Natural for VSAM - General Information

With the Natural interface to VSAM, a Natural user can access data stored in VSAM files. The current version of Natural for Mainframes must be installed.

In general, there is no difference between using Natural with VSAM and using it with Adabas or any other supported database management system. The Natural interface to VSAM allows Natural programs to access VSAM data, using the same Natural DML statements that are available for Adabas. Therefore, programs written for VSAM can also be used to access, for example, Adabas databases.

All operations requiring interaction with VSAM are performed by the Natural interface to VSAM. Natural for VSAM is fully ESA- and z/OS Parallel Sysplex-compliant. It runs in batch mode or under the online environments CICS, Com-plete and TSO. Under CICS, it also runs in conversational or pseudo-conversational mode.

Natural for VSAM supports the following types of VSAM file:

- KSDS,
- ESDS,
- RRDS,
- VRDS.

Under z/OS, Natural for VSAM supports the dataset access modes record-level sharing (RLS) and DFSMS Transactional VSAM Services (DFSMStvs). DFSMS denotes Data Facility Storage Management Subsystem.

The Natural system files FNAT, FUSER, FDIC, FSPOOL and FSEC can also be located on VSAM system files. For VSAM system files, Natural for VSAM uses the multi-fetch option to speed up the process of loading objects into the buffer pool.

For information on how to use and install Natural using VSAM files as system files, refer to the section Using Natural with VSAM System Files.

Natural for VSAM supports local shared resources (LSR) under TSO and in z/OS and z/VSE batch modes. For CICS and Com-plete, the appropriate file definition tools must be used. The LSR option for VSAM files improves the performance of random access.

Natural for VSAM supports Create/Loading Mode for empty files under TSO as well as in batch mode.

Natural for VSAM supports the following types of Data Table under CICS z/OS:

- User-Maintained Data Tables (UMT),
- CICS-Maintained Data Tables (CMT),
- Coupling Facility Data Tables (CFDT).

It also supports dataset name sharing (DSN) under TSO, and batch-mode processing in z/OS and z/VSE, in particular to access datasets using a defined path.

Natural for VSAM supports extended-format datasets for all types of VSAM dataset organization. There are, however, restrictions for ESDS, RRDS and VRDS which result from the use of the Natural system variable *ISN and its internal size limit of 4 bytes.

This section covers the following topics:

- Integration with Natural Security
- Integration with Predict
- Natural System Messages Related to VSAM
- Components of Natural for VSAM
- Structure of the Natural Interface to VSAM

Integration with Natural Security

Since Natural Security supports the FSEC as VSAM system file, the following restrictions must be considered:

- Generation of ETIDs is disabled.
- Logging of maintenance actions is disabled.
- Password history is disabled.
- Definition of utility profiles is disabled.

Integration with Predict

Since Predict supports VSAM, direct access to VSAM files is possible via Predict and information from VSAM can be transferred to the Predict dictionary to be integrated with data definitions for other environments.

VSAM physical and logical views can be incorporated and compared, new VSAM views can be generated, and Natural views can be generated and compared. All VSAM-specific data types and the referential integrity of VSAM are supported. See the Predict documentation for details.

Natural System Messages Related to VSAM

The message number ranges of Natural system messages related to VSAM are 3500-3599.

Components of Natural for VSAM

The Natural interface to VSAM consists of the following components:

- The NVSNUC module, which is mandatory, environment-independent, and delivered as a load module only.

- The NVSPARM module, which is mandatory, contains Natural parameters specific to VSAM, and is delivered in source form only.
- The I/O module, which is mandatory, differs depending on the actual environment, and is delivered in source form only.
- The modules necessary when running with VSAM system files; they are optional and delivered as load modules only.
- The user exits.
- Callable system services.

Natural for VSAM is fully (E)LPA or SVA-compliant for multiple environments (for example, CICS, Com-plete and batch). The NVSPARM module and the appropriate I/O module must be linked to the NATPARM parameter module. The NATPARM parameter module will be called front-end in this section.

Structure of the Natural Interface to VSAM

Front End
TP Driver (Batch/CICS/ Com-plete/TSO
. . .
NATPARM
NVSPARM
I/O Interface - NVSMISC - NVSCICS
IGWARLS (5)
User Exit defined with NVMEXIT

(E)LPA or SVA
NATSTUB
NATURAL
NATCONFG
. . .
NVSNUC
NVSFNAT (1)
NVSFSPO (2)
NVSFSEC (3)
NVSISPC (4)
NVSISPV (4)

(1)	VSAM system-file handling for FNAT, FUSER and FDIC.
(2)	VSAM system-file handling for FSPOOL.
(3)	VSAM system-file handling for FSEC.
(4)	VSAM system-file handling for Natural ISPF.
(5)	IBM’s record-level sharing (RLS) query routine to support RLS=CHECK, z/OS only (not CICS).