write(11) lz_rec
end do
999 continue

return
end

```

**Figure B-1. Sample Extraction Program**

## APPENDIX C—CDHF PUBLIC SOFTWARE DIRECTORY

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The CDHF has established a public software directory called SYS\_FILES:[PUBLIC]. This directory contains public files of general use to the ISTEP CDHF user community. The subdirectories under [PUBLIC] can be accessed directly by preceding the subdirectory name with SYS\$PUBLIC: (e.g., SYS\$PUBLIC:[CDF] specifies the CDF subdirectory).

The PUBLIC area on ISTEP can be accessed via anonymous ftp. Anonymous ftp users will be placed directly in the PUBLIC area .

The files in this directory and their contents are as follows:

AAAREADME.TXT	This file
CDF.DIR	Contains CDF distribution currently used on CDHF
DOCS.DIR	ASCII and postscript versions of CDHF documents
OA_ROUTINES.DIR	Source code for orbit and attitude transformation routines
SFDU_TOOLS.DIR	SFDU utility programs
SPOF.DIR	SPOF related files
TOOLS.DIR	Software tools for ISTEP
VTTOOL.DIR	VTTOOL, a VT200 terminal emulator for UNIX

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## ACRONYMS

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BFX	bulk file transfer
bpi	bits per inch
cd	change directory
CDF	Common Data Format
CDHF	Central Data Handling Facility
CLUSTER	Plasma Turbulence Laboratory
CMS	Command Management System
CNE	Center Network Environment
COSTR	Collaborative Solar-Terrestrial Research
CRT	Cathode Ray Tube
DBA	database administrator
DBMS	Database Management System
DCL	Digital Command Language
DDF	Data Distribution Facility
DECnet	Digital Equipment Corporation network
DPS	data processing specialist
DSN	Deep Space Network
DX	digital exchange
EOF	Experimenters' Operations Facility
ESA	European Space Agency
EST	eastern standard time
FDF	Flight Dynamics Facility
FLR	file label record
ftp	file transfer protocol
GB	gigabyte
GBI	ground-based investigator
GDCF	Generic Data Capture Facility
GEOTAIL	Geomagnetic Tail
GGG	Global Geospace Science
GMT	Greenwich mean time

GOES	Geostationary Operational Environmental Satellite
GSFC	Goddard Space Flight Center
HSC	Hierarchical Storage Controller
ICD	interface control document
ICSS	ISTP CDHF Software System
IEEE	Institute of Electrical and Electronics Engineers
IMP-8	Interplanetary Monitoring Platform-8
IMSL	International Mathematics and Statistics Library
InfoLAN	IPD local area network
IPD	Information Processing Division
IPL	Interplanetary Physics Laboratory
ISAS	Institute of Space and Astronautical Science
ISTP	International Solar-Terrestrial Physics
KP	key parameter
KPGS	key parameter generation software
LACN	local area computing network
LANL	Los Alamos National Laboratory
LAT	Local Area Transport
LZ	level-zero
MB	megabyte
mm	millimeter
MODNET	MO&DSD Operational Development Network
MO&DSD	Mission Operations and Data Systems Directorate
NAG	Numerical Algorithms
NASA	National Aeronautics and Space Administration
NETEX	Network Executive
NOAA	National Oceanic and Atmospheric Administration
NRT	near-real-time (subsystem)
NSC	Network Systems Corporation
NSI	NASA Science Internet
NSSDC	National Space Science Data Center
PC	personal computer

PI	principal investigator
POCC	Payload Operation Control Center
POLAR	Polar Plasma Laboratory Mission
PPL	Polar Plasma Laboratory
RAL	Rutherford-Appleton Laboratory
RDAF	Remote Data Analysis Facility
SAMPEX	Solar Anomalous and Magnetospheric Particle Explorer
SEAS	Systems, Engineering, and Analysis Support
SFDU	standard formatted data unit
SIC	support identification code
SMTP	Simple Mail Transfer Protocol
SOHO	Solar Heliospheric Observatory
SPOF	Science Planning and Operations Facility
SWIM	Solar Wind Interplanetary Measurement
TAE	Transportable Applications Environment
TCL	TAE Command Language
TCP/IP	Transmission Control Protocol/Internet Protocol
TI	theory investigator
UI	User Interface
UTC	Universal Time Coordinated
VAX	Virtual Address Extension
VMS	Virtual Memory System
VT	virtual terminal
WIND	Interplanetary Physics Laboratory Mission