RPG IV free - interactive cheatsheet

source outline

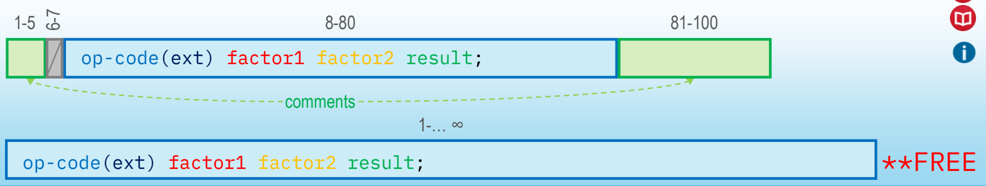
ctl-opt	control specifications default *LIBL/RPGLEHSPEC QRPGLE/DFTLEHSPEC
dcl-pr dcl-pi	prototypes procedure interface
dcl-f dcl-s dcl-ds dcl-c dcl-enum	global definitions (files, variables, data structures, arrays, constants, enumera-tions)
exec sql	SQL precompiler options SQL cursor declarations
	main source
begsr	global subroutines

main section

dcl-proc	procedure specification
dcl-pi	procedure interface
dcl-f dcl-s dcl-ds dcl-c dcl-enum	local definitions (files, variables, data structures, arrays, constants, enumera-tions)
	procedure body
begsr	local subroutines

subprocedure section

free-form statements


1-5
6-7
8-80
81-100
op-code(ext) factor1 factor2 result;
comments
1-... ∞
op-code(ext) factor1 factor2 result;
**FREE

syntax rules

case insensitive

comment: `//`

continuation character: `+`

end instruction: `;`

variable naming: don't start with number

built-in functions: `%function-name(parm1:parm2:...)`

indicators

`0` - `*off` / `1` - `*on`

`*inxx` (*xx* 1 to 99)

`*inlr` last record

`*inkx` key function

op.code: eval

F1	F2	F3	F4
KA	KB	KC	KD
F5	F6	F7	F8
KE	KF	KG	KH
F9	F10	F11	F12
KI	KJ	KK	KL
F13	F14	F15	F16
KM	KN	KP	KQ
F17	F18	F19	F20
KR	KS	KT	KU
F21	F22	F23	F24
KV	KW	KX	KY

data types — keywords

	Tipo	Keyword	Length
alphanumeric	character fixed length	char	1-16773104
	character varying length	varchar	1-16773100
EBCDIC sequence	character UCS fixed length	ucs2	1-8386552
	character UCS varying length	varucs2	1-8386550
	graphic fixed length	graph	1-8386552
	graphic varying length	vargraph	1-8386550
numeric	binary	bindec	1-9
	float	float	4, 8
	integer	int	3, 5, 10, 20
	unsigned	uns	3, 5, 10, 20
	zoned decimal	zoned	63,63
	packed decimal	packed	63,63
date/time	date	date	
	time	time	
	timestamp	timestamp	26-32
other	boolean	ind	1
	pointer	pointer	16 bytes
	pointer to procedure	pointer(*proc)	16 bytes
	object	object	

logical operators

`=  <>  >  >=  <  <=`

`AND  OR  NOT  IN`

operation codes

code extender: `(a)`, `(d)`, `(e)`, `(h)`, `(m)`, `(n)`, `(p)`, `(r)`, `(t)`, `(z)`

assignment operators

`=  +=  -=  *=  /=  **=`

op.code: clear, eval, evalr, reset

SQL data types (SQLTYPE())

	Tipo	Keyword	Length
binary	binary fixed length	binary	1-32766
	binary varying length	varbinary	1-32740
LOB	character Large Object	clob	1-16773100
	double byte large object	dbclob	1-8386550
	binary large object	blob	1-16773100
	LOB file reference	clob_file dbclob_file blob_file	
	LOB locator	clob_locator dbclob_locator blob_locator	
LOB XML	XML	xml_clob xml_dbclob xml_blob	1-16773100 1-8386550 1-16773100
	XML file reference	xml_clob_file xml_dbclob_file xml_blob_file	
	XML locator	xml-locator	
other	ROW ID	rowid	
	resultset locator	result_set_locator	

character variables

concatenation: `+`

op.code: clear, eval, evalr, reset

BIF: %char, %charcount, %check, %checkr, %concat, %left, %lower, %max, %min, %replace, %right, %scan, %scanr, %scanrpl, %split, %str, %subst, %trim, %triml, %trimr, %ucs2, %upper, %xlate

numeric variables

operators: `+  -  *  /  **`

op.code: clear, eval, reset

BIF: %abs, %dec, %dech, %div, %editc, %editw, %float, %int, %inth, %max, %min, %rem, %sqrt, %uns, %unsh

arrays

index from **1** to 16.773.104

definition: ... `dim(max-entries | *var:maxentries | *auto:maxentries | *ctdata)`

time → run-time
time → compile-time (CTDATA)
time → prerun-time

syntax: `array-name(index|*|*next)`

operator: in

operations code: for-each, sorta

BIF: %concatarr, %elem, %fields, %list, %lookupxx, %maxarr, %minarr, %split, %subarr, %tlookupxx, %xfoot

data structures

keyword definition: alias, based, ext, extfld, extname, inz, likeds, likerec, overlay, pos, prefix, qualified, samepos, template

op.code: clear, eval, eval-corr, reset

reference to subfield qualified ds:

`dsName.subfieldName`

special data structures

file information (INFDS)

program status (PSDS)

indicator (INDDS)

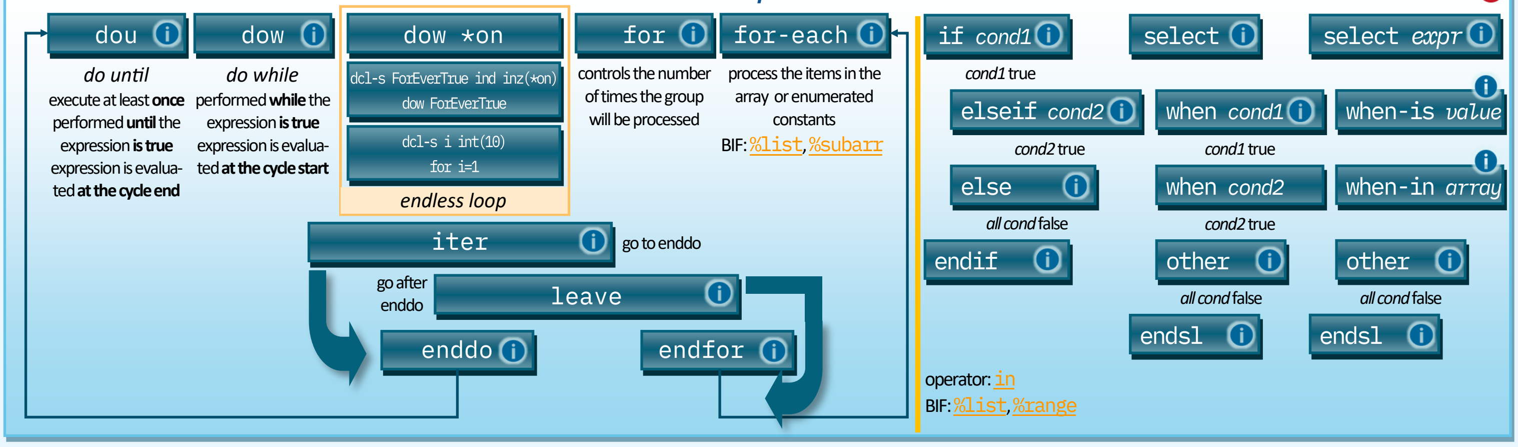
caption

ⓘ reference

▤ examples

📖 articles

structured operations



operator: in
BIF: %list, %range

subroutines

begsr ← exsr

exit leavesr

endsr

*inzsr
initial subroutine

*pssr
error subroutine

static call

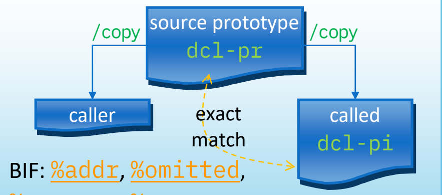
callp

return
return to caller

on-exit
execute when procedure ends

no recursivity in the same activation group

prototyped parameters



BIF: %addr, %omitted, %parmnum, %parms, %passed, %proc

max parm (program): 255
max parm (procedure): 399

API prototypes

API finder

Types of API
- based-programs
- service-program-based
- ILE CEE
- UNIX-type

API finder prototypes:

- QSYSINC/QRPGLESRC
- Easy400.net
- Scott Klement, da C a RPG
- Midrange
- iOpen Bob Cozzi

data areas

keyword definition: dtaara
op.code: in, out, unlock
BIF: %addr, %alloc
*LDA

variable info

BIF: %decpos, %len, %nullind, %size

XML, JSON

op.code: data-gen, data-into, xml-into, xml-sax
BIF: %data, %gen, %handler, %parser, %xml

object

BIF: %this

date and time

formats

keyword definition: datfmt
operator: +, -
op.code: eval, test
BIF: %char, %date, %days, %dec, %diff, %hours, %minutes, %months, %mseconds, %seconds, %subdt, %time, %timestamp, %years
constant prefix: d, t, z
user date special word: UDATE, UMONTH, UYEAR, UDAY, C*DATE, *DATE, *MONTH, *YEAR, *DAY
duration code: *years/*y, *months/*m, *days/*d, *hours/*h, *minutes/*mn, *seconds/*s, *mseconds/*ms

embedded SQL

syntax: **exec sql . . .;**
host variables: :VarName
used in clause: where, select, into, order by, set, values (insert), call
indicator variables: int(5)
support extended indicators: compilation *extind
SQL communication area: SQLCA
SQL descriptor area: SQLDA

Error handlers

Priority:

1. error extender (e)
2. monitor group
3. subroutine *pssr (file)

keyword f-spec: infsr

4. ILE condition handlers
5. subroutine *pssr (programma)
6. RPG default error handler

op.code: monitor
BIF: %error, %status

files

database display printer

keyword: alias, commit, extdesc, extfile, extmbr, infds, prefix, qualified, rename, template, usage, usropn
keyword for display/printer file: indds, oflind, printer, sfile, workstn
operations code
keyed input: chain, reade, readpe, setll, setgt
sequential input: read, readp
data manipulation: delete, update, write, unlock
commitment control: commit, rolbk
file: close, open
display file only: exfmt, readc
BIF: %eof, %equal, %error, %fields, %found, %kds, %open, %status

pointers

op.code:
dealloc
BIF: %addr, %alloc, %paddr, %realloc

binder language

```
STRPGMEXP PGMLVL(*CURRENT) SIGNATURE('V1R1')
 EXPORT SYMBOL(p1)
 EXPORT SYMBOL(p2)
  ...
ENDPGMEXP
STRPGMEXP PGMLVL(*PRV) SIGNATURE('V1R0')
 EXPORT SYMBOL(p1)
ENDPGMEXP
```

figurative constants

*BLANK, *BLANKS = ''
*ZERO, *ZEROS = 0
*ON = '1' / *OFF = '0'
*NULL = valore nullo
*LOVAL = valore minimo / *HIVAL = valore massimo
*ALL'x' = ripete 'x' per la lunghezza massima della variabile

message

op.code: snd-msg
BIF: %msg, %target

Compiler directives

start at column >= 7 or >=1 (for all free). End semicolon not required
/COPY or /INCLUDE [library/file,member|"ifs_path"]: copy the external source member
defining condition:
/DEFINE or /UNDEFINE:

```
/IF [NOT] DEFINED(nome-direttiva)
 …;
 /ELSEIF
 …;
 /ELSE
 …;
/ENDIF
```

/EOF: ignore the rest of source