

## 7. Performing Archive Operations

One of the important features of IRIS is the ability to archive and retrieve radar data. If a RAW product (polar coordinate data) is retrieved from archive, IRIS can generate products from the retrieved data as if the data were collected in real time. Picture products can be retrieved from archive and then displayed. IRIS supports three types of archive devices. Note that these are configured in the Setup/Archive utility.

- Tape such as DAT.
- Optical Disk drives such as re-writable magneto optical drives.
- Large Disk Archives (LDA's)
- DVD+RW systems (e.g., SONY DRU-500AX (internal), SONY DRX-500ULX (external on Firewire or USB 2.0). Currently supported on Linux systems.

Optical disks are more expensive than tape, but last longer and are much more convenient to use because of their random access capability. Recording to tape is convenient, but retrieval can be slow if the file that you want is at the end. The LDA allows users to take advantage of low-cost mass storage systems that are now available. DVD's offer low cost for both the drive and the media while providing approximately 5 GB of storage. These are the most cost effective.

The Archive menu controls the host archive devices. Initially, you make Send requests in the Product Output menu to direct output to the archive device. Then you use the Archive menu to mount an IRIS tape or disk (archive media) and start the recording process. The Archive menu also lets you retrieve product files and store them on the system disk.

To enter the Archive menu choose **Menus** → **Archive menu** from the IRIS menu bar or from any of the IRIS menus.

### In this chapter:

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## 7.1 Archive Menu



**Note:** The sigbru utility has archive/retrieve capabilities that are useful for manual or automatic archive and maintenance of LDA's.

wind Archive Menu TAPE1 DAT

File Menus Drive Commands
Help

Site	Type	Product Name	TASK	From	To	Day	Mon	Year	Files
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>

Apply
Grab
All Wild
Wild Time
Commands
Start List at

36 /36 Files 9.7M/9.7M Bytes

Commands  
Status 
Write

Archive ID

File	Site	Type	Product	Products-Specific-Parameters	Task	Time	Date
d	1	HAI	CAPPI	Z_020_240 Z 2.0km 240km 480 P	PPIVOL	17:11:13	12 Jul 1997
d	1	HAI	PPI	Z_020_240 Z 2.0deg 240km 480 P	PPIVOL	17:11:13	12 Jul 1997
d	1	HAI	CAPPI	Z_030_240 Z 3.0km 240km 480 P	PPIVOL	17:11:13	12 Jul 1997
r	1	HAI	CAPPI	V_020_240 V 2.0km 240km 480 P	PPIVOL	17:11:13	12 Jul 1997
r	1	HAI	CAPPI	V_030_240 V 3.0km 240km 480 P	PPIVOL	17:11:13	12 Jul 1997
d	1	HAI	RHI	Z_XXX_120 Z 90.0deg 120km 600 D	RHI	16:10:13	12 Jul 1997
d	1	HAI	RHI	V_XXX_120 V 90.0deg 120km 600 D	RHI	16:10:13	12 Jul 1997
1	HAI	RAW	AERIAL	Z V W 240km One	AERIAL	16:05:00	12 Jul 1997

### Filter Menu

You can use the standard filter menu for selecting the products that appear in the Archive Log area.

### Archive Control Area Section 7.1.1

The middle of the menu provides commands to control archive operations such as mount or record, and displays status information for the archive device functions.

### Archive Log Area Section 7.1.2


The bottom of the menu shows what product files, if any, are recorded on the archive that is currently mounted.

All operations are directed to a specific archive device, which you must select.

## To select an archive device (tape or optical disk):

Choose **Drive** from the Archive menu and pick a drive from the list. The choices vary, depending on the drives configured with your system. If no archive drives are available, the list contains the entry UNKNOWN.

### 7.1.1 Archive Control Area

Commands	Mount 	Done	Status	Released	Write	Off
Archive ID	SIG_96_11_27_E1W					

The archive control area of the window lets you select the archive device commands. Status information is also displayed.

#### Commands

The Commands button pops up the following menu of tape commands:

<b>Mount</b>	<b>Mount</b> a disk or tape.
<b>Unmount</b>	<b>Unmount</b> a disk or tape.
<b>Stop</b>	<b>Stop</b> the current operation.
<b>Record</b>	<b>Record</b> a product file to archive.
<b>Retrieve</b>	<b>Retrieve</b> a product file from the archive and copy it to disk.
<b>Inventory</b>	<b>Inventory</b> the product files on the archive.

#### Status

The Status field shows the current status of the archive drive and should correspond to the command request. The status entries are:

<b>Rewind (for tape)</b>	The tape is rewinding, for example: <ul style="list-style-type: none"> <li>• The user issues the Unmount command.</li> <li>• IRIS is positioning the tape for a Retrieve operation.</li> <li>• IRIS has filled a tape during a Record operation.</li> </ul>
<b>Writing</b>	The tape or disk is being recorded.
<b>Scanning</b>	The tape is being mounted or an inventory is being created. "Scanning" is also displayed while the tape is positioning for a Retrieve or Record operation.
<b>Reading</b>	The drive is in the process of retrieving a file.
<b>Idle</b>	The drive is not doing anything, that is, the user did not issue a command, or the last command was completed.

<b>Off Line</b>	The specified drive is not on-line. No archive operation can be performed until this problem is corrected. You may need to insert the medium or push a load button. Consult the drive manual.
<b>Unavailable</b>	The drive is being used by someone else, it is broken or not installed.
<b>Released</b>	IRIS is not currently attached to the drive. The drive is free to be used by IRIS or other processes.
<b>Full</b>	The medium is full—an EOT or disk full was encountered during a Record operation. To continue recording, the medium must be unmounted, a new medium mounted and Record must be invoked again.
<b>BOT (tape)</b>	Beginning of tape—a new tape has been inserted into the drive and is ready to be mounted. This status also appears after a Rewind is done.
<b>EOT (tape)</b>	End of Tape—IRIS has encountered the end of tape. Usually IRIS rewinds the tape automatically, so the message is replaced by “Rewind.”

Up to three status indicators can appear together in the Status field. For example, if a Record process fills the tape, the tape is rewound and sits idle until the operator changes tapes or issues another command, the Status field indicates the following:

**Idle BOT Full**

If the tape is being scanned to create an inventory, the status field displays the following:

**Scanning**

When a Record process currently has nothing to do, the status displays:

**Idle**

If new product files tagged for archive (in the Product Output menu) become available, they are recorded automatically.

When the Mount command is completed and the tape is at the beginning awaiting commands, the Status field displays:

**Idle BOT**

## Archive ID

Identifies the unique name assigned to the tape or disk when it was initialized. The first three characters are the IRIS site ID for the site where the medium was initialized, followed by the date on which the medium was initialized. The final three characters are a random code to assure uniqueness. For information on initializing media refer to Section 7.2 .

## Write

The Write field shows whether the write protection for the tape or disk is set. “On” means that IRIS can write on the medium. “Off” means that IRIS cannot write on the medium. The message appears after a Mount command is issued.

Click on the Wild Time button to change only the hours, month, day and year fields to the wildcard character.

## Filter Menu Commands

The Filter Menu functions are identical to that described in **Section 6.2.1** for the Product Output Menu. However, the Commands button pops-up the following list of special operations that you can perform on the files selected by the Filter menu:

Retrieve
Cancel

**Retrieve** marks all selected files for retrieval.

**Cancel** unmarks all selected files.

## Filter Menu Start List At

This command is located at the base of the filter menu. Because the Archive log listing can contain several hundred files, the Start List At field lets you start the list at a selected file. You can pick a starting number from a pop-up menu or enter a number directly into the field. This is especially convenient for tapes that are in chronological order.

## 7.1.2 Archive Log Area

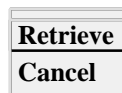
File	Site	Type	Product	Product-Specific-Parameters				Task	Time	Date
d	1	HAI	CAPPI	Z_020_240	Z	2.0km	240km	480 P	PPIVOL	17:11:13 12 Jul 1997
d	1	HAI	PPI	Z_020_240	Z	2.0deg	240km	480 P	PPIVOL	17:11:13 12 Jul 1997
d	1	HAI	CAPPI	Z_030_240	Z	3.0km	240km	480 P	PPIVOL	17:11:13 12 Jul 1997
r	1	HAI	CAPPI	V_020_240	V	2.0km	240km	480 P	PPIVOL	17:11:13 12 Jul 1997
r	1	HAI	CAPPI	V_030_240	V	3.0km	240km	480 P	PPIVOL	17:11:13 12 Jul 1997
d	1	HAI	RHI	Z_XXX_120	Z	90.0deg	120km	600 D	RHI	16:10:13 12 Jul 1997
d	1	HAI	RHI	V_XXX_120	V	90.0deg	120km	600 D	RHI	16:10:13 12 Jul 1997
	1	HAI	RAW	AERIAL	Z V W	240km	One	AERIAL	16:05:00	12 Jul 1997

At the bottom of the menu is a list of files that are on the archive. This list is used for specifying files for a Retrieve operation or verifying the progress of a Record operation. For tape, the order of the list is the same as the order of the files on the tape. Usually, they are in chronological order. For optical disk, the files appear in the same order as in the Product Output menu.

Archive logs are maintained on disk as ASCII text files. In the case when a tape is mounted, IRIS checks to see if there is a corresponding tape log (see the Mount command in section 7.3). If the tape is a valid IRIS tape, then the list is displayed. In the case of optical disk, a new log is generated whenever a disk is mounted.

## File Column Pop-Up Menu

When you position the mouse cursor over the File column in the Archive Log, you can pop up the following menu:



**Retrieve** marks a file for retrieval.  
**Cancel** unmarks the file.

This column also contains status information about the file. The first column displays the sequential tape file number (1, 2, ... ) and the second column contains one of the following symbols:

- r** The file has been tagged for a Retrieve operation.
- d** The file is on disk as well as on tape. In this case, a Retrieve is not permitted.
- “blank”** The file is on tape only and has not been tagged for Retrieve.

## Site and Type

The Site field displays the ID of the radar site where data for the product was collected. The Type field shows the type of the product, such as PPI or RHI.

## Name

This field gives the product name for the most recent generation of the product type. It is a display-only field.

## Product-Specific-Parameters

Shows the same additional information about the product as seen in the product output menu, for details see Table 8–1.

## TASK

This display-only field shows the name of the associated TASK.

## Time

This display-only field shows the date and time (local time) when data for the product was collected.

## 7.2 Initializing a Tape or Disk for Recording

IRIS can mount only valid IRIS tapes or disks that have been initialized by a separate utility program. If you try to mount a non-initialized medium, the Status field shows:

### **NonIris**

The medium initialization utility should be used in the following situations:

- To initialize a blank tape or disk.
- To overwrite a tape or disk that contains non-IRIS data.
- To overwrite an IRIS tape or disk.

In the cases where you are overwriting an IRIS or other type of medium, you should be very sure that you are not destroying valuable data or software (backup or delivery tapes). To help defend against this, only operators are permitted to use the tape initialization utility.



**Caution: Do not initialize an existing tape or disk if you want to record additional data or retrieve IRIS data. Initializing an existing IRIS tape or disk destroys the data already on the medium.**

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### **To initialize a tape or disk:**

1. Make sure the drive is free. Any IRIS tape or disk must be unmounted and removed.
2. Insert the medium into the drive and set the drive on line. Be sure that the medium is write enabled.
3. If IRIS is running, check the Archive menu and, if necessary unmount the media that you want to initialize.
4. From the operating system prompt, invoke the `init_iris` command appropriate for your device. Here are some examples:

```
$ init_iris_tape    (for drive unit 1 tape)
$ init_iris_mo      (for drive unit 1 disk)
$ init_iris_mo -u2  (specifies the 2nd drive unit)
$ init_iris_dvd -h   (to get help on usage)
$ init_iris_lda -h   (to get help on usage)
```

Be sure to type the underscore ( `_` ) characters as shown. The command name is intentionally long so that it is unlikely that someone would type it accidentally. The “`-u2`” is used to specify the second drive if there is more than one. The “`-h`” argument does not execute the command, rather it prints the usage options.

The unit will be checked and you will be prompted to confirm the initialization. The drive goes through several initialization steps that are displayed on the screen. If you have forgotten to write enable the tape, you get a write protect error when IRIS attempts to write the header information. Simply write enable the tape and retype the command.

At the end of the initialization, IRIS displays a unique tape number that is used in the future to refer to the disk inventories maintained for the tape.



**Important: Write the name of the medium that IRIS assigns on the tape or disk label. This will let others know that the tape or disk has been initialized.**

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The tape name is based on the first 3 characters of the Site ID, the year, month, day and a random number to make the tape unique.

## 7.3 Mounting a Tape or Disk

The Mount command is used for mounting initialized media, as follows:

1. Insert the tape or disk into the drive and set it on line. (This differs depending on the drive, so check the manufacturer's documentation.)
2. Choose **Commands->Mount**.

When the Mount command is invoked, IRIS scans the medium to determine what kind of medium has been mounted, and checks the system disk to see whether there is a corresponding tape log. The Status field reports "Scanning" during the Mount operation. IRIS then reports its findings in the Filter Summary field as one of:

<b>40*/250 Files 11M/202M Bytes</b>	For example, this indicates that the medium is a valid IRIS archive medium with a complete log. The log list shows the first few product files that are on the medium (if any). In this example, there are 250 files and 202 MB on the medium. The log list is currently displaying 40 files that occupy 11MB (* means there are more that could be displayed).
<b>Incomplete Log</b>	This indicates a valid IRIS tape but an invalid or incomplete tape log on disk. The tape log shows the first few files on the tape to the best of its ability. You may want to perform an inventory if a Retrieve operation is to be done.

After a successful Mount operation, IRIS displays the archive ID, which should be checked against the label on the medium.

In the event that a medium of unknown format or a blank tape or disk is detected during Mount, IRIS does not mount the medium and the Status field shows "NonIris." The medium cannot be used by IRIS unless it is first initialized (see Section 7.2).

## 7.4 Recording Data

The Record command starts the recording process. Output requests made from the Product Output menu for the selected archive drive are written at the beginning of a blank tape or added to the end of an IRIS tape. The archive medium can be left mounted so that new files can be automatically written to the archive without having to enter the Archive menu. This continues until the medium is full.

Retrieve, Unmount, and Inventory commands can be issued during the Record operation without first issuing the Stop command. A side effect of recording on an IRIS tape is that a new tape log is created when IRIS scans to find the last tape file. If you record on a tape that has an “Incomplete Tape Log,” a new tape log is generated. There is no need to perform an inventory in this case.

### To record data:

1. Enter the Product Output menu and select which product files to send to the archive drive. Be sure to specify the correct drive when you do this. You can make either individual send requests or use the header line commands to specify that all future products be sent to the archive.
2. Put a partially filled or a freshly initialized medium into the appropriate archive drive. Make sure that the medium is write-enabled.
3. Enter the Archive menu and select the appropriate archive drive. The Status field should indicate “Idle” or “Released.”
4. Choose **Commands→Mount**.
5. Check the Filter Summary to make sure the medium was mounted successfully, and double-check the Archive ID field and log list to be sure that this is indeed the medium that you want to write.
6. Choose **Commands→Record**.

Recording continues until one of the following happens:

- There is nothing left to record, in which case the Commands field shows “Record Done” and the Status field shows “Idle.” The log now contains entries for the new files that have been added. Further commands can be issued at this point (such as Unmount), but often the medium is left in this state so that future requests for archive from the Product Output menu are fulfilled automatically. This provides hands-off recording of products.
- You choose **Commands→Stop**. IRIS simply waits for the next command, which could be to resume the Record process. The log reflects the new files that were added before the Stop command was issued.
- The medium is full. At that time, the tape rewinds to BOT and the system-wide message “TAPE FULL ON DRIVE (drive id)” is flashed. The following steps should be taken:

1. Enter the Archive menu and unmount the tape.
2. Mount a new tape.
3. Choose **Commands**→**Record** to restart the recording operation where it left off.

Products will be queued to be sent to the drive and will be sent as soon as you select the record command on the fresh media. Thus if the media before these queued files are deleted by the normal watchdog process, then there will be no loss of data on the archive. The time depends on the size of your IRIS system disk but is typically several hours.

## 7.5 Creating and Printing a Log



**Note: Disk file inventories are not created for LDA devices. The inventory for these is made “on-the-fly”.**

The Inventory command is invoked when there is no tape log or when the tape log becomes damaged. If the latter case, the Archive ID field displays “Incomplete Log.” Note, for optical disks, logs are created automatically whenever a disk is mounted.

Printing is done on a text printer rather than a color printer, depending on how the system manager has configured your system. A tape does not need to be mounted to print the tape log.

### To create a tape log:

1. Select **Commands->Inventory**.

When this command is invoked, IRIS scans through the entire tape and generate a new log. Because this can take some time, you may want to leave the menu and do something else until the operation is completed. Note that when IRIS appends files to an existing IRIS tape, a new tape log is automatically generated.

2. After a tape has been filled, print a hardcopy tape log and store it in a notebook or file near where the tapes are stored. (You should also set the write protect.) This makes it easier to determine what product files are on a tape when data are retrieved.

### To print a log (tape or disk):

1. From the operating system prompt, change directories to the location of the logs:

```
$ cd $IRIS_INV_TAPE
```

2. You can see a list of the available tape logs in this directory by typing:

```
$ ls
```

A separate file is listed for each archive log, identified by the archive ID corresponding to the label on the tape or disk.

3. Turn on the default printer for your system, then type (for example):

```
$ lp SIG_88_03_08_S9C.LIS
```

where the archive ID “SIG\_88\_03\_08\_S9C” is used as an example.

## 7.6 Retrieving Product Files from Archive

The Archive menu makes it easy to retrieve product files from tape and put them back on disk where they are available for display or, in the case of the RAW product, for subsequent product generation.

The Retrieve command takes product files from archive and stores them on the system disk. Retrieve requires that you first tag all files to be retrieved. Files can be tagged even while Retrieve or other operations are in progress.

Because Retrieve relies heavily on the log, IRIS tapes with incomplete logs should first be inventoried before the Retrieve command is issued. (See Section 7.5.) Note that Retrieve works if an inventory is not done, but only those files that are listed in the tape log can be retrieved.

### To retrieve a file from archive:

1. Determine which tape or disk has the data that you want. The best way to do this is to maintain a book of printed logs. Because IRIS media can contain a wide variety of products, a simple label is not usually sufficient to describe what is on the medium.
2. Load the medium into the drive and set the drive on line.



**Caution: Set the write protection on to avoid accidentally writing to the tape by yourself or another operator.**

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3. Enter the Archive menu and choose **Commands->Mount**. Check the information in the log to make sure it is consistent with what you thought was on the medium.

Now you are ready to tag files for retrieving.

4. Select the files that you want to tag. There are several ways to make your selection:
  - Click the left mouse button over an entry in the log to select it, or press Ctrl and click to select more than one entry.
  - Click and drag the mouse to select a group of entries in the log, or press Ctrl, then click and drag the mouse to select multiple groups of entries.
  - Use the Filter menu to produce a list of the files that you want to retrieve.
5. Choose **->Retrieve** from one of the following pop-up menus:
  - If you selected the entries with the mouse, position the mouse cursor over the tape log and click on the right mouse button to pop up the menu.

- If you selected the entries from the Filter menu, click on the Commands button to pop up the menu.

If you change your mind, untag the file using the →**Cancel** menu choice.

When a product is selected for Retrieve, an “r” appears next to its file number. After a file is successfully retrieved, or if it is on disk already, a “d” is displayed next to the corresponding file number. Note that files that are already on disk cannot be tagged for Retrieve.

6. After you have finished tagging the files that you want retrieved, choose **Commands→Retrieve**. IRIS positions the tape and copies the tagged files to the disk. A “d” appears next to a file after it is copied to disk.

You can still tag or untag files even while Retrieve is operating, so don’t worry about changing your mind. You may also leave the Archive menu, and the Retrieve process continues its job. For example, you may want to go to the Product Output menu and request output from some of the products that you have restored to disk.

## 7.7 Stopping an Archive Operation

Use **Commands->Stop** to stop the current archive operation. Issuing a Stop command during a Record or Retrieve operation will not damage any files.

The Stop command has different effects depending on the operation being stopped, as follows:

<b>During Record</b>	Stop allows the file currently being written to be completed. If Record is issued again, IRIS resumes recording at the end of the last file.
<b>During Retrieve</b>	Stop finishes retrieving the last file, then stops retrieving. If Retrieve is issued again, the retrieve process continues where it left off.
<b>During Inventory</b>	Stop causes the inventory to halt. The resulting log is incomplete and the Filter Summary shows "Incomplete Log." Retrieve operations that are limited to the part of the log that was completed can still be done. If the Inventory command is reissued, the inventory is started from the beginning of the tape.
<b>During Mount</b>	Stop cancels the Mount operation and rewinds the tape.
<b>During Unmount</b>	Stop has no effect.

## 7.8 Unmounting a Tape or Disk

The Unmount command causes IRIS to rewind a tape and take the tape or optical disk drive off line. The log information is cleared from the screen. This command must be invoked before a new tape can be mounted.

1. Choose **Commands->Unmount**.
2. Wait for the tape to completely rewind, then remove it from the tape drive.

If the media is a DVD, the contents of the temporary buffer used for writing the DVD are flushed to the DVD, i.e., you do not lose the data in the buffer. This may delay the unmounting step by a 20 seconds. If you inadvertently quit IRIS (qiris) without unmounting the DVD, the buffer is flushed in an identical manner (delaying the qiris).