



FDREERASE for z/OS

B E S T P R A C T I C E S G U I D E

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1.1 The Importance of Secure Data Erasure

The secure erasure of data is now a requirement of government and industry regulations, and by individual corporate policies. Examples include the Sarbanes-Oxley Act, HIPAA and the European Data Protection Directive, as well as other similar legislation in the USA, Europe and worldwide. There are a variety of situations where secure data erasure may now be required. For example:

- Following a disaster recovery (test or real), the restored data should be fully erased from the recovery disks, especially when using a 3rd party recovery service.
- Data should also be securely erased from old disk subsystems before they are decommissioned and leave the safe confines of your data center.
- And it may also be prudent to erase data when internally re-assigning a disk system to a different set of users.

There may also be other occasions where internal or external audit or security requirements dictate that data should be securely erased from disk.

1.2 Introducing FDRERASE

FDRERASE is a separately licensed product that offer **secure** and **certified** data erasure.

FDRERASE is an erasure facility for z/OS data, which can be used to erase the data from one or more z/OS DASD volumes.

FDRERASE complies with all current US Government guidelines for erasing computer disks and employ secure erasure techniques that satisfy the (ASD C3I) Memorandum on Disposition of Unclassified DoD Computer Hard Drives, the definitive US Department of Defense directive on the subject of secure data erasure.

FDRERASE is designed to comply with current U.S. Government and National Computer Security Center (NCSC) guidelines for erasing computer disks prior to disposal.

1.3 Certified Data Erasure

FDRERASE has earned a place on the US Government (CCEVS) Validated Products List for Sensitive Data Protection, with a conformance claim of EAL2+ for the secure erasure of large enterprise scale disk storage systems.



Product Name:	FDRERASE
Technology Type:	Sensitive Data Protection
Entered into Evaluation:	28 January 2005
Conformance Claim:	EAL 2 Augmented ADV_SPM.1, ALC_FLR.2
Sponsor:	Innovation Data Processing
Phone:	Phone: 973.890.7300
CC Testing Lab:	SAIC



1.4 ERASE and SECUREERASE

FDRERASE offers two levels of data erasure; ERASE and SECUREERASE.

1.4.1 ERASE

By default, ERASE will overwrite every track on the selected disk(s) with a single track-length record consisting of binary zeros, obliterating all data records which previously existed on the track.

You can optionally request that every track be overwritten multiple times (ERASEPASS=n) and you can optionally specify the value to be used in each byte of the overwriting record (ERASEPATTERN=), varying it from pass to pass.

ERASE is adequate for erasing disks which will be sold, scrapped, or returned to the manufacturer, since it makes it difficult to recover the original data, even if the hard drives are removed, and especially if multiple passes and patterns are used.

ERASE meets the DoD/NCSC definition of “clearing” or “erasing” a disk.

1.4.2 SECUREERASE

SECUREERASE overwrites each track 3 times, with varying patterns. This can be used for your most sensitive data, to insure that it is unlikely to be recoverable from the internal hard drives.

SECUREERASE is essentially an ERASE operation, except that ERASEPASS=3 is forced and special patterns are used. The first pattern will be a random value (other than 00, 01, FE and FF), the second pass will use the complement of the first pattern, and the third pattern will be a new random value (different from the first two).

SECUREERASE can be used on your most sensitive data to make it very unlikely that the data could be recovered if the hard drives were removed.

SECUREERASE meets the DoD/NCSC definition of “sanitizing” or “purging” the disk.

1.5 Product Demo

Go to <http://www.fdr.com/demos> for a short product demo on FDRERASE for z/OS.



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2.1 Introducing FDRERASE

Deleting a data set from a z/OS disk does **not** erase the data from the disk, it just deletes the VTOC pointers to the tracks containing that data. In many z/OS shops, and because of time constraints, a minimal INIT with ICKDSF is sometimes employed to erase data from disk. Although this wipes out the z/OS VTOC, it still leaves the data records on the volume where they can be accessed by unauthorized users.

FDRERASE is an EAL2+ certified product for the erasure of data from z/OS DASD. It can be licensed as an option to FDRPAS, or as a stand-alone product for use by any installation. It can quickly erase many disk volumes in parallel, allowing you to erase your data from a set of disks in the minimum elapsed time.

- On average, the ERASE function of FDRERASE can erase approximately 1.7 to 2.0Tb of data (per DASD controller) in 1 hour.
- Two FDRERASE jobs, running against two separate DASD controllers, could erase approximately 3.5 to 4Tb in 1 hour.

2.2 Executing FDRERASE – Batch JCL Examples

FDRERASE can be executed via a z/OS Batch job (described here) or through a set of supplied ISPF panels (see "2.9 The FDRERASE ISPF Interface" on page 15).

2.2.1 Example 1: ERASE

When leaving a DR site, you will want to erase all the data that you restored. In this first example, which uses the default ERASE function, several ranges of volumes will be varied offline and then erased. Your DR site requires that you re-label and vary online the disks, so VARYON=AFTER and CHANGEVOL= have been used.

The volumes will be varied online and re-labeled with the characters "SG" plus the 4-digit hex unit address (e.g., SG323A). An empty VTOC will be built starting on relative track 1 (cylinder 0 track 1) for 44 tracks (3 cylinders). If the volume had a VTOCIX, it will be rebuilt after the VTOC (cylinder 3 track 0 for 3 tracks).

```
//FDRERASE EXEC PGM=FDRERASE,REGION=0M
//STEPLIB DD DISP=SHR,DSN=fdrerese.loadlib
//SYSPRINT DD SYSOUT=*
//FDRSUMM DD SYSOUT=*
//SYSIN DD *
ERASE TYPE=FULL,CHECKTARGET=NO,MAXTASKS=64,ONLINE=VARYOFF,VARYON=AFTER
MOUNT ERASEUNIT=(3*,4*,5*),CHANGEVOL=SG&UUU,VTOCLOC=1,VTOCSIZE=44
/*
```

2.2.2 Example 2: SECUREERASE

Some disks in an old subsystem, which is to be de-commissioned, contain old copies of extremely sensitive data. In this example, an FDRERASE SECUREERASE will be used to purge all data from those disks. Each track will be overwritten 3 times with random patterns.

```
//FDRERASE EXEC PGM=FDRERASE,REGION=0M
//STEPLIB DD DISP=SHR,DSN=fdrerese.loadlib
//SYSPRINT DD SYSOUT=*
//FDRSUMM DD SYSOUT=*
//SYSIN DD *
SECUREERASE TYPE=FULL
MOUNT ERASEUNIT=(07C5,07D2,07D3,07DA,07E5,07F4)
/*
```


2.3 Stopping And Modifying FDRERASE Jobs

While an FDRERASE job is running, you can stop it prematurely (before all disks are erased) or modify the number of ERASE tasks (MAXTASKS) dynamically with console commands. To stop FDRERASE, issue the STOP (P) command with the name of the FDRERASE job:

P jobname

FDRERASE will terminate as soon as all disks currently being erased have terminated; no new disks will be started. To dynamically modify the value of MAXTASKS= (the number of concurrent ERASE tasks), issue the MODIFY (F) command:

F jobname,MAXTASKS=nn

2.4 Sample Output & Performance

2.4.1 Sample Output #1: ERASE

When the overwriting record used by FDRERASE is all binary zeros, the ERASE function is quite fast, as very little data must be sent down the channel for each track, allowing many disks to be erased in parallel. In the following example, the ERASE of a 3390-3 volume took just 2.8 minutes, overwriting each track once. The defaults of 1 pass with a data record of all zeros were used. The blank volser (VOL=) indicates that the disk did not have a volume label prior to the ERASE.

```
FDR001  FDR          ERASE VOLUMES - FDRERASE  VER. 5.4/70P - INNOVATION DATA PROCESSING          DATE=2016.148 PAGE    1
FDR303  CARD IMAGE -- ERASE TYPE=FULL,ALREADYERASED=PROCESS          00510002
FDR303  CARD IMAGE -- MOUNT ERASEUNIT=21C5                          00520002          11.40.15
FDR235  FDRERASE WILL ERASE THE FOLLOWING      1 UNITS:          11.40.15
FDR235  21C5          11.40.15
FDR170  DEVICE IS ELIGIBLE FOR ERASE UNIT=21C5 VOL=SH21C5 VOLID=VOL1 CU=IBMLR220/8101-01000000 00000000          11.40.16
FDR172  ERASE STARTED PASS      1 PATTERN=00          11.40.16
FDR172  ERASE ENDED PASS      1          11.40.31
FDR173  ERASE HARDENED DATA TO UNIT=21C5 IN    2 SECS          00000000-0D0A000E-00000FAD          11.40.34
FDR241  FDRERASE SUCCESSFULLY COMPLETED ERASE OF VOL=SH21C5 ON UNIT=21C5          11.40.34

FDR122  OPERATION STATISTICS FOR 3390 VOLUME..... 21C5          11.40.34
FDR122  CYLINDERS ON VOLUME.....3,339          11.40.34
FDR122  DASD TRACKS VERIFIED.....0          11.40.34
FDR122  BYTES READ FROM DASD.....0          11.40.34
FDR122  DASD TRACKS ERASED.....50,085          11.40.34
FDR122  NUMBER OF ERASE PASSES.....1          11.40.34
FDR122  DASD EXCPS.....3,353          11.40.34
FDR122  TARGET DASD EXCPS.....0          11.40.34
FDR122  CPU TIME (SECONDS).....0.126          11.40.34
FDR122  ELAPSED TIME (MINUTES).....0.3          11.40.34
FDR122  ERASE TIME.....0.3          11.40.34
FDR999  FDR SUCCESSFULLY COMPLETED          11.40.34
```

2.4.2 Sample Output #2: SECUREERASE

SECUREERASE takes longer than ERASE since it always writes a non-zero record, multiple times, to every track. It also waits at the end of each pass to be sure that the data is hardened (written) to disk before continuing; this may take some seconds. In the following example, the SECUREERASE of a 3390-3 volume took 7.7 minutes, overwriting each track 3 times. The FDR272 messages show the 3 passes and the data pattern used for each one. Because of the 3 passes, the DASD TRACKS ERASED in the FDR122 message is 3 times the number of tracks on the volume.

```
FDR001 FDR          ERASE VOLUMES - FDRERASE VER. 5.4/70P - INNOVATION DATA PROCESSING          DATE=2016.148 PAGE 1
FDR303 CARD IMAGE -- SECUREERASE TYPE=FULL,ALREADYERASED=PROCESS          00510002
FDR303 CARD IMAGE -- MOUNT ERASEUNIT=21C3          00520002          11.42.10
FDR235 FDRERASE WILL ERASE THE FOLLOWING          1 UNITS:          11.42.10
FDR235 21C3          11.42.10
FDR170 DEVICE IS ELIGIBLE FOR ERASE UNIT=21C3 VOL=SH21C5 VOLID=FDR1 CU=IBMLR220/8101-01000000 00000000          11.42.10
FDR172 ERASE STARTED PASS 1 PATTERN=FD          11.42.10
FDR172 ERASE ENDED PASS 1          11.42.29
FDR173 ERASE HARDENED DATA TO UNIT=21C3 IN 1 SECS          06850000-0D0A000E-00001080          11.42.29
FDR172 ERASE STARTED PASS 2 PATTERN=02          11.42.29
FDR173 ERASE HARDENED DATA TO UNIT=21C3 IN 1 SECS          00000000-0685000E-00006237          11.42.39
FDR172 ERASE ENDED PASS 2          11.42.47
FDR173 ERASE HARDENED DATA TO UNIT=21C3 IN 1 SECS          06850000-0D0A000E-0000634E          11.42.47
FDR172 ERASE STARTED PASS 3 PATTERN=95          11.42.47
FDR173 ERASE HARDENED DATA TO UNIT=21C3 IN 1 SECS          00000000-0685000E-0000624F          11.42.55
FDR172 ERASE ENDED PASS 3          11.43.03
FDR173 ERASE HARDENED DATA TO UNIT=21C3 IN 2 SECS          00000000-0D0A000E-0000625E          11.43.06
FDR241 FDRERASE SUCCESSFULLY COMPLETED ERASE OF VOL=SH21C5 ON UNIT=21C3          11.43.06

FDR122 OPERATION STATISTICS FOR 3390 VOLUME..... 21C3          11.43.06
FDR122 CYLINDERS ON VOLUME.....3,339          11.43.06
FDR122 DASD TRACKS VERIFIED.....0          11.43.06
FDR122 BYTES READ FROM DASD.....0          11.43.06
FDR122 DASD TRACKS ERASED.....150,255          11.43.06
FDR122 NUMBER OF ERASE PASSES.....3          11.43.06
FDR122 DASD EXCPS.....10,044          11.43.06
FDR122 TARGET DASD EXCPS.....0          11.43.06
FDR122 CPU TIME (SECONDS).....1.663          11.43.06
FDR122 ELAPSED TIME (MINUTES).....1.0          11.43.06
FDR122 ERASE TIME.....1.0          11.43.06
FDR999 FDR SUCCESSFULLY COMPLETED          11.43.06
```

2.5 DASD Vendor Considerations

All modern disk subsystems use internal FBA (Fixed Block Architecture) disks to emulate the CKD (count-key-data) disks used by z/OS systems. Every disk vendor has a different scheme for storing the emulated CKD data onto the FBA disks, but in most of them there is a fixed FBA location for each emulated CKD track. FDRERASE is able to overwrite the emulated CKD tracks to make the original data unavailable. However, there are some considerations:

- The FBA disks are usually off-the-shelf disks that can be removed from the CKD disk subsystem and attached to another system as an FBA disk. Depending on how the disk vendor has written your CKD data, it may be possible to recover your data directly from the FBA disks.
- Most modern disk subsystems are re-configurable, meaning that the mapping of the emulated CKD disk volumes onto the FBA disks can be changed. If this mapping is changed, some of your old data may reside in areas of the FBA disks that are no longer in use. This data may be recoverable if the FBA disks are removed from the subsystem.

Additional vendor-specific details are documented in the FDRERASE product manual.

2.6 Protecting Against Accidental Erasure with FDRERASE

Although FDRERASE has checks to help insure that only appropriate disks are erased, these checks can be circumvented. So, please note:

- Only **you** can positively identify the disks that can be safely erased.
- You should do the same sort of checks for FDRERASE that you would do before initializing a disk with ICKDSF.

FDRERASE offers the following mechanisms to help protect against accidental erasure of your data:

2.6.1 FDRERASE Defaults

By default, FDRERASE operates on only offline disks, which are either FDRPAS source disks, or which contain no data sets (i.e. nothing in the VTOC). However, these defaults can be overridden to tell FDRERASE to:

Erase **any** offline disk, even if there are data sets in the VTOC (CHECKTARGET=NO)

Select **online** volumes and vary them offline for erasing (ONLINE=VARYOFF)

These overrides are usually only appropriate at a disaster site to vary your volumes offline and erase them before leaving. Care should always be taken when overriding FDRERASE's default options.

Always use SIMERASE (see "[2.8.2 SIMERASE](#)" on page 14) first to validate that your FDRERASE control statements select the right disks to be erased.

2.6.2 Your z/OS Security System

Since erasing disks offers the capability of accidentally destroying a great deal of valid data, you will want to control access to FDRERASE. You can use your z/OS Security System to limit access to the program library containing FDRERASE or the program name FDRERASE.

- If FDRERASE has been installed in a separate load library, you can use your security system to limit access to that library and use a STEPLIB to access the library. Whenever FDRERASE is executed it will check for authority to this security resource:

CLASS=FACILITY ENTITY=FDRERASE.ERASE

- If you have defined that FACILITY class resource, then only users who have at least READ authority to the resource will be able to execute FDRERASE. If you have not defined the resource, then all users will be able to erase disks.
- Two additional resources are required if the CHECKTARGET=NO or ONLINE=VARYOFF overrides are to be used:

CLASS=FACILITY ENTITY=FDRERASE.ERASEALL

CLASS=FACILITY ENTITY=FDRERASE.ONLINE.VARYOFF

2.7 Additional Considerations

2.7.1 Running FDRERASE in Multi-system Environments

Except on most EMC subsystems, FDRERASE cannot tell if a disk may be online to another system. Even the ONLINE=VARYOFF operand (which varies online disks offline for erasing) only operates on the current system. It is **your** responsibility to insure that the disks are offline on all systems.

The following console command can quickly tell if a range of disks are offline; execute this on each system before using FDRERASE:

D U,,,uuuu,nn

If your systems are in a sysplex, the following console command will execute this on every system:

ROUTE *ALL,DS D U,,,uuuu,nn

2.7.2 Special Notes For FDRPAS Users

- With the default of CHECKTARGET=YES, FDRERASE will erase disk devices which were the source volumes of a successful FDRPAS swap, or the target volumes of a successful FDRPAS SWAPDUMP.
- Do **not** specify CHECKTARGET=NO if only FDRPAS disks are to be erased. FDRERASE and FDRPAS both check to be sure that the disk is not already being used by the other program, so you can't accidentally erase a disk which is being swapped, or initiate a swap to a disk that is being erased.
- If you plan to erase disks from a subsystem using FDRERASE, while at the same time swapping other volumes in the same subsystem with FDRPAS, be aware that the FDRERASE I/Os may increase the FDRPAS swap elapsed time. We recommend that you only erase a few volumes at a time (MAXTASKS=n) in this case.
- If the old disk subsystem will be sold or returned to the vendor, you should run an ERASE or SECUREERASE to insure that your corporate data is gone.
- **Warning:** *when swapping volumes with FDRPAS, the source disks serve as a backup in case of problems with the new hardware. Do not begin erasing data from the old disks until you are sure that the new ones are operating without problems.*

2.8 Additional Features

FDRERASE also offers two additional features—EMPTYVTOC and SIMERASE—neither of which actually delete any data, but which can be of use in certain situations.

2.8.1 EMPTYVTOC

EMPTYVTOC does not erase any data from disks, nor does it uncatalog any data sets. It simply re-initializes a disk with an empty VTOC. If present, the VTOCIX will be rebuilt. After the EMPTYVTOC has run, the emptied VTOC and the re-built VTOCIX will have the same size and location as the originals. This is a very quick way of initializing an empty volume (perhaps after a successful FDRPAS SWAP), but should not be used as a method of erasing disks.

FDRERASE, with the EMPTYVTOC function, provides a quick and convenient way of emptying the VTOC on these disks, as an alternative to initializing them one-at-a-time with ICKDSF. Note that this will not uncatalog any data sets that were in the VTOCs.

In the example below, CHANGEVOL= and VARYON=AFTER will cause the volumes to be relabelled and remounted after emptying the VTOC.

```
//FDRERASE EXEC PGM=FDRERASE,REGION=0M
//STEPLIB DD DISP=SHR,DSN=fdrerase.loadlib
//SYSPRINT DD SYSOUT=*
//FDRSUMM DD SYSOUT=*
//SYSIN DD *
    EMPTYVTOC TYPE=FULL,VARYON=AFTER
    MOUNT ERASEUNIT=21C*,CHANGEVOL=XX****
/*
```

2.8.2 SIMERASE

SIMERASE also does not erase any data, but it validates your FDRERASE control statements to confirm which disk devices will be erased by a “real” ERASE or SECUREERASE. Innovation recommends that you always use SIMERASE to validate your FDRERASE control statements before running the process for real.

This example shows SIMERASE being used to validate control statements. It will also list the offline disk volumes that would be erased once the SIMERASE is changed to one of the other FDRERASE options.

```
//FDRERASE EXEC PGM=FDRERASE,REGION=0M
//STEPLIB DD DISP=SHR,DSN=fdrerase.loadlib
//SYSPRINT DD SYSOUT=*
//FDRSUMM DD SYSOUT=*
//SYSIN DD *
    SIMERASE TYPE=FULL
    MOUNT ERASEUNIT=(3A*,3B*,4*)
/*
```

2.9 The FDRERASE ISPF Interface

The FDRERASE ISPF interface allows you to initiate, monitor and control FDRERASE operations on the system to which your TSO session is logged on. You can:

- Submit FDRERASE jobs
- Monitor active FDRERASE tasks
- Suspend and resume active FDRERASE tasks
- Terminate active FDRERASE tasks
- Display FDRERASE history

The FDRERASE panel (see below) is displayed via option 'E' from the main FDR/ABR Primary Option menu option. Pressing ENTER checks to see if there are any FDRERASE tasks in progress on this system. If active tasks are found, they are automatically displayed.

The status of **ACTIVE** indicates that the erase is in progress; the text following it indicates the type of erase (ERASE or SECURE). The status can also show **ERASED**, **ERROR** (if the erase failed), **SUSPEND**, or **INACTIVE** (no erase was ever started for the volume).

Other fields show the percent complete, pass number, elapsed time and description of the device. Whenever you press ENTER, the information displayed will be updated. Alternately, you can overtype the number after **REFRESH** with a value. The screen will be updated automatically, every 2 seconds, until this value counts down to zero; the 2 second refresh interval can be changed on a separate FDRERASE "options" panel.

```

----- FDRERASE ----- Row 1 to 2 of 2
COMMAND ===>                                SCROLL ===> PAGE

Active Quick ERase SEcure SIm EMpty ABort SUSpend RESume OPTions HIStory SORT
Refresh 0
Command Unit Volume                Elapsed      Control      SMS
      Addr Serial Cmp Pass          Time          Unit      Storage
      Mask  Mask  %  #  Status      MM:SS  SSID  Serial#  Group  Cyls
-----

```

Additional devices can be added to the display by the volume serial, unit address, SMS storage group, SSID (subsystem ID), or control unit serial number. If a complete volume serial or unit address is entered, only that disk will be displayed. If an SMS storage group, SSID, or serial number is entered, all disks matching that value will be displayed. The SSID or serial number is a convenient way to display all volumes in an unused disk subsystem so that you can erase all or some of them.

An asterisk (*) is the only supported wild card character for the selection of multiple volumes, units, storage groups, or control units. If it appears in the middle of a selection string it represents exactly one character. If it appears at the end, it represents one or more characters. ISPF line commands (in

the “Command” column) are supported for inserting and deleting entries in the display. For example, enter ‘D’ to delete a volume from the display, or ‘I’ to insert a blank entry.

Initiating & Controlling FDRERASE tasks with the ISPF Interface

To initiate an erase task, display one or more inactive disk devices and then enter the appropriate command, either in the “Command” column or at the command line at the top of the screen:

- **SIM** (SIMERASE)
- **ERASE** (ERASE)
- **SECURE** (SECUREERASE)
- **EMPTY** (EMPTYVTOC)

This will create one or more batch jobs to erase the selected disks. You will have the option to browse or edit the generated jobstream, or submit it immediately. We recommend that you always issue a SIM to create the JCL as a SIMERASE, submit it, then re-submit with the appropriate command once you have validated that the correct target disks have been selected.

```

----- FDRERASE ----- Row 1 to 9 of 9
COMMAND ==> SCROLL ==> PAGE

Active QUick ERase SEcure SIm EMpty ABort SUSpend RESume OPTions HIsory SORT
Refresh 0
Command Unit Volume Elapsed Control SMS
      Addr Serial Cmp Pass Time Unit Storage
      Mask Mask % # Status MM:SS SSID Serial# Group Cyls
-----
Suspending, Terminating and Resuming FDRERASE tasks

```

You can also use the FDRERASE ISPF interface to:

- Temporarily suspend an FDRERASE task (SUSPEND)
- Terminate an FDRERASE task (ABORT)
- Resume an FDRERASE task (RESUME)

For example, enter the SUSPEND command (or just SU) in the “Command” column next to the active erase to be suspended. The status will change to SUSPEND. To resume, enter the RESUME command (or just RE) next to any suspended swap.

```

Command Unit Volume Elapsed Control SMS
      Addr Serial Cmp Pass Time Unit Storage
      Mask Mask % # Status MM:SS SSID Serial# Group Cyls
-----
suspend 21C0      12 1/1 ACTIVE ERASE 0:19 0310      10017
resume  21C3      12 1/1 SUSPEND ERASE 0:15 0313      10017

```


Displaying FDRERASE History Records

If you enter the HISTORY command (or just HI) on the command line of the FDRERASE panel, you can display FDRERASE history records, as shown below, for all volumes which have been successfully erased on this system since the last IPL.

```
----- FDRERASE - History ----- Row 1 to 3 of 3
COMMAND ===>                               SCROLL ===> PAGE
  HHistory SOrt

Command Unit Volume                               Elapsed      Control      SMS
  Addr Serial Cmp Pass                               Time          Unit      Storage
  Mask Mask  %  #  Status                            MM:SS  SSID Serial#  Group  Cyls
-----
```

2.10 Summary

FDRERASE provides an excellent combination of speed, flexibility and reliability when erasing corporate data from your z/OS disks.

With FDRERASE, you can choose the level of erasure that is appropriate to your needs. You can be sure that the selected erase process will run as quickly as possible, while at the same time ensure that your data is erased to the required standard.

The choice of either batch or ISPF initiation offers you the flexibility to use FDRERASE whenever and however it is required—regardless of whether you are erasing a single disk or a whole DASD subsystem.

2.11 FDRERASE User Experiences

“At the end of our DR test last week, we used FDRERASE (ERASE) to erase 41Tb of data, which had been restored to 3390-27s on 2 DASD frames. The entire process took just over 5 hours...”



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FDRERASE Concepts & Facilities Guide