

# SirFile

Managing the physical storage utilization of Model 204 files is a critical, yet often overlooked aspect of Model 204 performance and reliability. The costs of not performing timely physical file management range from poor utilization of DASD, to the steady erosion of database performance to the abrupt failure of applications. A table full condition requires that the offending file be removed from the on-line and reorganized. To do so requires that the person responsible identify all users using the file, notify and bump them, dump and restore the file with more space allocated. This can mean that critical applications are unavailable for hours.

Effective file management is a widespread concern in Model 204 shops because of staffing shortages and the lack of adequate monitoring tools. This is especially acute for shops having dynamic files with a large number of updates. Those responsible simply don't have the time to keep all the files in the system properly sized. Constant monitoring is required because Model 204 provides no reliable way to track file growth patterns and predict, in advance, exactly when a file will need reorganization.

## Automated File Monitoring

SirFile is a totally automated file monitoring utility from Sirius Software. SirFile automates the monitoring and tracking of storage utilization in Model 204 files. SirFile requires no operator intervention. It compiles file and table size information automatically. SirFile runs as a background task monitoring and collecting historical file information and notifies the designated personnel when critical file conditions will occur.

SirFile maintains a database of historical file information that is automatically updated at user-specified intervals. An online query system provides a menu of Model 204 files with problem files highlighted before they fill up. Detail screens provide additional information about the particular problem file. This advance notice allows operations to schedule file expansions or reorganizations before end users experience a disruption. Using Sirfile produces a substantial time savings for the System Manager or DBA.

```

***** Sirius File Monitor *****
***                                     File: 01
1. ALANPROC  --> 17. DSPARROC  33. H0M0DAT1  --> 49. M204TEMP
2. ALANPROC  --> 18. D204RPT  34. H0M0DAT4  50. 01TEXT
3. BARTDAT1  19. F1RQ191  35. H0M0DAT5  --> 51. SIRFILE
4. BARTDAT2  20. F1RQ192  36. LISADAT1  52. SIRFILED
5. BARTDAT3  21. F1RQ193  37. LISADAT2  --> 53. SIRFILEE
6. BARTDAT4  22. F1RQ194  38. LISADAT3  --> 54. SIRLIE
7. BARTDAT5  23. F1RQ195  39. LISADAT4  55. SIRLIEB
--> 8. CCASYS  24. F1RQ196  40. LISADAT5  56. SIRLIEP
9. DATALINK  25. F1RQ197  41. MARGDAT1  57. SIRLOGAL
10. DEVFILE  26. F1RQ198  42. MARGDAT2  --> 58. SIRMON
11. DEVLIB  27. F1RQ199  43. MARGDAT3  --> 59. SIRPRO
--> 12. DEVMON  28. F1RQ191  44. MARGDAT4  60. SIRPROB
13. DEVPRO  29. F1RQ192  45. MARGDAT5  --> 61. SIRSOLEP
14. DEVSCAN  30. F1RQ193  46. M204DATA  --> 62. SIRXREF
15. DEVULSP  31. H0M0DAT1  47. M204DCTL  --> 63. SIRXREFD
16. DEVXREF  32. H0M0DAT2  --> 48. M204PROC  64. TOOLS

----- ULFFP.016: Highlighted file names have a warning posted against them.
1/Help      2/Background  3/Quit      4/V TABLES  5/Help
7/Up        8/Down          9/Repeat   10/Detail    11/Thresholds 12/Refresh
    
```

SirFile Main Screen, at left, is showing monitored files

Selecting "SIRXREFD" file on Main Screen and entering PF10 shows the detail screen below

```

-----ULFFP303 / 3.2.0 / CMS ----- INTERVAL: 15.00 SEC--
***
FILENAME ENQHR ENQRC NREQ NUPD RUPPAGE CFAREQS F1STAT
SIRXREFD 2 1 1 0 598 0 0
  AQIE  BSIZE  CSIZE  DSIZ  FRESIZ  NRECMAS  NRCEKST  FILEORG
  3  6100  200  3300  1789  262401  890  0
  RETRYA  SFULLP  RETRYC  SFULLP
  0  58.98  1  10.70

      DECD  DEWR  DIRCD  DUPDT  SEQ  CFCOMF
SEC  44.17  0.00  0.00  0.00  0.00  0.00
TOT  4626  1781  0  0  0  0

      RECAD  RECDL  IXADD  IEDEL  SADD  BCG  RDEL
SEC  0.00  0.00  0.00  0.00  0.00  0.00  0.00
TOT  247  1  2439  2  6121  848  20

      BXCNG  BXRLE  BXNET  BXFND  BXINS  BXSP1  BXSPD  BXTRF
SEC  0.00  0.00  3.01  3.46  0.00  0.00  0.00  0.00
TOT  123  49  686  12747  3496  0  0  0
    
```

## Historical Tracking

SirFile tracks the current status and, based upon the historical usage, determines the growth rate of key file statistics. These include the percentage full statistic for each table, the number of retries in the hashed tables, and the number of extension, overflow, and spill records. The user can customize how SirFile collects the file data by specifying the number of samples to store for each file, the number of days between stored samples and the amount of advance warning SirFile should provide when a file is approaching a threshold.

SirFile predicts file-full conditions. After the first time SirFile is invoked, subsequent samples are used to determine the rate of growth for each file statistic. If the predicted table-full date falls within a user-specified window, a prediction message is posted in the SirFile database, and the file is highlighted on the SirFile screens.

Besides warnings and predictions, SirFile provides detail views of file statistics and activity, and a view of the table-full status of each file open in the region.

## Easy Setup and Operation

Setup is fast and simple. The first SirFile user either accepts a series of default values or defines a screen of threshold values above which any file is considered to be inefficiently structured or in danger of filling. Sirfile refreshes its internal database, automatically comparing each file in the region to the defined threshold for that file.

Once an initial set of observations is collected, the user may customize SirFile by adding other files to the system manually, or by changing special file-specific thresholds. For instance, the default threshold may be set to issues a warning if Table D becomes more than 85% full. A particular file may be 95% full, but not expected to grow.

A Table D threshold to 96% can be defined for this file. This eliminates unnecessary table-full warnings, but causes SirFile to notify a designated user if any Table D growth occurs in the file.

The SirFile refresh can be run either in online or batch mode. Running the refresh in batch allows the resource-intensive portion of SirFile to be offloaded and scheduled. Running the refresh in an online provides up-to-the-minute file status. The refresh process can be run as often as required, in batch or online. SirFile will regulate itself, keeping only as much data as is needed to predict file growth and to keep the user informed about critical file statuses.

The refresh process can also be run as a background task in an online. The user specifies a sleep interval and a list of users to receive warnings and predictions. SirFile can then be invoked either in the USER0 job stream or in an IODEV3 session, so the background task runs automatically each time the online is brought up. Once configured, this background task invisibly handles all file monitoring tasks.

## Summary

SirFile is an automated file monitoring and management tool. Its use will greatly reduce the amount of time and effort expended in managing Model 204 files. Using the information and warnings provided by SirFile will allow the systems managers and operations staff to increase the efficiency of the Model 204 applications, reduce the DASD requirements for the systems, and eliminate system down time due to unplanned file maintenance.

SirFile runs under Model 204 version 2.1 and later. It is available under MVS and VM/CMS operating systems.

```
----- * * * Set threshold values for file warnings * * * -----
***
File      ==> SIRXREFD      CREATE/Execg Date ==> 12/02/92 14:44
                          Last sample taken ==> 01/08/93 16:35

          Thresholds  Current  # days until
          Thresholds  Current  threshold
          exceeded

ARTRIES ==> 1         0         9999
BFILE   ==> 90       55.9       176
CPFILE  ==> 90       20.6       400
CRTRIES ==> 100      1         9999
DFULL   ==> 30       30.6       *--
EXTNADD ==> 4000     590       9999
OVLADD  ==> 500      640       *--
OVFLADD ==> 5000     0         9999
SPILLADD ==> 1000    0         9999

          Number of historical
          records to keep per file.
          ==> 9999

          Minimum number of days
          between stored samples.
          ==> 7

          # of days advance warning
          on threshold exceeded.
          ==> 10

-----
1/Help      3/Quit      5/Delete
                2/Repeat      12/Save-Refresh
```

*Threshold settings for the "SIRXREFD" file.*