



# **OA42247 ISPF PDSE Member Generation SPE**

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- ISPF Program Product APARs **OA42247** and **OA42248** introduce new function to exploit dfSMS APAR **OA42358**.
- This document will describe the new functions and limitations.
- Member generation support is only available when the data set type is LIBRARY and the version of the library is 2 (PDSE is synonymous with ISPF use of the word LIBRARY).
- Some information is duplicated elsewhere but is provided for completeness.

## Option 1 (Browse/View) and 2 (Edit)

ISPF Options 1 and 2 do not presently have the capability to nominate a particular generation to edit, view or browse. This is available from the Enhanced member list support in 3.1 and 3.4. ISPF Edit, View and Browse services also support a GEN parameter.

## EDIT

The ISPF editor is aware of member generations.

When member generations are active the default action for the SAVE command is to create a new generation when editing the current member or generation zero.

When editing a generation that is not zero the default action for save is NOT to create a new generation (i.e. SAVE NOGEN).

AUTOSAVE capability of edit does not change the default behavior.

ISPF Option 1 does not presently have the capability to nominate a particular generation to edit, view or browse. This is available from the Enhanced member list support in 3.1 and 3.4.

When a generation is selected ISPF issues

```
-CAUTION- Edit session has been invoked for generation X  
          High generation number is currently Y
```

This may be helpful when a relative generation is requested rather than an absolute number. The current high number is NOT the total number of existing generations but might be the same as the total if no generations have been removed.

DfSMS Member generation support permanently records the highest absolute number used for a member. The absolute number starts at 1 for a completely new member generation. Deleting a member and then recreating it does not restart the absolute number at 1.

## EDIT SAVE NEWGEN/NOGEN

NEWGEN – create a new generation.

NOGEN – does not create a new generation. The generation is replaced.

The parameters are ignored when not applicable.

Message ISRE016 is replaced by message ISRE494 when generations are available and the long message text describes the save operation.

```
Member AA, generation X, saved in my.pdse, NOGEN parameter was used  
for SAVE.
```

## EDIT COMPARE and SuperC

Superc is not member generation sensitive therefore COMPARE is not.

COMPARE (mem) will be treated the same as COMPARE \* when a generation is being edited and the member parameter is the same as the current member.

COMPARE \* in this case will be comparing to GEN(0).

Superc is used for options 3.12, 13, 14 and 15. It is also used where SRCHFOR is a supported command. For example, member list and data set list. Therefore the member generation limitation applies.

### **Edit Concatenation**

ISPF determines the source data set of the member and its attributes and the target data set and attribute. SAVE while editing a member in concatenation always saves the member to the first data set in the concatenation.

Edit will find the first member in the concatenation that matches the input and then will match the generation.

Generation support remaining available after SAVE is issued will depend on the characteristics of the first data set in the concatenation.

### **Edit enqueue**

The ISPF enqueue methodology does not support member generations. An edit for a member of a PDSE with generations will restrict access to all generations while an edit is active for that member or any of its generations. The applicable message is

ISRE093 Member in use

and is unchanged by this SPE.

### **BROWSE**

Browse supports generations.

### **Orphan generations**

Orphans are created when the primary - GEN(0) - member is deleted from the PDSE. ISPF deletes all generations when the primary member is deleted but other tools may not. For example, the following TSO command will delete the primary member but leave the member generations in the PDSE.

```
DELETE pdse(member)
```

Edit/View/Browse services support orphan generations using dataid forms of the call/command invocations. Panel driven services are not available.

### **Allocation**

ISPF 3.2 is modified to provide a new field below the data set version field.

The member generations field is a number starting from 1 to the system defined maximum (MAXGENS\_LIMIT). ISPF validates the maximum value against the current system maximum and will display message ISRU380 if this is exceeded.

ISRU380 displays the value for MAXGENS\_LIMIT.

ISPF ignores the value if you specify the num of generations value for an unsupported data set type.

```

Menu  RefList  Utilities  Help
-----
Allocate New Data Set
Command ==> _____ More: +
Data Set Name . . . . : HANKO.TEST.PDSE
Management class . . . : _____ (Blank for default management class)
Storage class . . . . : _____ (Blank for default storage class)
Volume serial . . . . : _____ (Blank for system default volume) **
Device type . . . . . : _____ (Generic unit or device address) **
Data class . . . . . : _____ (Blank for default data class)
Space units . . . . . : MEGABYTE (BLKS, TRKS, CYLS, KB, MB, BYTES
or RECORDS)
Average record unit . . : _____ (M, K, or U)
Primary quantity . . . : 1 _____ (In above units)
Secondary quantity . . : 1 _____ (In above units)
Directory blocks . . . : 0 _____ (Zero for sequential data set) *
Record format . . . . : VB _____
Record length . . . . : 252 _____
Block size . . . . . : 27998 _____
Data set name type . . : LIBRARY (LIBRARY, HFS, PDS, LARGE, BASIC, *
Data set version . . . : 2 _____ EXTREQ, EXTPREF or blank)
Num of generations . . : 50 _____

```

ISPF 3.2 and 3.4.I (information) will display these attributes .

## Data Set List (ISPF option 3.4)

After display a data set list panel ISRUDSL0 is displayed. The Options pulldown gives you access to DSLIST options.

Display Edit/View/Browse entry panel – select this if you want the prompt panel to always display.

Enhanced member list for Edit, View, and Browse – select this to cause the member list to have an expanded prompt field

### Enhanced member list and prompt panel

Enhanced member list displays a prompt panel when slash (/) is entered in the prompt field for Edit/VIEW.

Browse will now also display a prompt field.

Both prompt panels have a generation field added.

### TSO Commands

For a TSO command/CLIST/REXX exec issued against a PDSE V2 data set, ISPF returns ZDLNGEN which is the number of member generations defined for the data set.

For example, take the following Rexx:

```
/* REXX */
SAY ARG(1)
ADDRESS ISPEXEC 'VGET (ZDLDSNTP,ZDLDSNV,ZDLNGEN)'
SAY 'ZDLDSNTP=ZDLDSNTP'
SAY 'ZDLDSNV=ZDLDSNV'
SAY 'ZDLNGEN=ZDLNGEN'
EXIT
```

issued against a DSLIST:

```

Menu  Options  View  Utilities  Compilers  Help
-----
DSLIST - Data Sets Matching HANKO.TEST.PDSE%                               Row 1 of 8
Command ==> _____ Scroll ==> PAGE

Command - Enter "/" to select action                                     Dsorg  Recfm  Lrecl  Blksz
-----
HANKO.TEST.PDSE1                                                       PO-E   FB      80    32720
HANKO.TEST.PDSE2                                                       PO-E   FB      80    32720
HANKO.TEST.PDSE3                                                       PO-E   FB      80    32720
HANKO.TEST.PDSE5                                                       PO-E   FB      80    32720
HANKO.TEST.PDSE6                                                       PO-E   FB      80    32720
HANKO.TEST.PDSE7                                                       PO-E   FB      80    32720
HANKO.TEST.PDSE8                                                       PO-E   VB     644   32760
HANKO.TEST.PDSE9                                                       PO-E   FB      80    32720
***** End of Data Set list *****

*DSLIST
MA  B                                                                    15/002

```

shows

```
'HANKO.TEST.PDSE9'
ZDLDSNTP=LIBRARY
ZDLDSNV=2
ZDLNGEN=1500
```

## Member Delete

Where ISPF supports a member delete option, STOW processing has been changed to eliminate all existing generations.

## SERVICES

### DSINFO

DSINFO returns a value in ZDSNGEN when valid to do so.

### LMDLIST

LMDLIST returns a value in ZDLNGEN when valid to do so.

## EDIT, VIEW, and BROWSE services

The services support

- a new GEN parameter.
- only valid with the DATAID parameter
- A negative value for GEN is used to specify a relative generation number. Panels accept a leading '-' to denote a negative value.
- Any other numeric value for GEN is an absolute generation number
- Complete syntax is not shown below. Refer to the current ISPF Services Guide for additional information.

### BROWSE – browse a data set

#### Command invocation

```

Syntax
|>>__ISPEXEC__BROWSE_DATAID(dsname)_____|>
|>_____|>
|_|_MEMBER(member-name)_____||
|_|_GEN(generation)_||

```

#### Call invocation

```

|>_____,_rec-len_____,_____);><|
|_|_file-var_|_|_b'_____|_|_generation_|

```

### Edit – edit a data set (applicable to View as well)

#### Command Invocation

```

Syntax
|>>__ISPEXEC__EDIT_DATAID(dsname)_____|>
|>_____|>
|_|_MEMBER(member-name)_____||
|_|_GEN(generation)_||

```

#### Call invocation

```

|>_____,_rec-len_____,_'ASCII'_____,_____);><|
|_|_b'_____|_|_b'_____|_|_generation_|

```

**generation** – for the call invocation format, is a field 4-bytes in length. The value is treated as a FIXED(31) relative or absolute generation number. If the value is negative, it is a relative generation. If positive, then it is an absolute generation number that the caller has determined to be valid. Zero is valid but is equivalent to not specifying the parameter.

The parameter is only valid for a PDSE Version 2 when a non-zero number of generations is specified during allocation.

Return code 14 is changed:

**14** Member or generation (if specified) not found.



## Messages

**ISRB513** Invalid GEN parameter

GEN has been specified for the browse service when the source data set does not contain the specified member, the specified generation, or the data set does not support member generations.

**Explanation:** This is an informational message.

**ISRE352** Invalid EDIT/VIEW parm

GEN can only be specified with DATAID when a member parameter is present.

**Explanation:** To use the GEN parameter, specify DATAID and member.

**ISRE360** Invalid EDIT/VIEW parm

When the data set parameter and GEN are specified, member name must also be provided as part of the data set parameter.

**Explanation:** The GEN parameter is only valid when a member name is present.

**User response:** Specify a member name or remove the GEN parameter.

**ISRE469** Invalid GEN parameter

GEN has been specified for the edit/view service when the source data set does not contain the specified member, the specified generation, or the data set does not support member generations.

**Explanation:** The data set for the edit/view service is not a PDSE Version 2 data set or does not contain the specified generation.

**ISRE494** Member aaaaaaaa saved

Member aaaaaaa, generation bb, saved in ccccccc, dddddddd parameter was used for SAVE.

**Explanation:** This is an informational message.

**User response:** None. The message provides extra information when a SAVE occurs for a member generation.

**ISRE499** Recovery error

Recovery is not supported for a relative generation.

**Explanation:** Only the primary (generation zero) member of a PDSE Version 2 data set may use a recovery data set.

**User response:** If the member does not exist in the first data set of the concatenation, issue the SAVE command to create the primary member. If the member exists in the first data set use SAVE NEWGEN to replace the new generation zero member. ISPF will then allow the recovery command to be used.

**ISRE657** Invalid parameter  
NOGEN and NEWGEN are the only valid parameters for SAVE.

**ISRF046** - CAUTION- Edit session has been invoked for generation  
aaaaaaaa.

**Explanation:** This message is self-explanatory.

**ISRF047** - High generation number is currently bbbbbbbb.

**Explanation:** This message is self-explanatory.

**ISRF048** - -WARNING- Edit has found the requested member  
generation aaaaaaaaa.

**Explanation:** The requested member generation has been found in the  
concatenation of data sets that EDIT was invoked with.

**ISRF049** However, a new generation will not be created by SAVE.

**Explanation:** The first data set in the concatenation does not support  
member generations. It is not a PDSE Version 2 or is defined with zero  
generations.

**ISRU380** Value out of range

Number of generations value must range from 0 to the current system  
defined maximum of aaaaaaaaa.

**Explanation :** The dfSMS system parameter MAXGENS\_LIMIT defines  
the upper bounds of the number of generations value. It can be as as  
low as 0 - meaning no member generations will be maintained.

**User response :** Adjust the input value or consult with the System  
Programmer.

**ISRV011** Invalid combination

Number of generations is only valid when Data set name type is set to  
LIBRARY.

**Explanation:** This message is self-explanatory.

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End of document

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