CHAPTER 6

REBUILDING AN INTAC FILE

REBUILDING AN INTAC FILE

OVERVIEW

The REBUILD facility enables you to perform certain utility operations on INTAC files. Using RE commands, you may

- change the file size — the maximum number of records
- zero an INTAC file.
- reconstruct indexes from the data
- reclaim space occupied by deleted records
- copy data to an INTAC file from another INTAC file (commonly used if the file definition has been changed in ways such as adding or deleting fields) or from a text file
- restructure data to conform to changes in the file definition
- change other physical characteristics of the file such as the blocking factor and the index loading percent

Enter the REBUILD facility at the INTAC COMMAND ? prompt by typing the RE command:

```
COMMAND>? RE
```

EXAMPLE:

Below is a REBUILD session using the IN command to rebuild file indexes.

```
COMMAND? RE

REBUILD AN INTAC FILE

REBUILD COMMAND? IN
INTAC FILE? DEPT

REBUILDING THE DATA RECORDS OF AN INTAC FILE

SORTING INDEX 1

REBUILDING THE INDEXES OF AN INTAC FILE
```

SUMMARY OF REBUILD COMMANDS _____

AS[/NC]   copy ASCII file to an INTAC file and (by using the option) validate data against edit parameters

CO   copy data records from one INTAC file to another INTAC file

HELP   print a list of REBUILD commands (or type ?)

IN   rebuild the file indexes only

TO   a total rebuild of data records and indexes

UN   unlock the index lock

ZE   zero out an INTAC file, deleting all data records

AS: CONVERTING ASCII FILES _____

The ASCII feature of the REBUILD command is used to add records to an INTAC file from an ASCII file . The facility validates records against any file edit parameters.

The output INTAC file must already exist. It may be empty, or may already contain some records.

CREATING THE INPUT ASCII FILE

The input ASCII file may be created using either a text line editor or the DU facility. When a great deal of data must be input, you may have it key-punched and input to the system by tape, being sure to specify a delimiting character and following the formatting rules explained below for a text file.

When you use a text editor (such as the Ross Editor) to create an ASCII file, each record in the ASCII file will be added to the output INTAC file. Type each record in the following format:

```
item1/item2/item3/ ... /itemn
```
where
    itemn   the data value to be used for item number n of the INTAC file definition

    /   any delimiter character

Choose as a delimiter a character not contained in the data.

The items on the line must be in order, beginning with item number 1. When you have typed in all records, save the ASCII file without line numbers.

To create an ASCII file using the DU facility, specify the /NH and /Dc options. You may dump the file in any order and you may dump the DATE OF LAST EDIT and the DELETE FLAG . At the DU facility question OUTPUT TO <KB:>? enter a filename. The dumped records will be placed in a ASCII file with that filename and .DMP as an extension. The DU facility allows you to limit the data items to be included.

THE AS REBUILD PROCEDURE

You enter this command by typing AS at the prompt REBUILD COMMAND?

```
REBUILD COMMAND? AS
```

The option /NC may be used with the AS command to turn off the edit that normally checks each record against the INTAC file's edit parameters (ie. MINIMUM, MAXIMUM, TABLE values, or EXTERNAL FILE values) as data is entered.

When you give the AS command, the following questions are asked:

```
INPUT ASCII FILE?
```

Enter the name of the input ASCII file. There is no default extension on this filename.

```
DELIMITER?
```

Type the character that you used in the ASCII file to separate the data items from one another.

```
OUTPUT INTAC FILE?
```

Enter the name of the output INTAC file. An extension of .INT is assumed if none is given.

Unless you have specified the /NC option the data entered is edited by INTAC, using the Edit Parameters established for each data item. Records containing errors are not added to the output file. An error message is printed at the terminal for each rejected record.

After all of the records are added to the file, the indexes of the output file are rebuilt. At this time, if any duplicate index values exist and duplicates are not allowed for that index, the duplicate that was added is deleted from the file.

EXAMPLE:

```
COMMAND? RE

REBUILD AN INTAC FILE

REBUILD COMMAND? AS
INPUT ASCII FILE? DEPTDU.DMP
DELIMITER? #
OUTPUT INTAC FILE? DIVSN

REBUILD THE DATA RECORDS OF AN INTAC FILE

11 RECORDS COPIED
SORTING INDEX 1

REBUILD THE INDEXES OF AN INTAC FILE
```

CO: COPYING INTAC FILES

The COPY command is used to copy all or a portion of the data in one INTAC file to another existing INTAC file. It can be used to create an exact copy of a file, or to merge two files. Files to be merged may have the same or different record formats.

Each record on the input file is used to create a new record to add to the output file. Records can be copied entirely, or you may specify only certain data items to be copied from each record. The selected data items may be specified by item name or item number.

After all of the records are added to the output file, the indexes of the output file are rebuilt. At this time, if any duplicate index values exist, and duplicates are not allowed for that index the duplicate records that were added from the input file are deleted from the output file.

> SUGGESTION: Use TR (described in Chapter 11) rather than REBUILD COPY if you want to do sophisticated copying, for example, adding new values as well as copying, or selecting only part of the file.

One common use of COPY REBUILD is to move the data records after using MODIFY to change the file definition. Records are moved from the file containing the old definition (renamed by INTAC MODIFY to filename.MO) to the newly-defined file (named filename.INT by INTAC MODIFY). See Chapter 5 and example below.

THE CO REBUILD DIALOGUE

You enter this subcommand by typing CO at the REBUILD COMMAND? prompt.

    REBUILD COMMAND? CO

The following questions are asked:

    INPUT INTAC FILE?

Enter the name of the input file to be copied. An extension of .INT is assumed if none is given. (After MODIFY, enter filename.MO for the INPUT file.)

    OUTPUT INTAC FILE?

Enter the name of the INTAC file that is to receive the copied records. An extension of .INT is assumed if none is given. The two files must have data items of identical type and length.

    COPY BY RECORD(0), ITEM NAMES(1), OR NUMBERS(2) <o>?

INTAC will display an error message if the number you choose is incompatible with your changes in MODIFY. For example, you may not copy by record if you have changed the length of a string or have added or deleted data items.

Enter a 0 or a carriage return to copy entire records from the input file to the output file. No check is made to match field positions on the two files.

Enter a 1 to COPY BY NAMES. Data items on the output file records are copied from items having exactly the same names on the input file records. Input data items having no match on the output file are not copied. Output data items having no match on the input file are set to the default values specified in the file definition. If no default value exists, such values are set to null.

Enter a 2 to COPY BY NUMBERS. In this case, data items on the output file records are copied from items on the input file records, according to a list of item numbers, as specified in the response to the following question.

    ITEM LIST <1;n>?

This question is asked only if you responded with a 2 to the previous question (COPY BY NUMBERS).

Enter a carriage return if you wish to copy items 1 to n from the input file to items 1 to n of the output file, respectively. If the output file has more items than the input file, the trailing items will be set to their default values.

Enter a list of item numbers from the input file that are to be copied to consecutive fields in the output file. Enter a number in the list for each item in the output file, from item 1 to the last item(n). You may specify a range of items by using a semicolon (;) as shown in the example below.

Specify a zero for items in the output file that are not to be copied from the input file. These items will be set to their default values as specified in the file definition.

ITEM LIST EXAMPLES:

    ITEM LIST <1;4>? 2 3 5 1

    Copy output file item 1 from input file item 2,
    Copy output file item 2 from input file item 3,
    Copy output file item 3 from input file item 5,
    Copy output file item 4 from input file item 1.

    ITEM LIST <1;8>? 1;4 0 5 7 8

    Copy output file items 1 to 4 from input file items 1 to 4.
    Set item 5 to its default value
    Copy output file item 6 from input file item 5
    Copy output file item 7 from input file item 7
    Copy item 8 from item 8

CO REBUILD EXAMPLES:

```
COMMAND? RE

REBUILD AN INTAC FILE

REBUILD COMMAND? CO
INPUT INTAC FILE? DEPT                                    Copying one intac file to
                                                         another
OUTPUT INTAC FILE? DIVSN
COPY BY RECORD(0), ITEM NAMES(1), OR NUMBERS(2) <o>? O

REBUILD THE DATA RECORDS OF AN INTAC FILE
                                                         Process is underway

11 RECORDS COPIED
SORTING INDEX 1

REBUILD THE INDEXES OF AN INTAC FILE
                                                         REBUILD    process    is
                                                         complete; INTAC is ready
                                                         for next command

COMMAND? MO                                              MODIFY    requires   COPY
                                                         REBUILD

MODIFY AN INTAC FILE

NAME OF FILE? DIVSN
MOD CMD? LENGTH DEPT.NAME 25

MOD CMD?
NUMBER OF EXTRA INDEX BLOCKS <o>?

OLD DIVSN.INT RENAMED TO DIVSN.MO
PLEASE EXECUTE INTAC'S REBUILD COMMAND
USING THE 'CO' OPTION TO COPY THE RECORDS
FROM DIVSN.MO TO DIVSN.INT

COMMAND? RE

REBUILD AN INTAC FILE

REBUILD COMMAND? CO
INPUT INTAC FILE? DIVSN.MO
OUTPUT INTAC FILE? DIVSN.INT

COPY BY RECORD(0), ITEM NAMES(1), OR NUMBERS(2) <o>? 1
                                                         Copying by itemname

REBUILD THE DATA RECORDS OF AN INTAC FILE

11 RECORDS COPIED
SORTING INDEX 1

REBUILD THE INDEXES OF AN INTAC FILE
```

IN: REBUILDING INDEXES

INTAC has the ability to restore the indexes of an INTAC file from the data. Use this facility if file indexes have been damaged by unexpected system interruptions or interruption by CONTRL C during updating with a TR file. You may also use INDEX REBUILD to reactivate records marked for deletion in the EDIT facility (see Chapter 7).

If you wish to rebuild the indexes of an INTAC file, give the IN rebuild command.

```
REBUILD COMMAND? IN
```

The following question is asked:

```
INTAC FILE?
```

Enter the name of an INTAC file. An extension of .INT is assumed if none is given.

EXAMPLE:

```
COMMAND? RE

REBUILD AN INTAC FILE                              REBUILD    process    is
                                                   underway

REBUILD COMMAND? IN
INTAC FILE? DEPT

REBUILD THE DATA RECORDS OF AN INTAC FILE

SORTING INDEX 1

REBUILD THE INDEXES OF AN INTAC FILE
                                                   REBUILD    process    is
                                                   complete; INTAC is ready
                                                   for your command
```

TO: REBUILDING DATA _____

The TOTAL REBUILD command of INTAC is used to reorganize an INTAC file. It performs the following functions:

- Deletes all data records that have been flagged for deletion.
- Compresses the data to use the space occupied by deleted records.
- Allows you to increase or decrease the size of the file by changing the number of records allowed.
- Allows you to specify a new blocking factor , index loading percent , and extra index blocks.
- Rebuilds the indexes from the data.
- Saves the old file under the name filename.REB

THE TOTAL REBUILD DIALOGUE

Enter the command by typing TO at the REBUILD COMMAND? prompt.

```
REBUILD COMMAND? TO
```

The questions asked by the TO dialogue involve file elements explained in full in Chapter 3. Dialogue questions follow:

```
INTAC FILE?
```

Enter the name of an INTAC file. An extension of .INT is assumed if none is given.

INTAC displays the current number of records in the file and the maximum number allowed.

```
CURRENT RECORDS = n
MAXIMUM RECORDS = n

NEW MAXIMUM NUMBER OF DATA RECORDS <SAME>?
```

If you wish to change the maximum, enter the new number. Enter a carriage return to leave the maximum as it is.

```
BLOCKING FACTOR = n
NEW BLOCKING FACTOR <SAME>?
```

If you wish to change the blocking factor of the file, enter the number of 512 byte blocks (511 on VAX) you would like in each physical block of the file. The allowed blocking factors are 1, 2, 3, or 4.

```
INDEX LOADING PCT = n
NEW INDEX LOADING PERCENT <SAME>?
```

If you wish to change the index loading percent, enter the percentage of each index block to be filled when the file is rebuilt. The number must be from 25 to 100. Stable files with a low volume of adds may be given a high index loading percent to use space with maximum efficiency since indexes will be added infrequently. Files with a high volume of random additions should be given a lower loading percent to allow for additional index space. The default value is 67 percent.

```
NUMBER OF EXTRA INDEX BLOCKS <o>?
```

INTAC automatically calculates the number of index blocks required to hold the maximum number of records in the file. If you need additional blocks to handle adding many records to the file in one place, enter the number of extra blocks you would like reserved for the indexes.

TOTAL REBUILD EXAMPLE:

```
COMMAND? RE

REBUILD AN INTAC FILE

REBUILD COMMAND? TO
INTAC FILE? DIVSN
CURRENT RECORDS = 11
MAXIMUM RECORDS = 20
NEW MAXIMUM NUMBER OF DATA RECORDS <SAME>?
```
No changes are desired so a carriage return is entered

```
BLOCKING FACTOR = 1
NEW BLOCKING FACTOR <SAME>?

INDEX LOADING PCT = 67
NEW INDEX LOADING PERCENT <SAME>?
NUMBER OF EXTRA INDEX BLOCKS <o>?

REBUILD THE DATA RECORDS OF AN INTAC FILE

11 RECORDS COPIED
SORTING INDEX 1

REBUILD THE INDEXES OF AN INTAC FILE

OLD DIVSN.INT RENAMED TO USR:DIVSN.REB
PLEASE DELETE AFTER NEXT BACKUP
```
Process is complete; old file is saved

UN: UNLOCKING A FILE

An important feature of INTAC is that it allows multiple users to access a file simultaneously. In order to retain this flexibility while still maintaining the integrity of your data, a system of locks has been included in INTAC, which will prevent two users from trying to update the same record at the same time.

Whenever one user begins to change a record value, INTAC locks the index for that record against other users while the change is in progress. A second user who tries to change the value is requested to wait a few seconds until INTAC unlocks the index.

If for some reason, the update process is never completed (power failure, user interrupt, etc.), it may be necessary to use the UNLOCK command to unlock the index for future access. Recognize that you need to use the UN REBUILD command when the message WAITING FOR INDEX LOCK is printed repeatedly when you are attempting to update the file.

Give the UN command at the REBUILD COMMAND? prompt:

```
REBUILD COMMAND? UN
```

The following question is asked:

```
INTAC FILE?
```

Enter the name of the INTAC file that requires the UNLOCK procedure. An extension of .INT is assumed, if none is given.

EXAMPLE:

```
COMMAND? RE

REBUILD AN INTAC FILE

REBUILD COMMAND? UN
INTAC FILE? DEPT

COMMAND?
```

ZE: ZEROING A FILE

The ZERO rebuild command is used to delete all the records and indexes from an INTAC file. After the ZE command is executed, your file will contain the file structure but no data. (The file definition will remain in the file.) The ZE command may be used, for example, to clear out a file at the end of a time period.

THE ZE REBUILD DIALOGUE

Give the command ZE at the REBUILD COMMAND? prompt.

```
REBUILD COMMAND? ZE
```

The following questions are asked:

```
INTAC FILE?
```

Enter the name of the INTAC file to be zeroed out. An extension of .INT is assumed if none is given.

```
DO YOU REALLY WANT TO ZERO "filename" <Y>?
```

Enter Y or carriage return if file is to be zeroed. Enter N if file is not to be zeroed.

EXAMPLE:

```
REBUILD AN INTAC FILE

REBUILD COMMAND? ZE
INTAC FILE? DIVSN
DO YOU REALLY WANT TO ZERO DIVSN.INT <Y>? Y
```