



FCCJ/ORION II VSAM File Conversion Plan



Objective

To identify any VSAM (keyed) files that are required by the existing Production ORION application on the FCCJ mainframe, to convert these to ADABAS files with the same structure on Plutonium, to migrate the data from the mainframe to Plutonium and to identify and remedy any coding issues associated with this on the Unix platform..

Steps

1. Identify Required VSAM files
2. Create NatVSAM Predict definitions (DL1 and COBOL)
3. Create ADABAS files
 - a. Assign ADABAS file numbers
 - b. Create ADABAS Predict definitions
 - c. Generate empty ADABAS files
4. Extract VSAM and load to ADABAS
 - a. Write natural program to extract data from SAM files and write to new ADABAS files
 - b. Execute program to load ADABAS file from VSAM equivalent
5. Migrate new ADABAS files and DDM's to Plutonium
6. Identify and modify Natural code VSAM references
7. Identify and modify standard (COBOL/DL1) code VSAM references

Identify Required VSAM files

At this time, 4 of the 138 known VSAM files in the ORION system have been positively identified as being required by the application and must reside on the Plutonium machine under UNIX. All these are defined as NatVSAM views in Predict and are referenced by Natural code only. There are other standard VSAM (KSDS) files referenced by the Wolffpack application. Although Wolffpack makes extensive use of VSAM files, it is believed that the majority can be replaced using flatfiles rather than keyed ADABAS and these probably do not need to be converted. The required VSAM files will be converted to ADABAS and migrated to UNIX. Any other VSAM files will remain on the mainframe only . Should it be determined at a later date that any other files are required, the following conversion process will have to be run for each file on an individual basis. The known required files are in the table below:

FileName	Type	System	Owner	Code Impact/Programs
EAFILE-VSAM	NAT/VSAM	Payroll	Joe	Not currently referenced in NAT source. Archive data from the COBOL legacy system. A Natural interface to access this data will need to be developed.
EBFILE-VSAM	NAT/VSAM	Payroll	Joe	As for EAFILE
EPFILE-VSAM	NAT/VSAM	Payroll	Joe	As for EAFILE
IMAGEREC-VSAM	NAT/VSAM	Sudent Info	Terry	STSL50B2. It is believed this file/program will be replaced before we migrate.

Create NatVSAM Predict definitions



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For any non Natural VSAM files that are not already defined in Predict (Such as standard COBOL VSAM and DL1) the file layouts must first be defined in Predict as to make them appear as Natural VSAM files on the mainframe. For standard COBOL VSAM there is a known method by which the Predict definitions can be generated from the original COBOL copylibs. Bob Cronan is familiar with this process and will assist in generating the Predict definitions and creating the DDM's for the COBOL/VSAM files. The names and location of the COBOL copylibs is to be determined. There is no known utility for extracting DL1 layouts to Predict, hence these definitions will need to be created manually in Predict. Once all the required VSAM files have been entered into Predict they will be accessible in the same way via a Natural program. At this time there are no non Natural (standard) VSAM files on the required list.

Create ADABAS files

For each required VSAM, an equivalent ADABAS file of identical format must be created on the mainframe before migration to the UNIX machine. This is a 3 step process:

1. Assign ADABAS file numbers

For each of the required VSAM files, an available ADABAS file number will be assigned on the mainframe. Bob Cronan will assign the file numbers before the conversion process begins. Each file will also be given a view name (no naming standard has yet been established for this – however, to reduce the coding impact it is recommended that the view name remain the same as that currently defined for the Nat VSAM file, ie with the extension -VSAM)

2. Create ADABAS Predict definitions

For each file, using the VSAM file definitions in Predict, an ADABAS definition (probably in the form of a Conceptual File) must be created. This will contain the new ADABAS file/view name and the field data/format definitions as they will appear in ADABAS.

3. Generate empty ADABAS files

For each file, using the new ADABAS conceptual file definitions in Predict, a new ADABAS file with the assigned name and file number will be generated on the mainframe.

Extract VSAM data and load to ADABAS

Once all VSAM files are defined as Nat VSAM files in Predict and when the equivalent ADABAS files have been created, the data from the VSAM files can be loaded to ADABAS. Probably the easiest way to achieve this is with a batch Natural program. This program will read the data from the VSAM file to a workfile and for each record on the file will perform a STORE on the ADABAS file. The program should maintain basic statistics on the load (#of records read, # loaded etc). This process will be executed on the mainframe side before any migration to UNIX.

NOTE: This process will need to be repeated whenever data is refreshed in the UNIX environment from the mainframe and must be included in any data baseline procedures.

Another option for loading the ADABAS files would be to run an IDCAMS to repro the VSAM data to a flat file and then load it using ADACMP/ADALOD utilities. While this might prove more efficient however, the Natural program option is preferred as it affords more control.

Migrate new ADABAS files and DDM's to Plutonium

Once the ADABAS files are created and loaded with current data on the mainframe they can be migrated to UNIX. The ADABAS files will need to be created on Plutonium and the DDM's gen'd etc. Once the files exist on both the mainframe and unix, these files can be migrated in the same manner as the already established ADABAS files on the system.



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NOTE: Without an extensive analysis of the data on the VSAM files, it is assumed that the data has to remain synched with the other data in the database. Hence, whenever data is unloaded from the mainframe to UNIX, the VSAM data must be included in the set. Likewise the first time the VSAM data is moved to UNIX it is recommended that a full data baseline is taken from the mainframe.

Identify and modify Natural code VSAM references

Identify any Natural programs that reference VSAM files via predict (this information is available in the file /usr/local/home/rscott/prodvsam) Modify all Natural code to remove VSAM calls and to access the new ADABAS files. In addition, cross reference the Predict Name to the File Inventory to make sure that any VSAM file referenced in the code is also on the list of required VSAM files This code change should be made in the mainframe environment and the programs should then be migrated over to UNIX in order to avoid the programs being overwritten in the (on UNIX) :

Note: FCCJ have identified only 4 VSAM files to be migrated (See the table above). The Natural code however makes reference to a number of VSAM files that are NOT on the required list. The following is a list of non required VSAM references from the ORION library in Production. Unless all the referencing programs are identified as being obsolete these modules will need to be analyzed for in order to provide an alternative functionality to VSAM. At the point of writing no code changes are required to existing Natural.

Module	Module	File	Contact	Required
ACH002S1 ACH011P1 ACH011P4 ACH011P5 ACH011P6 TCH011P1	Prod (Orion) Prod (Orion) Prod (Orion) Prod (Orion)	ADTRANS-VSAM	Elaine/Truc	No. This is the ACH interface with BOA. Currently it transmits a vsam file via modem. This process is being changed to ftp a work file and these programs and file will be obsolete.
PLM681M1 PLM681M2 PLM681N2 PLM681P1	Prod Prod Prod Prod	PLM681A0-VSAM	Pat/Susie	No. This suite has been replaced by preferred consortium functionality and is expected to go away. Awaiting final FCCJ decision.
WFFSP99B	Prod	WWSTDNTD-VSAM	Herman	No, this is an old legacy conversion process that is no longer run.
CFA150B1	Prod	BCFILE-VSAM	Elaine	No - this is the old student feed program is now obsolete.
CFA150B1	Prod	FNAN-TO-BR-VSAM	Elaine	No - this is the old student feed program is now obsolete.



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PEDL03B1	Prod (orion)	HRSIMAG-VSAM	Joe	No, this is an old legacy conversion process that is no longer run.
STSL90B1 STSL90B2 STSL90C1 STSL91B1 STSL91M1 STSL91P1 STSL91P2 STSL92B1 STSL93B1 STSL93B3 STSL93B5	Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion) Prod (orion)	FCCJGRD-VSAM	Terry	NO - the programs will either not run or the code references to vsam will be removed
AILCLAST STAL50B0 STAL50B1 STAL50V0	Prod (orion) Prod (orion) Prod (orion) Prod (orion)	STA050A1-VSAM	Terry	No - these were legacy conversion files/programs. The production programs currently reference the view layout while reading a flat file. Not needed as VSAM
STRL02N1	Prod (orion)	ST-CURRENT-CLASSES-VSAM	Terry	NO - this subprogram is not called
STSL01N1 STSL01P1 STSL02N1 STSL13N1	Prod (orion) Prod (orion) Prod (orion) Prod (orion)	ST-STDNT-HISTORY-VSAM	Terry	No - this suite is no longer used - no menu items found. To be replaced by DL1-ADA conversion

Identify and modify standard (COBOL/DL1) code references

Identify and modify any COBOL modules that reference VSAM files. Modify COBOL code to remove VSAM calls and instead to access the appropriate ADABAS file via an ADABAS DIRECT CALL. It is assumed that this change will be made on the mainframe and the source recompiled on the UNIX machine. Direct calls should compile and function in the same way in both environments.

NOTE: At the current time there are 2 DL1 files that will be required by the application after migration. However, Terry Salmon is in the process of converting these to ADABAS files and is rewriting the application in Natural. This should be completed prior to migration to Plutonium and hence the DL1 files have been excluded from the list of required files.

The Wolffpack application currently makes extensive use of VSAM files. Only one of these however is used as a true keyed file (UPDMST) and it is believed the others are mainly temporary files that can be



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replaced with flat files (ASCII text files). This area needs a substantial amount of research as no one is familiar with the Wolffpack source code.

The entire Wolffpack application consists of the following COBOL modules which will need to be analyzed for any references to VSAM files.

FMCALC02
FMCALC03
FMRJCT02
FMRJCT03
FMSNT02
FMSNT022
FMSNT03
FMTWEK02
FMTWEK03
INAS03BT
INAS03OL
INAS2002
INLCL02
INLCL03
INTAX02
INTAX03
PARSP00
PARSP01
PARSP20
PARSP30
PARSP38
PARSP40
PARSP41
PARSP43
PARSP45
PARSP46
PARSP47
PARSP48
PARSP49
PARSP50
PARSP60
PARSP44

It has been determined by Herman Moller that no VSAM files will need to be converted as part of the Wolffpack application.