
Details of PQ78620 enhancements

This document provides information about the following enhancements to File Manager provided in PQ78620:

- Return codes from the batch Find/Change utility (Base)
- An offset facility for data viewed or edited using a template (Base and IMS)
- Support for DB2 synonyms (DB2)

Enhancement to File Manager base product—return codes for batch Find/Change utility

The Find/Change utility now returns batch job step condition codes to identify certain “error” conditions. The return codes are:

- 1 One or more FIND or CHANGE commands successful but one or more FIND or CHANGE commands unsuccessful because no strings found.
- 2 One or more strings found but one or more CHANGE commands could not be performed (no space available or invalid key change).
- 4 No FIND or CHANGE command successful because no strings found (no matches).
- 4 No FIND or CHANGE command successful because no members to process.
- 4 No FIND or CHANGE command successful because input empty.
- 8 Bad FIND/CHANGE command(s) supplied.
- 8 Too many FIND/CHANGE commands supplied.
- 8 REXX error encountered.
- 8 Job step interrupted/cancelled.
- 16 Program Object not supported (but specified).
- 16 Data set in use.
- 16 Member in use.
- 16 Data set/member open error.
- 16 Data set not found / allocation error.
- 16 Insufficient storage available.
- 16 FCH abended.
- 16 Other serious error that stops processing occurred (for example an input/output error).

Enhancement to File Manager base product—support for an offset when using a template

If the information in a record is displaced for some reason (for example, the record contains header information), in the past, File Manager was unable to map the data using a template or copybook without first changing the copybook to match the data format. The offset enhancement removes this problem, since you are able to provide an offset that File Manager uses to relocate the record layout in the template, and so provide a successful mapping of the data.

You can specify the offset value for a record in three different ways:

1. When you are editing or browsing a data set with a template, use the new OFFSET command to enter an offset value. This offset value only applies to the current edit or browse session.

2. When you are editing a template, you can enter an offset value against an 01-level field. You can also use the OFFSET primary command if the template contains more than one 01-level fields. The field description panel also includes an offset field where you can change the value for the currently displayed layout. If you wish, you can save the offset in the template, so that it applies to subsequent edit and browse sessions.
3. When you are running a batch utility using a template, the batch new keywords OFFSETIN, OFFSETOUT, OFFSETOLD, and OFFSETNEW let you specify offset values for functions invoked in batch.

The offset value is a negative or positive integer, between -32760 and +32760, shifting the layout left or right in relation to the records being processed. An offset value of 0 removes a previously supplied offset.

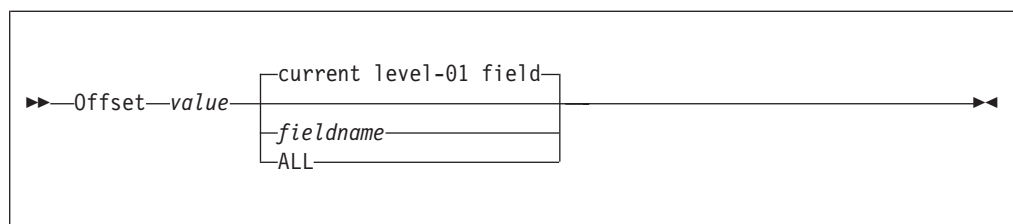
The start location of all fields in the template is adjusted by the offset value. Fields with a resultant negative or zero start location (including all array elements for an array field) are not displayed. If a positive offset is applied, some fields will be mapped beyond the length of the record. Data that falls beyond the length of the record is not represented. You cannot edit a field where the data you supply would fall beyond the physical end of the record (whether the record is of fixed or variable length).

All required fields must have a positive start location. A required field is a field such as OCCURS DEPENDING ON target fields or PL/I REFER fields, or fields references in record identification or record selection criteria. If a required field would have a negative or zero start column value under the supplied offset, the offset is invalid, and thus not allowed.

The offset is applied before values are calculated for use in identification or selection criteria.

The Edit/Browse OFFSET command

The OFFSET primary command is available for Edit and Browse sessions that use a template. If an OFFSET primary command is applied when an offset has already been supplied in the template, the offset value overwrites the offset value provided in the template.



value The offset value.

fieldname

The level-1 field name to which the offset is applied.

Defaults to the currently displayed level-01 field.

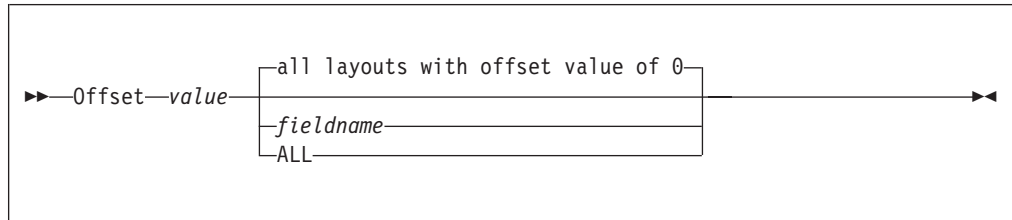
ALL The offset value applies to all the layouts described in the currently loaded template.

Template editing

For templates with multiple record layouts (more than one 01 level) the **record type panel** is displayed first when editing the template. The panel now includes an offset for each 01 field displayed. You can overtype the offset field with a negative or positive value.

Cmd	Sel	Field name	Offset	Length
		**** Top of data ****		
—	*	ORDER	0	80
—	*	ITEM	0	80
		**** End of data ****		

You can also enter the OFFSET command at this panel:



The difference between this and the use of the OFFSET command for Edit and Browse sessions is that if you don't specify a field name, the offset value is applied to all layouts which have a current offset value of 0 (if the value is valid for the layout).

The **Field Selection/Edit** panel also has an modifiable offset field.

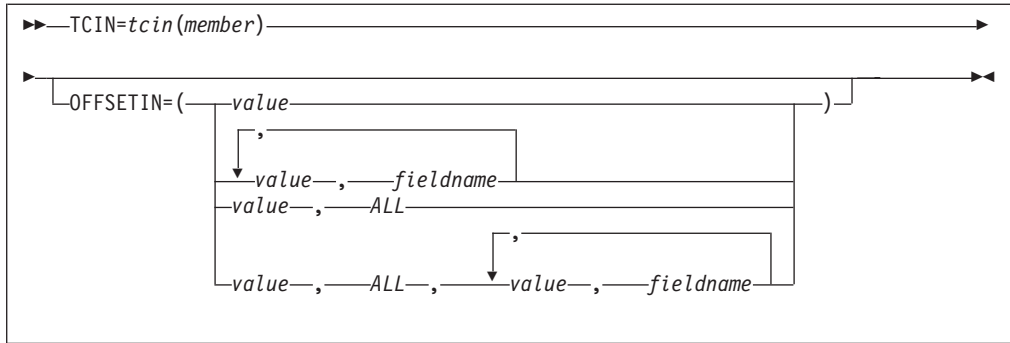
Process	Options	Help
File Manager	Field Selection/Edit	
1	Specify Record Identification by field.	
2	Specify Record Selection by field.	
Offset	10	

This panel does not support an OFFSET primary command.

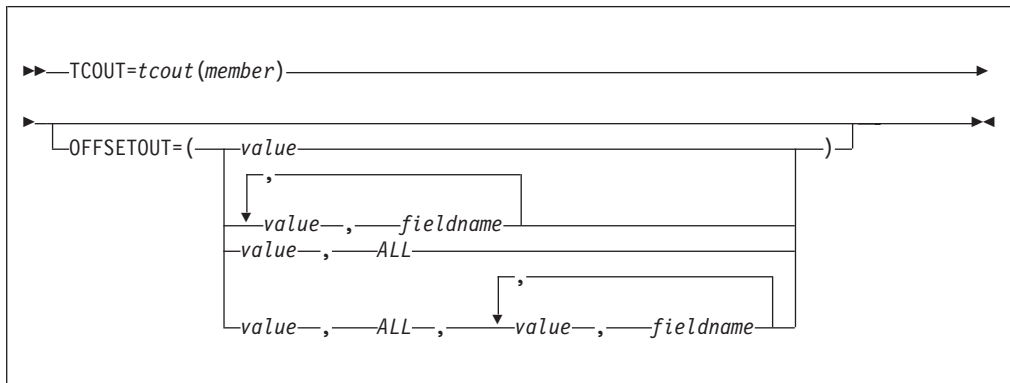
Batch Keywords

New batch keywords support the ability to supply the offset value to batch functions that use templates.

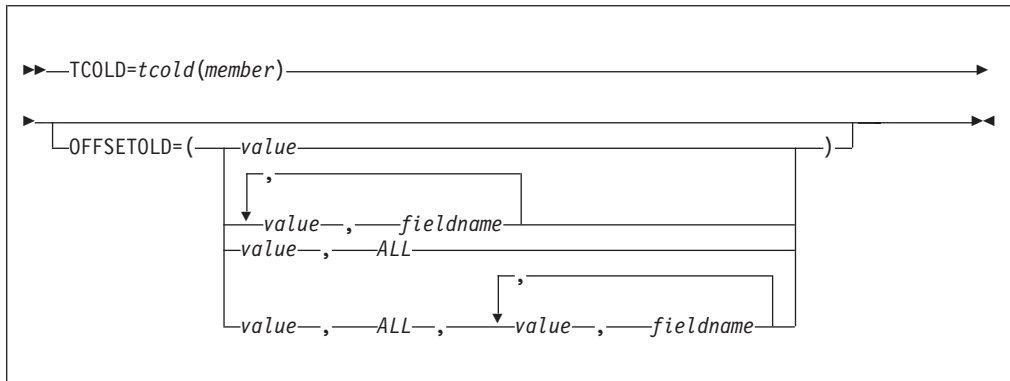
The OFFSETIN keyword is available for batch functions that can specify TCIN — DSC, DSP, DSU and DSEB.

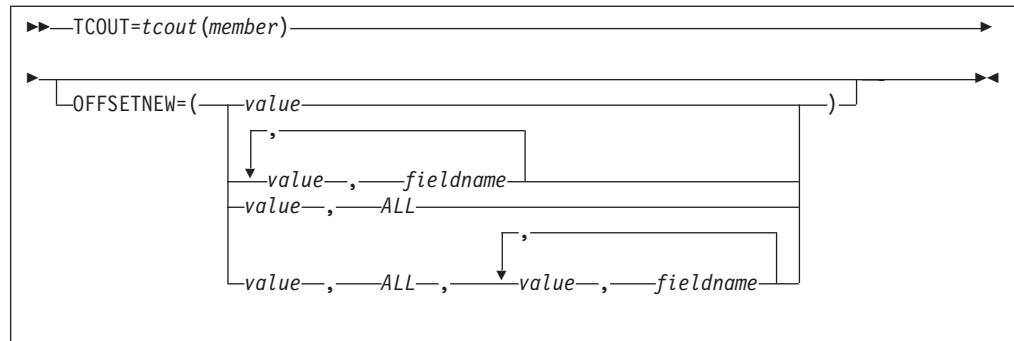


The OFFSETOUT keyword is available for batch functions that can specify TCOU — DSC and DSG.



The OFFSETOLD and OFFSETNEW keywords are available for batch function that can specify TCOLD and TCNEW — DSM.





value The offset value for a particular field.

fieldname

The level-1 field name to which the offset is applied. If no fieldname is supplied, the value is applied to the first level-01 field in the associated template.

ALL The offset value applies to all the layouts described in the associated template.

You can specify ALL for a fieldname, so that the value applies to all layouts, and then follow with a list of different offsets to be applied to the specified fieldnames.

Enhancement to File Manager with IMS component—support for an offset when using a template

The offset supported in File Manager Base is also supported in the IMS component.

Support is provided through the addition of the Offset column in these panels:

- View : Segment Layout Selection
- View : Segment Layout
- Template : Segment Layout Selection
- Template : Segment Layout

Here is part of the View : Segment Layout Selection panel, showing the new Offset column:

Cmd	Sel	Segment layout name	Offset	Length
		**** Top of data ****		
—	*	SHIRE	0	53
—	*	SHIRE-TOWN	0	53
—	*	SHIRE-CITY	0	53
		**** End of data ****		

In the Template : Segment Layout Panel, you can change the offset with the Offset primary command.

Enhancement to File Manager with DB2 component—use of synonyms in SQL subfunctions

You can use synonyms in the SQL subfunctions. The examples in this section use the DB2 object OUR-EMPLOYEES, which is a synonym representing the DB2 object EMP. FMNUSER is assumed to be the current SQL ID.

Basic SELECT Prototyping Object Specification

```
Process  Options  Utilities  Help
-----
FM/DB2                                     Basic SELECT Prototyping

Enter the name(s) of the table(s) from which to retrieve data:
  Owner      Name
#1 FMNUSER_  OUR-EMPLOYEES_____  Location  . . _____
#2 _____  _____  Database  . . _____
#3 _____  _____  Table space . _____
#4 _____  _____
#5 _____  _____
#6 _____  _____
#7 _____  _____
#8 _____  _____
#9 _____  _____
#10 _____  _____
#11 _____  _____
#12 _____  _____
#13 _____  _____
#14 _____  _____
#15 _____  _____

Command ==>
F1=Help      F2=Split    F3=Exit     F4=CRetriev  F7=Backward  F8=Forward
F9=Swap      F10=Actions F12=Cancel
```

Figure 1. Basic SELECT Prototyping panel showing synonym (OUR-EMPLOYEES) specified

On this panel you can specify up to 15 tables, views or synonyms that are used to construct a FROM clause as the starting point for prototyping a SELECT statement. If you specify more than one object, the result table produced by the SELECT statement is an inner join of all the objects. The columns and rows included in the result table are determined by the SELECT and WHERE clauses specified on the Basic SELECT Prototyping Column Specification panel, which is displayed when you specify the objects and press Enter.

Object specification

Tables and views are specified by optionally entering values in the location, database, table space, and owner fields, and entering values in the name fields. Synonyms are specified by entering values in the name fields. If a value is entered in the owner field for a synonym, it must be the current SQL ID. All of the fields support catalog searches by specifying a pattern in the field.

Location

This field is optional. If specified, it is used to qualify all the objects entered in the Owner and Name fields. If omitted, the current location is used. For synonyms to be used, this field must be omitted.

Database

This field is optional. If specified, all the objects entered in the Owner and Name fields must exist in the given database. If omitted, the objects can exist in any database at the specified or defaulted location. For synonyms to be used, this field must be omitted.

Table space

This field is optional. If specified, all the objects entered in the Owner and Name fields must exist in the given table space. If omitted, the objects can exist in any table space at the specified or defaulted location, subject to any restriction imposed by the database specification. For synonyms to be used, this field must be omitted.

Owner

This field is optional. If specified, it will be used to qualify the Name field on the same line. If omitted, the current SQL ID is used. For a synonym specification this field must either be omitted or contain the current SQL ID.

Name This field is required. It specifies the name of the table, view or synonym to be processed.

Object Selection from browse, edit, print, and so forth

You can specify a synonym name or a selection list which includes synonym entries under circumstances which are discussed below.

```
Process  Options  Utilities  Help
-----
FM/DB2                                DB2 Browse

Specify the DB2 Object:
Location . . . . . _____ Database . . _____ (optional)
Owner . . . . . FMUSER Table space _____ (optional)
Name . . . . . EMP

Template:
Data set name . . . _____
Member . . . . . _____

Processing Options:
Template usage Enter "/", "A"lways to select option
3 1. Above - Edit options
- 2. Previous - Edit template
3. Generate from table - Re-edit template
4. Generate/Replace

Command ==> _____
F1=Help F2=Split F3=Exit F4=CRetrieve F7=Backward F8=Forward
F9=Swap F10=Actions F12=Cancel
```

Figure 2. DB2 Browse panel showing DB2 object EMP specified

```
Process  Options  Utilities  Help
-----
FM/DB2                                DB2 Browse

Specify the DB2 Object:
Location . . . . . _____ Database . . _____ (optional)
Owner . . . . . FMUSER Table space _____ (optional)
Name . . . . . OUR-EMPLOYEES

Template:
Data set name . . . _____
Member . . . . . _____

Processing Options:
Template usage Enter "/", "A"lways to select option
3 1. Above - Edit options
- 2. Previous - Edit template
3. Generate from table - Re-edit template
4. Generate/Replace

Command ==> _____
F1=Help F2=Split F3=Exit F4=CRetrieve F7=Backward F8=Forward
F9=Swap F10=Actions F12=Cancel
```

Figure 3. DB2 Browse panel showing the synonym OUR-EMPLOYEES specified

Process	Options	Utilities	Help	
FM/DB2				
Table Browse				
LOCATION	NAME DSN8610.EMP			Format TABL
EMPNO	FIRSTNME	MIDINIT	LASTNAME	WORKDEPT PHONENO HIREDATE JOB
#1	#2	#3	#4	#5 #6 #7 #8 +
CH(6)	VARCHAR(12)	CH(1)	VARCHAR(15)	CH(3) CH(4) DATE CH(8)
PU-->	<-----1->	-	<-----1----->	<-NF <-> <-----> <----->
**** Top of data ****				
000010	CHRISTINE<	I	HAAS<	A00 3978 01.01.1965 PRES
000020	MICHAEL<	L	THOMPSON<	B01 3476 10.10.1973 MANAGE
000030	SALLY<	A	KWAN<	C01 4738 05.04.1975 MANAGE
000050	JOHN<	B	GEYER<	E01 6789 17.08.1949 MANAGE
000060	IRVING<	F	STERN<	D11 6423 14.09.1973 MANAGE
000070	EVA<	D	PULASKI<	D21 7831 30.09.1980 MANAGE
000090	EILEEN<	W	HENDERSON<	E11 5498 15.08.1970 MANAGE
000100	THEODORE<	Q	SPENSER<	E21 0972 19.06.1980 MANAGE
000110	VINCENZO<	G	LUCCHESE<	A00 3490 16.05.1958 SALESR
000120	sean<		O'CONNELL<	A00 2167 05.12.1963 CLERK
000130	DOLORES<	M	QUINTANA<	C01 4578 28.07.1971 ANALYS
000140	HEATHER<	A	NICHOLLS<	C01 1793 15.12.1976 ANALYS
Command ==>				Scroll PAGE
F1=Help	F2=Zoom	F3=Exit	F4=CRetrieval	F5=RFind F6=RChange
F7=Up	F8=Down	F9=Swap	F10=Left	F11=Right F12=Cancel

Figure 4. Browse panel showing data for EMP, or EMP's synonym, OUR-EMPLOYEEES

Location

This field is optional. If specified, it is used to qualify all the tables entered in the Owner and Name fields. If omitted, the current location is used. For synonyms to be used, this field must be omitted.

Owner

You can specify the name of the owner of the object. You can specify a generic name to select from a list.

To specify a synonym in the object name field, either leave this field blank, or specify a generic name that includes the current SQL ID, or specify the current SQL ID.

Synonyms are not recognized or included on the table selection list if the table space, database, or location field is non-blank.

Name You can specify the object name to be processed. You can specify a generic name to select from a list.

To specify a synonym in this field type the name of the synonym and ensure that the owner field is either blank, a generic name that includes the current SQL ID, or the current SQL ID. Synonyms owned by the current SQL ID are eligible for specification.

Synonyms are not recognized or included in the table selection list if the table space, database, or location field is non-blank.

Database

You can optionally specify a database to further define the object to be processed. When you enter a value in this field, synonym object names are not recognized nor included in the selection list.

Table space

You can optionally specify a table space to further define the object to be processed. When you enter a value in this field, synonym names are not recognized nor included in the selection list.

The DB2 Table Selection pop-up

The DB2 Table Selection pop-up is shown when you enter a generic value in any of the following fields on a function entry panel:

- database name
- table space name
- owner name
- object name

“Table” is used in a generic sense and can mean any of the objects defined in the SYSIBM.SYSTABLES catalog table (for example, table, view, auxiliary table). The selection list may also include synonym entries defined in SYSIBM.SYSSYNONYMS under some circumstances. Those circumstances are discussed above in “Object Selection from browse, edit, print, and so forth” on page 7.

Process	Opti	Table Selection				
FM/DB2		Row 1 to 9 of 9				
		Select one of the tables from the list.				
Specify the DB2		Table				
Location .		S Owner	Name	Database	Space	Type
Owner . . .		— FMNUSER	AUX_EMP_RESUME	FMDB2DL	FMDB2SN	AUX TABLE
Name . . .		— FMNUSER	EEMP	FMDB2DA	FMDB2SR	TABLE
Template:		— FMNUSER	EMP	FMDB2DA	FMDB2SE	TABLE
Data set nam		— FMNUSER	EMP_PHOTO_RESUME	FMDB2DL	FMDB2SB	TABLE
Member . .		— FMNUSER	EMPPROJACT	FMDB2DA	FMDB2SP	TABLE
Processing Opti		— FMNUSER	OUR-EMPLOYEES			SYNONYM
Template usa		— FMNUSER	VEMPDP1	FMDB2DA	FMDB2SE	VIEW
3 1. Above		— FMNUSER	VEMPLP	FMDB2DA	FMDB2SE	VIEW
2. Previo		— FMNUSER	VEMPPROJACT	FMDB2DA	FMDB2SP	VIEW
3. Genera		***** Bottom of data *****				
4. Genera		Command ==>				
Command ==>		F1=Help	F2=Split	F3=Exit	F7=Backward	
F1=Help	F	F8=Forward	F9=Swap	F12=Cancel		
F9=Swap	F1					

Figure 5. Table Selection panel including the synonym *OUR-EMPLOYEES*

The object name pop-up panel displays the following information about DB2 objects:

- owner name
- object name
- database name
- table space name
- object type

The list of objects that is displayed is qualified by all of the values you enter for any of:

- database name
- table space name
- owner name
- object name

Here is the information listed for a synonym:

Owner

The value is the current SQL ID and reflects an entry in

SYSIBM.SYSSYNONYMS rather than the owner name defined in SYSIBM.SYSTABLES of the actual table that the synonym represents.

Name The value is a synonym name defined in SYSIBM.SYSSYNONYMS rather than the object name defined in SYSIBM.SYSTABLES of the actual table that the synonym represents.

Database
The value is always blank.

Table Space
The value is always blank.

Type The value is "SYNONYM".

When you select a synonym object from the pop-up list, all of the values for that synonym are copied to the function entry panel. The synonym name appears on the function entry panel.

Object List (option 3.4)

Process	Options	Utilities	Help		
FM/DB2			Synonyms		Row 1 to 11 of 36
Location:					
Cmd	Synonym	Owner	Table/View Name	Owner	Created By
	*	*	*	*	*
_____	SYN_KF22009	GENTRY	EMP	GENTRY	GENTRY
_____	SYN2ALIAS	GENTRY	PMR32686	HATHWAY	GENTRY
_____	SYS2ALIAS	GENTRY	PMR32686	HATHWAY	GENTRY
_____	EMP_PHOTO_RESUME	GRAHAMP	EMP_PHOTO_RESUME	GPCOPY	GRAHAMP
_____	OUR-EMPLOYEES	FMNUSER	EMP	FMNUSER	FMNUSER
_____	ACT	KEISTEW	ACT	KPS8610	KEISTEW
_____	DEPT	KEISTEW	DEPT	KPS8610	KEISTEW
_____	EMP	KEISTEW	EMP	KPS8610	KEISTEW
_____	EMPPROJACT	KEISTEW	EMPPROJACT	KPS8610	KEISTEW
_____	JOCK	KEISTEW	SYSTABLES	SYSIBM	KEISTEW
_____	KEITH_SY	KEISTEW	PMR32686	HATHWAY	KEISTEW
Command ==>					Scroll PAGE
F1=Help	F2=Split	F3=Exit	F4=CRetriev	F7=Backward	F8=Forward
F9=Swap	F10=Actions	F12=Cancel			

Figure 6. Object List: synonyms

The object list for synonyms provides these new commands for synonyms:

- B (browse)
- C (copy)
- E (edit)
- PR (print)
- SEL (build SELECT statement)
- UTL (Utilities)

You can enter these commands on the Cmd field of the Synonym panel or select them from the commands that are listed when you enter '?' in the Cmd field of the Synonym panel.

In specifying one of the new commands for a synonym in the list, the synonym name is copied to the appropriate function panel when the location is unspecified and the current owner is the SQL ID; otherwise, the synonym is resolved to the

object name defined in SYSIBM.SYSTABLES of the actual table that the synonym represents and the actual object name values are copied to the function entry panel. Since the object list may include synonyms that do not belong to your SQL ID, this resolution allows you to use synonyms that do not belong to your SQL ID.