

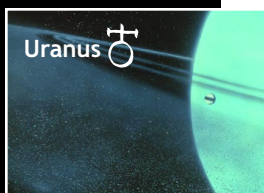
FDRPAS™

Explore the Astronomical Benefits



...Beyond the Ordinary!

FREE FDRPAS CELESTIAL POSTER...see inside for details



The Earth might still be spinning at the same speed as it has always done, but today's business world is continually moving faster. The demand for 24x7 availability has never been greater. System outages due to the implementation of new DASD hardware can no longer be tolerated...FDRPAS can migrate entire DASD controllers, 100's of volumes a day (average elapsed time for a 3390-3 is 6 to 15 minutes), and can be used for daily I/O load balancing. FDRPAS can swap SYSRES volumes, volumes containing Catalogs, application data volumes, CICS, database volumes, TSO, RACF and Tape Management datasets, SMS-managed volumes and work volumes.

You could port your data to another planet with a longer day, but with FDRPAS you will be able to swap your data to faster more efficient disk storage non-disruptively.

FDRPAS Allows an OS/390 or z/OS Installation to:

- Swap disk volumes from their current locations to new disk hardware
- Move disk volumes within the installation for load balancing
- Do this volume movement without interrupting any system activity
- Do this volume movement during normal system operations
- Swap shared DASD on all sharing systems simultaneously

FDRPAS Benefits:

Non-Disruptive—The operating system, application jobs, online systems, and users will be unaware that FDRPAS is swapping disk volumes to new disk devices. When FDRPAS completes the swap of a disk, the volume resides completely on the new device, and the original device is no longer required. When all volumes on an old disk subsystem are moved to new locations with FDRPAS, the old subsystem can be powered off and disconnected.

24 x 7 Installations—have no window for major re-configurations and hardware changes. OS/390 hardware and software allows you to attach new disk subsystems (hardware) to your system and dynamically activate an updated I/O configuration to make them available. FDRPAS complements that capability by allowing you to move the data from existing volumes to this new hardware while those volumes are still in use.

Move Terabytes of Data—Even installations with maintenance windows do not have the time to move the terabytes residing in large shops. FDRPAS allows you to swap large number of volumes during normal business hours.

Versatility—FDRPAS can swap volumes in use on a single system image, as well as those attached to multiple systems or LPARs in a shared-DASD complex or sysplex, whether locally or remotely attached. *Multiple* volumes can be swapped concurrently.

I/O Load Balancing—When the I/O load in one or more disk subsystems is excessive, while other subsystems are underutilized, you can use FDRPAS to rearrange your disk volumes to equitably distribute the I/O load and improve performance.

Backup—Create a point-in-time backup for FDRINSTANT™

Monitoring—The progress of swapping can be monitored locally or remotely.

Smaller to Larger Disk Device Support

FDRPAS can swap a smaller device to a larger device of the same type (ex: 3390-3 to 3390-9) and in some cases larger to smaller, automatically updating the VTOC and Indexed VTOC on all sharing systems.

License

FDRPAS can be licensed for twelve months for unlimited use or for a 90-Day Single Migration Use for a specific number of volumes.

FDRPAS Supported Disk Hardware

FDRPAS supports a wide variety of disk devices from hardware vendors including *IBM*, *EMC*, *StorageTek* and *Hitachi*. It can swap disk volumes between disks of the same type from the same hardware vendor or different hardware vendors without any special software or hardware modifications.

FDRPAS can swap any OS/390 or z/OS volume including the SYSRES volume, other system volumes, open catalog volumes, application data volumes, CICS volumes, database volumes, TSO volumes, SMS-managed volumes and work volumes. The only exceptions are volumes containing active page or swap datasets or active coupling facility datasets.

FDRPAS is Easy-to-Use

Swapping a disk volume to a new device or creating a point-in-time backup is very simple.

On a single system, issue a console command such as:

```
S PASPROC.PROD01, PARM='SWAP TYPE=FULL/MOUNT VOL=PROD01, SWAPUNIT=25C0'
```

```
//SWAP      EXEC   PGM=FDRPAS, REGION=0M
//SYSPRINT  DD     SYSOUT=*
//SYSIN     DD     *
SWAP TYPE=FULL
MOUNT VOL=PROD01, SWAPUNIT=25C0
```

If issued as a
Batch Job

On multiple systems, you simply start a FDRPAS monitor task for the potential FDRPAS target devices on each system with a console command, then issue the SWAP command on any system.

```
S PASPROC.MON1, PARM='MONITOR TYPE=SWAP/MOUNT SWAPUNIT=(25C*, 3*)'
```

Point-in-Time Backups

FDRPAS can also be used to create non-disruptive point-in-time backups of disk volumes. The FDRPAS SWAPDUMP command can be used to start constantly updated images of one or more disk volumes, at some time before the backups are required. A single command to FDRPAS is then used to terminate the SWAPDUMP operation and create the offline point-in-time images of those volumes. FDRINSTANT, a feature of the FDR family of disk management software products, can be used to backup those offline images.

ISPF Monitoring Panels

FDRPAS ISPF panels allow you to display volumes by volser, unit, storage group, controller serial number or subsystem ID. You can initiate FDRPAS swaps, monitor their progress, change pacing values dynamically, and (if required) terminate swaps. Multiple display formats are available.

FDRPAS Plug & Swap										Row 1 of 4
Active	COnfirm	SWap	DUmp	SUSpend	REsume	ABort	Options	HIStory	SOrt	Panel: 3 of 4
Command	Volume	Unit	Swap							Refresh 0
	Serial	Addr	to	Comp						
	Mask	Mask	Unit	%	Status					
	PAY001	21CO			SWAPPED					
	PAY008	01CA	21CA	90	ACTIVE SWAP					(MAIN)
	PAY013	01CD	21CD	45	ACTIVE SWAP					(MAIN)
	PAY019	01C9			INACTIVE					

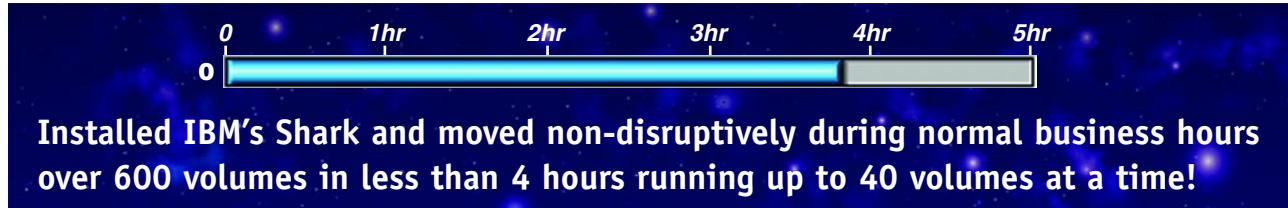
FDRPAS Plug & Swap										Row 1 of 4	
Active	COnfirm	SWap	DUmp	SUSpend	REsume	ABort	Options	HIStory	SOrt	Panel: 1 of 4	
Command	Volume	Unit	Swap	to						Refresh 0	
	Serial	Addr	Offline								
	Mask	Mask	Unit	Status							
	PAY013	01CD	21CD	ACTIVE	SWAP					(MAIN)	
Pass: 1	45 % Tracks to copy: 17120 Copied: 7704 Updated: 15										
Source - Reserve:	0	Level: 1	Pace: 0	Type: 3390	Cyls: 3339						
Target - Reserve:	1	Level: 1	Pace: 10	Type: 3390	Cyls: 10017						
Storgrp: PAYROLL	SSID: 0200 CU Serial#: 01889										

FDRPAS Performance

The swap is accomplished with minimal impact on the performance of applications using the volumes being swapped. Applications continue to execute, unaware that the data movement is occurring or has completed. FDRPAS will dynamically manage the copy process in response to system activity (e.g., copying inactive datasets before active datasets and pacing the copy I/O), to minimize its effect on the system. SWAPs can also be suspended and then resumed at a later time.

By default, FDRPAS copies 15 tracks from the source to the target in each I/O. An FDRPAS SWAP will take about the same elapsed time as a normal full-volume disk-to-disk copy, unless there is a great deal of update activity on the volume being swapped.

User Experience



FDRPAS Sample SWAP Output

The following sample output shows the swap of a TSO volume shared by 10 systems. Users and applications were accessing the volume on all of the systems. The swap takes place simultaneously on all 10 systems and was completed in **6.5 minutes**.

Automatically recognized that 10 systems share the volume

```

FDRW66  SWAP OF VOL=TSO010 TO UNIT=226F STARTED ON    10 SYSTEMS (SYSA SYSC SYSJ SYSZ SYSE SYSD SYSH SYSI SYSB SYSK)
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSA                10.24.20
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSC                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSJ                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSZ                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSE                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSD                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSH                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSI                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSB                10.24.23
FDR241  FDRPAS SUCCESSFULLY COMPLETED SWAP OF VOL=TSO010 TO UNIT=226F ON SYSK                10.24.23
FDR007  ENDING    TIME OF FULL VOL SWAP - 10.24.24 - UNIT=3390 ,IN=D#TSO010,OUTPUT=TAPE1          10.24.24
FDR122  OPERATION STATISTICS FOR 3390 VOLUME.....TSO010                                10.24.24
FDR122          CYLINDERS ON VOLUME.....3,339                                          10.24.24
FDR122          DATASETS PROCESSED.....274                                              10.24.24
FDR122          BYTES READ FROM DASD.....1,467,108,993                                10.24.24
FDR122          DASD TRACKS SWAPPED.....29,098                                          10.24.24
FDR122          UPDATED TRACKS RECOPIED.....109                                         10.24.24
FDR122          DASD EXCPS.....1,991                                                    10.24.24
FDR122          TARGET DASD EXCPS.....2,080                                           10.24.24
FDR122          CPU TIME (SECONDS).....2.297                                           10.24.24
FDR122          ELAPSED TIME (MINUTES).....6.5                                          10.24.24
FDR122          SWAP TIME.....6.3                                                       10.24.24
FDR999  FDR SUCCESSFULLY COMPLETED                                                    10.24.24
    
```

SWAPPED simultaneously on 10 systems

SWAPPED a 3390-3 (60% used) in 6.5 minutes

Call 973-890-7300, e-mail us at sales@fdrinnovation.com or visit www.innovationdp.fdr.com for more information or a **FREE 30-Day Trial (25 volumes)** and receive a **FREE FDRPAS Celestial Poster**.



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