

NOPEN\$, NLIST\$ & NCLOS\$

1. Introduction

The following note describes "native" versions of the OPEN\$, LIST\$ and CLOSE\$ routines. For these functions a new schema file type, which holds details of native directories, will be required.

These subroutines will only be available on V8.1, or later, versions of System Manager.

IMPORTANT NOTE: THERE WILL BE NO REQUIREMENT FOR THESE SUBROUTINES TO OPERATE ON GLOBAL DIRECTORIES I.E. THE NEW SUBROUTINES WILL SUPPLEMENT, RATHER THAN REPLACE, THE OPEN\$, LIST\$ AND CLOSE\$ ROUTINES.

2. User Interface

2.1 Subroutines

The following 3 new subroutines will be implemented:

2.1.1 NOPEN\$

The "Native Open" subroutine will be called as follows:

```
CALL NOPEN$ USING 0 fd area
```

or:-

```
CALL NOPEN$ USING 1 directory area
```

where *fd* is an *fd* containing the file name and unit-id of the schema file, *directory* is the directory to be listed and *area* is a PIC X(140) field used as a work area for the NOPEN\$, NLIST\$ and NCLOS\$ routines.

Note: The directory string must be terminated with a byte of LOW-VALUES and the total length including the terminator must not exceed 79 characters. For DOS/Windows directories the directory must be a wild-card type file name, for instance to list all files in the GSM directory this must be C:\GSM*.*. This applies whether the directory is passed directly or through a schema file.

The following exception can be returned from the NOPEN\$ routine:-

```
$$COND = 1 I/O error on the schema file
```

```
$$COND = 2 Schema file not found or wrong type
```

\$\$COND = 3 Incompatible version of System Manager
 \$\$COND = 4 Directory not found (host error in \$\$CRES)

2.1.2 NLIST\$

The "Native List" subroutine will be called as follows:-

```
CALL NLIST$ USING area details
```

where *area* is the control block that was passed from the previous NOPEN\$ or NLIST\$ routine.

The *details* control block is defined as follows:

01	DE		
02	DELENG	PIC 9(4) COMP	* No. of fields returned in block
02	DENAME	PIC X(20)	* File name
02	DESIZE	PIC 9(9) COMP	* File size
02	DEDATE	PIC 9(6) COMP	* Creation date
02	DETIME	PIC 9(9) COMP	* Creation time
02	DETYPE	PIC 9 COMP	* File/directory flag
			* 0 directory
			* 1 hidden directory
			* 2 normal
			* 3 hidden
			* 4 system
			* 5 hidden system
			* 6 fifo/pipe
			* 7 special (blockspaces/character space)
02	DEFILL	PIC X(16)	* Filler, pad to 50 bytes

The following exception can be returned from the NLIST\$ routine:-

\$\$COND = 1 Unexpected error from operation system (result in \$\$CRES)
 \$\$COND = 2 End of directory
 \$\$COND = 3 Invalid data returned from the host o/s

2.1.3 NCLOS\$

The "Native Close" subroutine will be called as follows:-

```
CALL NCLOS$ USING area
```

where fd and area are those passed to the last NLIST\$ call.

The following error can be returned from the close routine:

```
$$COND = 1 Unexpected error from operating system (result in $$CRES)
```

2.2 \$SCHEMA

A new entry will be added to the \$SCHEMA main menu (see SJ138) to allow the creation of directory schema files.

3. Internal Design

3.1 \$SCHEMA

A new schema file will be created by the \$SCHEMA program. The structure of the file will be as follows:

```
01  SC
02  SCTYPE      PIC 9(4) COMP
                VALUE 2
02  SCPATH      PIC X(79)
02  FILLER      PIC X(500)
                VALUE LOW-VALUES
```

The file will be of organisation 117, type SI (see SJ139).

3.2 NOPEN\$

This routine will attempt to open the Schema File defined by the fd. If this open fails then an error will be returned.

If the Schema File is opened successfully, NOPEN\$ will assume that this file is a special directory schema file and attempt to process the native directory as given in the file. The schema file will be closed once the directory path has been retrieved. byte flag must be set to 0 on exit to indicate that the first file is now to be processed.

3.2.1 GSM (Unix) configurations

The area field will be divided as follows:

- A single byte flag of LOW-VALUES;

- The Unix DS block (size 58 bytes);
- Unix directory path name and length.
- The Unix open directory operation (DSFUNC = 10) will be used to open the directory.
- A STOP 24001 will be signalled if a file name of too large a size is read and the subroutine is corrupted.

3.2.2 GSM (DOS) and GSM (Windows) configurations

The area field will be divided as follows:

- A single byte flag of LOW-VALUES;
- 43 byte DTA block.
- The operation will attempt a read first entry operation (DSOPC = #4E).

3.3 NLIST\$

This function will return details regarding a file in the details structure by performing a "get next" operations (Unix DSOPC = 11, Windows/DOS DSOPC = #4F).

Note that for the first DOS/Windows call the file information has already been returned.

For Unix a stat function will be executed to return the file details.

The byte flag must be set to 1 to indicate that a next file is to be processed.

3.4 NCLOSS\$

This function will perform a directory close (DSOPC = 15 for Unix and #50 for Windows). For DOS the routine will not do anything.