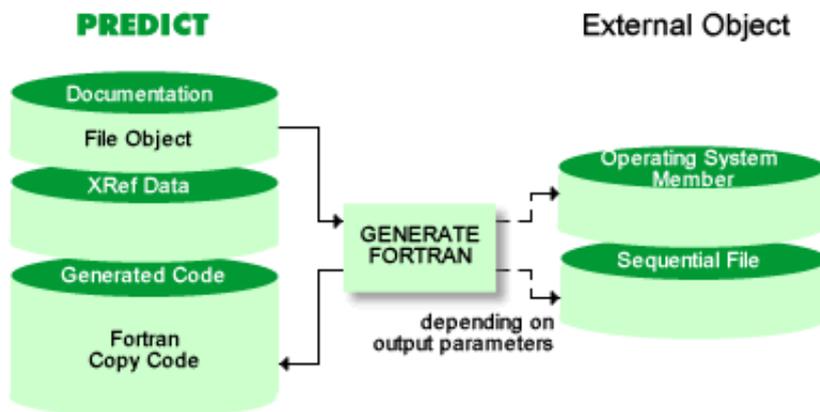


# FORTRAN Copy Code

The function Generate FORTRAN Copy Code generates a record buffer for use in FORTRAN programs based on a Predict file object.

In addition, an Adabas format buffer can also be generated if required for files of the following types:

- Adabas file (file type A) with parameter Adabas SQL usage = N
- Adabas userview (file type U)



This section contains:

- Calling the Function
- Generate FORTRAN Copy Code in Batch Mode
- Names in FORTRAN Copy Code
- Field Format and FORTRAN Copy Code
- Sample Output

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## Calling the Function

The Generate FORTRAN Copy Code screen is displayed with function code G and object code FO in a Predict main menu, or with the command GENERATE FORTRAN.

```

10:13:24          ***** P R E D I C T  4.3.1  *****          2003-05-31
Plan    0          - Generate FORTRAN Copy Code -

File ID .....*

Save as member .....          Save in library ..... FORLIB
Overwrite option ..... Y (Y,N) Op. system member .....
Punch directly .....* N

List generated code ..... Y (Y,N)          Generate length.field .. N (Y,N)
Generate format buffer ....* N          Adabas version .....* I7

Nr. of abstract lines ..... 4 (0-16)          Field name prefix .....
Generate initial value ....* N          Field name suffix .....
Truncation .....* R          Validate ..... *
Offset name ..... OFF
Record buffer name .....          Compiler .....* I
Format buffer name .....

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Next Stop Last LnkEl Flip Print Impl AdmFi SelFi Prof Main
    
```

Values for input fields which have been locked by your data dictionary administrator cannot be overwritten. These fields are skipped when positioning the cursor with the TAB key. See Generation Defaults.

<b>Presettings</b>	
The parameters below can be changed in the Modify FORTRAN Defaults screen. See Generation Defaults.	
Library system	Library system for which the generated code is punched. Determines which additional cards need to be punched. An operating system member must be entered for the additional cards to be generated. See Parameters Specifying the Form of Output for more information.
<b>Parameters</b>	
The parameters Save as member, Save in library, Overwrite option, Op. system member, Punch/output, Workfile name and List generated code are described in the section Parameters Specifying the Form of Output.	
File ID	ID of the Predict file object from which the definitions are to be generated.  Enter an asterisk to display a selection screen. Alternatively, use an asterisk as a wildcard. For example, enter A* to display IDs beginning with A only.
Generate length field	<b>Y</b> An INTEGER*2 field is to be created for each buffer generated. The initial value of this field is the length of the buffer (including slack bytes). Another INTEGER*2 field is created in the record buffer and will contain the file number. The name of the file number constant is the record buffer name prefixed by N.  The name of each length constant will be the appropriate buffer name prefixed by L. Each name is prefixed, suffixed, validated and truncated in the same way as any other field name.

Generate format buffer	<p>The contents of the format buffer will correspond exactly to the contents of the record buffer. Only valid for files of type A (with parameter Adabas SQL usage set to N) or for files of type U.</p> <p>Valid values:</p> <p><b>Y</b> Adabas format buffer is to be generated. Adabas groups, standard formats and lengths are used whenever possible. The resulting format buffers are then as short as possible.</p> <p><b>F</b> Full format buffer is to be generated. Length and format of Adabas fields are included.</p> <p><b>N</b> No format buffer is to be generated.</p> <p><b>Note:</b> If you are generating for a WANG environment, set this parameter to F or N.</p>
Adabas version	The version of Adabas for which the copy code is to be generated. Enter an asterisk for valid values or see table in the section Adabas Version for more information.
Nr. of abstract lines	The number of Predict abstract lines per field to be included in the generated code.
Field name prefix	The prefix to be used for each field name generated.
Generate initial value	<p><b>Y</b> Statements are generated to initialize the structure with the value for Init value defined for the field objects in Predict. Fields with no value defined for Init value are initialized with zeros or spaces.</p> <p><b>S</b> Only fields which have a value defined for Init value in the corresponding Predict object are initialized.</p> <p><b>N</b> No initialization.</p>
Field name suffix	Suffix appended to each field name generated.
Truncation	<p>Names are truncated to 30 characters for the VAX/VMS compiler. They are truncated to 6 characters for the IBM or Siemens compiler and FORTRAN 77 Standard.</p> <p>Specifies which characters are deleted if a generated field name is too long:</p> <p><b>L</b> truncate from the left</p> <p><b>R</b> truncate from the right</p> <p><b>M</b> truncate from the middle</p> <p>A warning is given if field names are truncated.</p>

Validate	<p>Determines how invalid characters are handled.</p> <p><b>blank</b> Invalid characters in a field name will result in an error message but will not be modified.</p> <p><b>rep.char</b> Invalid characters in a field name are replaced by this character. Valid replace characters: letters A-Z, digits 0-9 and, for VAX/VMS only, \$ and _ (underscore).</p> <p>*</p> <p>Invalid characters in a field name are deleted.</p>
Offset name	To display the offset of each item in the structure, Predict creates a CHARACTER*1 array with as many elements as there are bytes in the buffer, and generates EQUIVALENCE statements. Valid characters of this parameter are used as the name of the array in the record buffer. Valid characters of this parameter followed by AA are used as the name of the array in the format buffer.
Record buffer name	Specifies the name of the record buffer in the generated structure. If omitted, the file ID is used.
Format buffer name	Specifies the name of the format buffer in the generated structure. If omitted, the file ID prefixed by F is used.
Compiler	<p>FORTRAN copy code can be generated for the following compilers:</p> <p><b>I</b> IBM</p> <p><b>S</b> Siemens</p> <p><b>V</b> VMS</p> <p><b>7</b> FORTRAN 77 Standard</p>

## Generate FORTRAN Copy Code in Batch Mode

Command: GENERATE FORTRAN.

Enter parameters on next line in positional or keyword form. File ID is obligatory, all other parameters are optional. If a parameter is not specified, the default value is taken.

Field	Keyword	Position
File ID	FILE-ID	1
Save as member	MEM	2
Save in library	LIB	3
Overwrite option	REPLACE	4
Op. system member	OS-MEMBER	5
Nr. of abstract lines	NR	6
Field name prefix	PREFIX	7
Generate format buffer	FORMAT-BUFFER	8
Field name suffix	SUFFIX	9
Generate initial value	INIT	10
Generate length field	LENGTH-FIELD	11
List generated code	LIST	12
Validate	VALIDATION	13
Punch / output	PUNCH	14
Truncation	TRUNCATION	15
Offset name	OFFSET-NAME	16
Record buffer name	RECORD-BUFFER-NAME	17
Format buffer name	FORMAT-BUFFER-NAME	18
Adabas version	ADA-VER	19
Compiler	COMPILER	20
Workfile name (see note below)	WORKFILE-NAME	21
If Entire System Server is used		
- DB-ID	NP-DBID	22
- Dataset	NP-DSNAME	23
- Volume	NP-VOLSER	24
- Library	NP-LIB	25
- Sublibrary	NP-SUBLIB	26
- Member type	NP-MEMTYPE	27
- VSAM catalog	NP-VSAMCAT	28

**Note:**

You can not specify a value other than blank ( ' ') for WORKFILE-NAME on mainframes.

Parameters NP-LIB, NP-SUBLIB and NP-MEMTYPE must be specified if the generated code is written to workfile 1 (Punch/output=Y) and Library system=3.

## Names in FORTRAN Copy Code

The following rules apply to the generation of names for FORTRAN copy code.

- Alphabetic characters (letters) in Predict object IDs, such as file and field IDs, are converted into upper-case.
- Field names in FORTRAN copy code are created from Predict fields: either the field name synonym for FORTRAN or, if none exists, the Predict field ID.
- Any periodic groups with Gr.structur set to blank are treated as periodic groups with Gr.structur set to N and a warning message is issued.
- The parameters Validate and Truncate are applied when generating all field names:
  - when using compiler option IBM, Siemens, or FORTRAN 77, the names are truncated to 6 characters
  - with compiler option VMS, the names are truncated to 30 characters.
- Parameters Field name prefix and Field name suffix are applied when generating all field names except record buffer and format buffer.  
See Examples for the Generation of FORTRAN Field Names.
- If a resulting field name is not unique within the entire file structure, an error message is given.

### FORTRAN Names for Multiple Fields - MU - Contained in Periodic Groups - PE

Before each field of type MC or PC, a counter field is generated, with a name created from the name of the MC or PC field prefixed by C.

For example, a Predict field object DAY with no field name synonym for FORTRAN and with type MC will generate the field names CDAY and DAY.

### FORTRAN Names for Additionally Generated Indicator Fields

An additional indicator field prefixed with S is generated in the following cases:

- a field is defined with Suppression option set to U (null allowed)
- a field of a file of type A, U or B is defined with Suppression option set to R (not null)

**Note:**

For Adabas fields, the additional indicator field is only generated for the following Adabas versions:

- I3 or above
- U1 or above
- V4 or above.

### Examples for the Generation of FORTRAN Field Names

Example: with the parameter settings

Field prefix = PR  
Field suffix = SUF  
Validate = \*  
Truncation = R

the following field names are generated for a field named "day" of type MC:

PRCDAY, PRDAYS for IBM or Siemens compiler

PRCDAYSUF, PRDAYSUF for VAX/VMS compiler.

## Field Format and FORTRAN Copy Code

Fields in the FORTRAN copy code have a FORTRAN clause determined by the following factors:

- length and format of the corresponding Predict field object
- file type of the file containing the field
- the compiler for which you are generating.

PRD Format	PRD Length	File Type or Compiler	FORTRAN Clause	Byte Length
B/I	1	Compiler: Siemens	INTEGER*1	
		Compiler: VMS	BYTE	
		Compiler: IBM, FORTRAN 77	CHARACTER*1	
B	$l=3, 5, 6, 7$		CHARACTER* $l$	
B/I	2	File Type: BT, BV or Compiler: IBM, Siemens, VMS	INTEGER*2	
		Compiler: FORTRAN 77 and File Type: <b>not</b> BT, BV	CHARACTER*2	
	4	File Type: BT, BV or Compiler: IBM, Siemens, VMS	INTEGER*4	
		Compiler: FORTRAN 77 and File Type: <b>not</b> BT, BV	INTEGER	
	8	IBM, VMS, FORTRAN 77	CHARACTER*8	
		Compiler: Siemens	INTEGER*8	
B	$l \geq 9$		CHARACTER* $l$	
F	4	Compiler: IBM, Siemens, VMS	REAL*4	
		Compiler: FORTRAN 77	REAL	
	8	Compiler: IBM, Siemens, VMS	REAL*8	
		Compiler: FORTRAN 77	DOUBLE PRECISION	
N/U NS/US	nn.m		CHARACTER* $l$	$l=nn+m$
P/PS	nn.m		CHARACTER* $l$	$l=(nn+m+2)/2$
D		File Type: D, E	CHARACTER*10	
		File Type: BT, BV	CHARACTER*8	
		other file types	CHARACTER*4	
T		File Type: D, E, BT, BV	CHARACTER*8	8
		other file types	CHARACTER*7	7
L		Compiler: IBM, Siemens, VMS	LOGICAL*1	1
		Compiler: FORTRAN 77	CHARACTER*1	1
BT		File Type: YT, YV	see format B, length 1	1

DT		File Type: JT, JV	CHARACTER*25	25
		File Type: OT, OV	CHARACTER*9	9
		File Type: YT, YV	CHARACTER*32	32
DS		File Type: YT, YV	CHARACTER*28	28
G	n	File Type: D, E	CHARACTER*m	m=2*n
GV	n	File Type: D, E	CHARACTER*m	m=2*n
GL	n	File Type: D, E	CHARACTER*m	m=2*n
TS		File Type: D, E	CHARACTER*26	26
		File Type: YT, YV	CHARACTER*8	8
MO		File Type: YT, YV, JT, JV	see format F, length 8	8
MS		File Type: YT, YV	see format F, length 4	4
OK		File Type: JT, JV	CHARACTER*16	16
TK		File Type: JT, JV	CHARACTER*8	8

- If generated for IBM, Siemens or VMS compilers:  
Any file number field, length fields and automatically generated counter fields have the clause INTEGER\*2.
- If generated for a FORTRAN 77 compiler:  
Constants for the file number and length fields have the clause INTEGER. Automatically generated counter fields have the clause CHARACTER\*2.

A numeric or binary format field with a length not included in the table above is treated in FORTRAN copy code as an alphanumeric format field and cannot have an initial value generated for it. A warning message is given.

Fields other than redefinitions are always aligned, both in the record buffer and in the format buffer, on the boundary shown in the table above.

The array that is created to show the offset of each item in the file (see the parameter Offset name) is aligned so that its first element, (Offset name(1)), corresponds to offset 0. Similarly, the element number in each EQUIVALENCE statement generated is one more than the offset of the corresponding field. For example, the statement EQUIVALENCE(Offset name(15),elem) in FORTRAN copy code would correspond to a field named elem with offset 14.

In FORTRAN copy code, redefinitions are generated both for elements within a group and for single fields on level 1. Redefinitions are not generated for periodic groups; instead, a warning message is issued.

**Note:**

If FORTRAN copy code for DB2 tables/views is generated, the format NS or US is converted to the FORTRAN format CHARACTER. Any redefinitions that exist for this field are skipped.

A DB2 large object is generated as locator like an I4 field.

## Sample Output

```
13:28:09          ***** P R E D I C T 4.3.1 *****          2003-05-31
                   - Generate FORTRAN Copy Code -                Page: 1

File ID .. GENERATION-EXAMPLE

C*****
C   THIS RECORD-BUFFER LAYOUT WAS GENERATED BY PREDICT
C   FOR FILE: GENERATION-EXAMPLE
C   ON: 2003-05-31 STARTING AT 13:28:09
C   FILE-COMMENTS: Example file for the
C   PREDICT generation subsystem.
C   ..
C*****
      CHARACTER*648          GENERA
C >>> RB NAME :
C >>> DIC1809 WARNING: FIELDNAME(S) TRUNCATED
      CHARACTER*1           OFF(648)
      EQUIVALENCE(OFF(1),GENERA)
      CHARACTER*99          GROUP1
      EQUIVALENCE(OFF(1),GROUP1)
      CHARACTER*14          ELN9V5
      EQUIVALENCE(OFF(1),ELN9V5)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' N ' --> ' A ' )
      CHARACTER*30          GRINGR
      EQUIVALENCE(OFF(15),GRINGR)
C >>> GR-IN-GROUP :
C >>> DIC1809 WARNING: FIELDNAME(S) TRUNCATED
      INTEGER*4             ELEB4
      EQUIVALENCE(OFF(17),ELEB4)
      CHARACTER*4           ELPS52
      EQUIVALENCE(OFF(21),ELPS52)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' PS ' --> ' A ' )
      INTEGER*4             MUB4(5)
      EQUIVALENCE(OFF(25),MUB4)
      CHARACTER*7           MURB7
      EQUIVALENCE(OFF(25),MURB7)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' B ' --> ' A ' )
      CHARACTER*13          MURB13
      EQUIVALENCE(OFF(32),MURB13)
```

```

13:28:09          ***** P R E D I C T 4.3.1 *****          2003-05-31
                   - Generate FORTRAN Copy Code -                Page: 2

File ID .. GENERATION-EXAMPLE

C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' NS ' --> ' A ' )
      CHARACTER*8          MURB8
      EQUIVALENCE(OFF(25),MURB8)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' B ' --> ' A ' )
      CHARACTER*42         ELEA42
      EQUIVALENCE(OFF(45),ELEA42)
      REAL*8              ELEF8
      EQUIVALENCE(OFF(89),ELEF8)
      CHARACTER*3          FOB3
      EQUIVALENCE(OFF(97),FOB3)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' B ' --> ' A ' )
      INTEGER*2           CPCOCC
      EQUIVALENCE(OFF(101),CPCOCC)
C >>> PC-OCC-7 :
C >>> DIC1809 WARNING: FIELDNAME(S) TRUNCATED
      CHARACTER*534        PCOCC7
      EQUIVALENCE(OFF(103),PCOCC7)
C >>> DIC1848 MESSAGE: PE-GROUP(S) 'STRUCT' DEFINITION SET TO 'N'
      CHARACTER*10         PCELED(7)
      EQUIVALENCE(OFF(103),PCELED)
C >>> PC-ELE-DE-NS-7V3 :
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' NS ' --> ' A ' )
C >>> DIC1809 WARNING: FIELDNAME(S) TRUNCATED
      INTEGER*2           CMCP(7)
      EQUIVALENCE(OFF(173),CMCP)
      CHARACTER*4         MCPS(11,7)
      EQUIVALENCE(OFF(187),MCPS)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' PS ' --> ' A ' )
      CHARACTER*112        PCGR
      EQUIVALENCE(OFF(495),PCGR)
      INTEGER*2           FOI2(7)
      EQUIVALENCE(OFF(495),FOI2)
      CHARACTER*14         PS20V7(7)
      EQUIVALENCE(OFF(509),PS20V7)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' PS ' --> ' A ' )
      REAL*4              FOF4(7)
      EQUIVALENCE(OFF(609),FOF4)
      CHARACTER*4         ELED
      EQUIVALENCE(OFF(637),ELED)

```

```

13:28:09          ***** P R E D I C T 4.3.1 *****          2003-05-31
                   - Generate FORTRAN Copy Code -                Page:   3

File ID .. GENERATION-EXAMPLE

C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' D ' --> ' A ' )
      CHARACTER*7          ELET
      EQUIVALENCE(OFF(641),ELET)
C >>> DIC1818 WARNING: FORMAT(S) CHANGED ( ' T ' --> ' A ' )
      LOGICAL*1           ELEL
      EQUIVALENCE(OFF(648),ELEL)

C*****
C   THIS FORMAT-BUFFER WAS GENERATED BY PREDICT
C   FOR FILE: GENERATION-EXAMPLE
C   ON: 2003-05-31 STARTING AT 13:28:09
C*****
      CHARACTER*136       FGENER
C >>> FORMAT BUFFER NAME :
C >>> DIC1809 WARNING: FIELDNAME(S) TRUNCATED
      CHARACTER*1         OFFAA(136)
      CHARACTER*60        OFFAB
      1 / 'AB,2X,AD,AE,AF1-5,AG,2X,AH,AI,1X,ALC,2,AM1-7,AN1C,2,AN2C,2,A' /
      CHARACTER*60        OFFAC
      1 / 'N3C,2,AN4C,2,AN5C,2,AN6C,2,AN7C,2,AN1-7(1-11),AP1-7,AQ1-7,2X, /
      CHARACTER*16        OFFAD
      1 / ',AR1-7,AS,AT,AU.' /
      EQUIVALENCE(OFFAA(1),FGENER)
      EQUIVALENCE(OFFAA(1),OFFAB)
      EQUIVALENCE(OFFAA(61),OFFAC)
      EQUIVALENCE(OFFAA(121),OFFAD)
C*****

DIC1800 SUMMARY:      25 FIELD(S) PROCESSED
DIC1809 WARNING:      5 FIELDNAME(S) TRUNCATED
DIC1818 WARNING:     11 FORMAT(S) CHANGED
DIC1819 MESSAGE:      7 SLACK BYTE(S) GENERATED
DIC1847 MESSAGE:      3 FIELD(S) SKIPPED FOR RECORDBUFFER STRUCTURE
DIC1848 MESSAGE:      1 PE-GROUP(S) 'STRUCT' DEFINITION SET TO 'N'

```