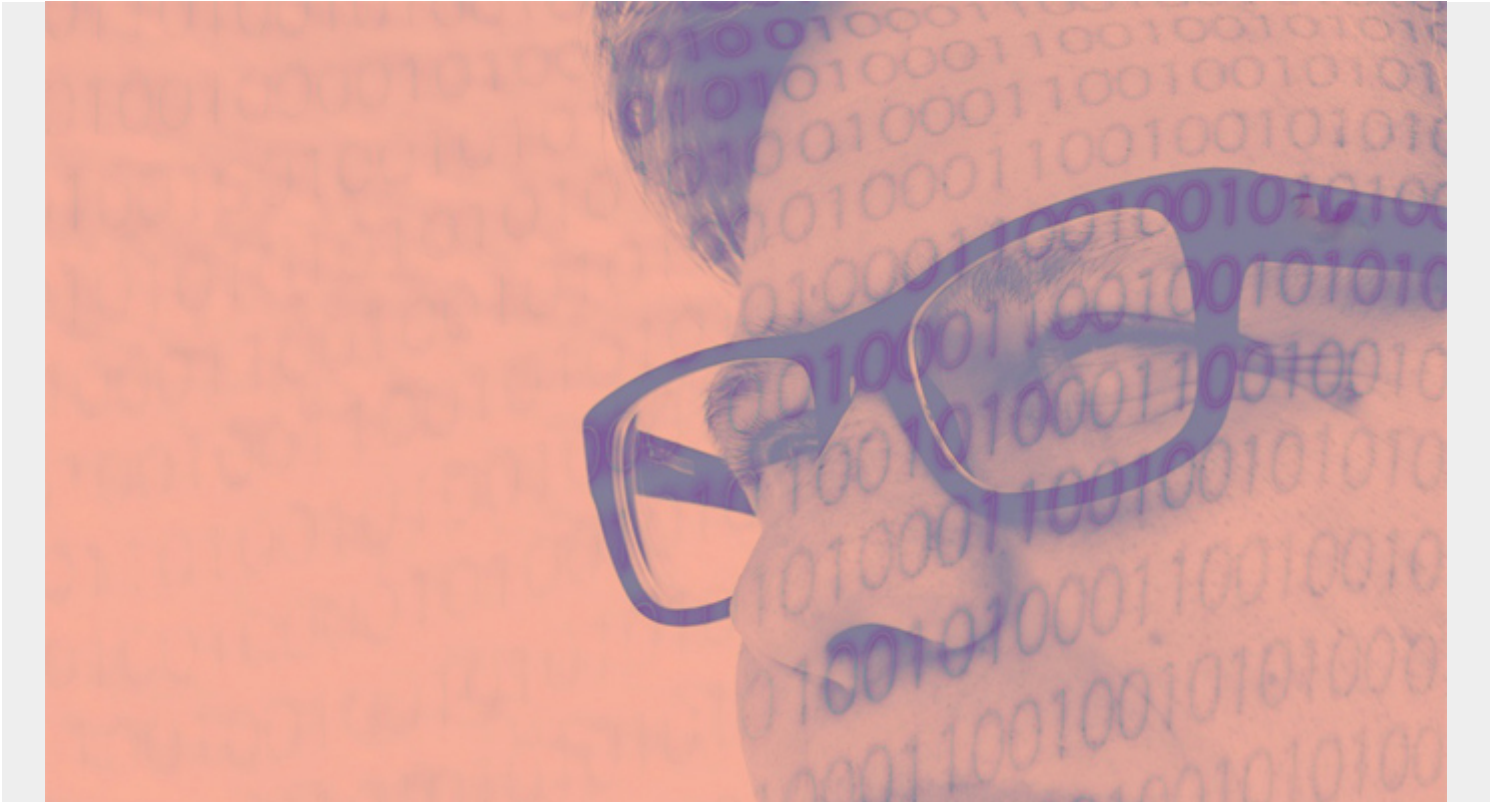


# IBM UTILITIES IN DB2 12



## BACKUP SYSTEM

```

                .-FULL-----.
>>-BACKUP SYSTEM--+-----+-----+-----+-----+----->
                '-DATA ONLY-'  +-ESTABLISH INCREMENTAL-+
                                '-END INCREMENTAL-----'

>+-----+-----+-----+-----+-----+-----+----->
  +--ALTERNATE_CP (copy-pool)--+-----+-----+-----+-----+
                                '-DBBSG(stogroup)-'  '-LGBSG(stogroup-'

>+-----+-----+-----+-----+-----+-----+-----><
+--FORCE-----+-----+-----+-----+-----+-----+-----
-----+-----+-----+-----+-----+ | '- dumpclass-spec---+ '-
FORCE-' | '-DUMPONLY--+-----+-----+-----+-----+ ' '-
TOKEN- (X'byte-string')' '- dumpclass-spec -' dumpclass-spec: >--DUMPCCLASS-(-
-dc1---)-----< | -dc2- |
                | -dc3- |
                | -dc4- |
                | -dc5- |
```





```

                                     '-SHRLEVEL--CHANGE-----'
          .-EXCEPTIONS--0-----,
>--drain-spec-+-+-----+-----+-----+-----+-----+----->
          '-EXCEPTIONS--integer-'
>+-----+-----+-----+-----+-----+-----+----->
  |          .-SYSPUNCH-. | '-SORTDEVT--device-type-'
  '-PUNCHDDN--+ddname--+-'
>+-----+-----+-----+-----+-----+-----+----->
  '-SORTNUM--integer-'

```

```

Lob-table-space-spec:
>-TABLESPACE-+-+-----+lob-table-space-name-+-+-----+----->
          '-database-name-'                        '-CLONE-'

```

```

drain-spec:
  .-DRAIN_WAIT--IRLMRWT value-. .-RETRY--UTIMOUT value-.
>+-----+-----+-----+-----+-----+-----+----->
+>
  '-DRAIN_WAIT--integer-----' '-RETRY--integer-----' '-RETRY_DELAY-int-'

```

# COPY

```

                                     .-FULL--YES-----,
>>+--LIST--listdef-name--| data-set-spec |--+-----+----->
-----+----->
  |                                     +-FULL--NO-----+
  |                                     '-I changelimit-spec I-'
  |
  | .-----+-----+-----+-----+-----+-----+-----+-----+-----
-----+-----+
  | V                                     .-FULL--YES-----, .DSNUM--ALL-----,
  |                                     '-index-name-spec-' +-FULL--NO-----+ |
  '+--data-set-spec+-'                                     '-I changelimit-spec I-' '-DSNUM--integer-----'
>+-----+-----+-----+-----+-----+-----+----->
->
  '-PARALLEL-+-+-----+-----+-----+-----+-----+-----+-----'
          '-(num-objects)-' '-TAPEUNITS--(--num-tape-units--)-'

```

(2) .-SYSTEMPAGES--YES-.

```
>-+-----+-----+-----+-----+-----+----->
->
'-CHECKPAGE-'      '-SYSTEMPAGES--NO--'

>-+-----+-----+-----+-----+-----+----->
->< | .-NO----- | '-FLASHCOPY--+YES-----+--+-----+-----'
'-CONSISTENT-' '-FGCOPYDDN(ddname)-' Concurrent-spec: >>-+LIST--listdef-
name--data-set-spec-----+----->
 | .----- | |
 | V              .-DSNUM--ALL----- | |
 '---+table-space-spec--+--+-----+-----+-----+-----data-set-spec--+-'
   '-index-name-spec--' '-DSNUM--integer-----'

>-data-set-spec--FILTERDDN--(ddname)--CONCURRENT-----
->< Data-set spec: >>-+COPYDDN(+ddname1-----+--+-----+--+-----)-----
-----+--+----->< |           |           '-'
,ddname-' |   '-RECOVERYDDN(+ddname3--+-----+--+-----)-' |
 |           '-,ddname2-----' |           '-'
,ddname4-' |   |
 |           |           '-,ddname4-----
-----' |
   '-RECOVERYDDN(-|ddname3--+-----+--+-----)-----
-----'
           |           '-,ddname4-' |
           '-ddname4-----'
```

## COPYTOCOPY

```
>>-COPYTOCOPY----->
>-+LIST--listdef-name--from-copy-spec--data-set-spec-----+-----+----->
 | .----- | | '-CLONE-'
 | V              | |
 '---+ts-num-spec-----+--+from-copy-spec--data-set-spec--+-'
   '-index-name-spec--'
```

ts-num-spec:

```
           .-DSNUM--ALL-----.
>>-TABLESPACE--+-----+table-space-name--+-----+----->
   '-database-name.-'           '-DSNUM--integer--'
```

Index-name-spec:

```
           .-DSNUM-ALL-----.
>>-+INDEXSPACE-----+-----+index-space-name--+-----+----->
 |           '-database-name.-' | '-DSNUM-integer'
 '-INDEX--+-----+index-name-----'
```

'-creator-id.-'

From-copy-spec:

```
.-FROMLASTCOPY-----,
>>+-----+-----><
+-FROMLASTFULLCOPY-----+ +
FROMLASTINCRCOPY-----+ +
FROMLASTFLASHCOPY-----+ '-
FROMCOPY-----dsn--+-----+ '-
FROMVOLUME--+CATALOG-----+ '-volser--+-----+ '-
FROMSEQNO--n-' Data-set-spec >>+COPYDDN(+ddname1-----+--+)-+
-----+----->< | |
'-.ddname-' | '-RECOVERYDDN(+ddname3-----+--+)-' |
| '-.ddname2-----' | '-
,ddname4-' | |
| | '-.ddname4-----
-----' |
'-.RECOVERYDDN(-|ddname3-----+--+)-
-----'
| '-.ddname4-' |
'-.ddname4-----'
```

## DIAGNOSE

```
>>-DIAGNOSE--+diagnose statement+-----
->< '-END-----' Diagnose-statement: >>+-----+-----
----->
| .-,-----, |
| V | |
'-.TYPE(---integer-+-)-'
>+-----+-----+-----+-----
->
'-.ALLDUMPS+-----+-----'
| .-,-----, |
| V | |
'-(---X'abend-code'-+-)-'
>+-----+-----+-----+-----
->
'-.NODUMPS+-----+-----'
| .-,-----, |
| V | |
'-(---X'abend-code'-+-)-'
>+-----+-----+-----+-----
->< '-display statement-' '-wait statement-' '-abend statement-' Display-
```

```

statement: >>-DISPLAY-----
----->
>>+-OBD+-----+table-space-name+-----+-----+-----+-----+
->< | '-database-name.-' +-ALL-----+ '-CLONE-' | | +-TABLES--+ | | '-
INDEXES-' | +-SYSUTIL-----
-----+ +-MEPL-----+ +
AVAILABLE-----+ '-DBET+
DATABASE--database-name-----+-----+-----+-----+ '-TABLESPACE+
-----+table-space-name+ '-CLONE-' | '-database-name.-' | '-INDEX--
index-name-----' Wait-statement: .-----
-----, V | >>-WAIT----+MESSAGE--message-id--+
-----+-----+----->< | '-INSTANCE--integer-' | '-
TRACEID--+X'trace-id'+-----+-----+ '-integer-----' '-INSTANCE-
-integer-' Abend-statement: >>-ABEND--+MESSAGE--message-id--+-----
-----+-----+----->< | '-INSTANCE--integer-'
| '-NODUMP-'
      '-TRACEID--+X'trace-id'+-----+-----+
      '-integer-----' '-INSTANCE--integer-'

```

## EXEC SQL

```

>>-EXEC--SQL--+declare-cursor-spec-----+---ENDEXEC-----
->< '-non-select dynamic SQL statement-' Declare-cursor-spec: >>-DECLARE--
cursor-name--CURSOR--FOR--select-statement-----><

```

## LISTDEF

```

          .----- .
          V           I
>>-LISTDEF--list-name-----list-options-----
->

```

List-options:

```

>>+INCLUDE+-----+LIST-ref-list+-----+-----+-----+
+>
  'EXCLUDE' |           | '-init-obj-spec-' 'CLONED--+YES--+''-RI-' +-ALL--+
           '-type-spec-'           '-NO--'           +-BASE+
                                           +-LOB+
                                           '-XML-'

```

```

      .-DEFINED YES-.
>>+-----+-----+-----+-----+-----+-----+-----+-----+
->
      +-DEFINED NO--+ +-HISTORY+
      '-DEFINED ALL-' '-ARCHIVE-'
>>+-----+-----+-----+-----+-----+-----+-----+-----+

```

```
->< '-BASIC--+-NO--+-' '-EXTENDED--+-NO--+-' '-YES-' '-YES-' Init-obj-spec
>>+-DATABASE--database-name+-----+-----
->< +-table-space-spec-----+ '-PARTLEVEL--+------+' +-index-space-spec-----
-----+ '-(n)-' +-table-spec-----+ +-index-spec-----+ Table-
space-spec: TABLESPACE--+------+--table-space-name-----
----->< '-database-name.-' Index-space-spec: >>-INDEXSPACE--+------
-----+-index-space-name----->< '-database-name.-'
Table-spec: >>-TABLE--+------+--table-name-----
----->< '-creator-id.-' Index-space: >>-INDEX--+------+--index-
name----->< '-creator-id.-'
```

## LOAD

```
      .-DATA-.  .-INDDN--SYSREC-----,
>>-LOAD--+------+--+-----+-----+-----+-----+----->
      +-INDDN--ddname-----+ '-PREFORMAT-'
      +-INCURSOR--cursor-name+
                                     .-PRESORTED--NO--.
>+-----+-----+-----+-----+-----+----->
  |          .-1-----, | '-PRESORTED--YES-'
  '-COPYDICTIONARY--+-integer+-'

>+-----+-----+-----+-----+-----+----->
  '-PARALLEL--+------+' '-ROWFORMAT--+-BRF--+'
      '-(num-subtasks)-'          '-RRF-'

>+-----+-----+-----+-----+-----+----->
  '-RBALRSN_CONVERSION--+-NONE-----+'
      +-BASIC-----+
      '-EXTENDED-'

>--| flashcopy-spec |--+-----+-----+-----+----->
      '-KEEPDICTIONARY-' '-REUSE-'

      .-LOG--YES-----,
>+-----+-----+-----+-----+-----+----->
  '-LOG--NO--+------+'
      '-NOCOPYPEND-'

      (1)
      .-SORTKEYS--0-----,          .-FLOAT(S390)-.
>+-----+-----+-----+-----+-----+----->
  +-SORTKEYS--NO-----+          '-FLOAT(IEEE)-'
  '-SORTKEYS--integer-'
```



```

.-EBCDIC-.
>--+-----+--+-----+--+-----+--+-----+----->
+-ASCII---+ |          ,--.,-----, | '-NOSUBS-'
'-UNICODE-' |          V          | |
          '-CCSID(---integer+-)-'

.-ENFORCE-CONSTRAINTS-. .-ERRDDN--SYSERR-.
>--+-----+--+-----+--+-----+----->
'-ENFORCE--NO-----' '-ERRDDN--ddname-'

.-MAPDDN--SYSMAP-. .-DISCARDN--SYSDISC-.
>--+-----+--+-----+--+-----+----->
'-MAPDDN--ddname-' '-DISCARDN--ddname--'

.-DISCARDS--0-----,
>--+-----+--+-----+--+-----+----->
'-DISCARDS--integer-' '-SORTDEVT--device-type-'

>--+-----+--+-----+--+-----+----->
'-SORTNUM--integer-'

>--+-----+--+-----+--+-----+----->
'-CONTINUEIF(start+-----+)=--X'byte-string'-----+-'
          '-:end-'      '-'character-string'-'

>--+-----+--+-----+--+-----+----->
'-IGNORE(WHEN)-' '-| decfloat-spec |-'

>--+-----+--+-----+--+-----+----->
'-| override-spec |-'

.-INDEXDEFER--NONE-----,
>--+-----+--+-----+--+-----+----->
'-INDEXDEFER--NPI+--+-----+-'
          '-ALL-'      '-NONUNIQUE-'

>--+-----+--+-----+--+-----+----->
'-IMPLICIT_TZ-'timezone-string'-'

.-----,
V          |
>----| INTO-TABLE-spec |----->< Resume-
spec: .-RESUME--NO-. .-SHRLEVEL-NONE-. >--+-----+--+-----+
+-----+--+-----+--+-----+--+----->< | '-REPLACE-' 'copy-spec' '-stats-'
| | .-BACKOUT--NO-----, .-SHRLEVEL--NONE---, | '-RESUME--YES---+-----
-----+--+-----+--+-----+--+-----' | .-YES-. | '-SHRLEVEL--CHANGE-' '-
BACKOUT--+-----+-' Labelled-duration-expression >--+CURRENT_DATE-----

```

```
-----+----->
'-CURRENT_TIMESTAMP-+-----+-'
      '-WITH TIME ZONE-'

          .----- .
          V                                     |
>-----+ + -+--constant--+YEAR-----+>< '- - -' +
YEARS-----+ +MONTH-----+ +MONTHS-----+ +DAY-----+ +DAYS-----
-----+ +HOUR-----+ +HOURS-----+ +MINUTE-----+ +MINUTES-----+
SECOND-----+ +SECONDS-----+ +MICROSECOND--+ +MICROSECONDS--+ Workddn-
spec: .-WORKDDN(SYSUT1,SORTOUT)----- . >>+-----
-----+----->
'-WORKDDN--+-(ddname1,ddname2)-----+'
      |           .-,SORTOUT-. |
      +- (ddname1+-----+)-+
      |     .-SYSUT1-. |
      '-(-+-----+,ddname2)--'

Copy-spec:
>>+-----+----->
      |           .-(SYSCOPY)----- |
      '-COPYDDN+-----+'
      +- (ddname1+-----+)-+
      |           '-,ddname2-' |
      '-(,ddname2)-----'

>+-----+----->< '-
RECOVERYDDN(ddname3+-----+)-' '-,ddname4-' Flashcopy-spec: .-
FLASHCOPY--NO----- . >>+-----
-----+----->< '-FLASHCOPY--+
YES-----+--+-----+' '-CONSISTENT-' '-
FCCOPYDDN--(--template-name--)-' Stats-spec: >>-STATISTICS-----
-----+--+----->
      '-| stat-table-spec |-' '-| stat-index-spec |-'

      .-REPORT--NO-- . .-UPDATE--ALL-----
>+-----+-----+----->
      '-REPORT--YES-' '-UPDATE--+ACCESSPATH+-'
      +-SPACE-----+
      +-NONE-----+

      .-INVALIDATECACHE-NO-- .
>+-----+-----+----->
      '-INVALIDATECACHE YES-' '-HISTORY--+ALL-----+'
      +-ACCESSPATH+
      +-SPACE-----+
      '-NONE-----'
```



```

-----+ +-INTERNAL-----
-----+ | .-COLDEL--','----- .-
CHARDEL--'"----- .-DECPT--'.'----- | +-DELIMITED-----+-----+-----
-----+-----+-----+ | '-COLDEL--coldel-' '-CHARDEL--chardel-'
'-DECPT--decpt-' | '-SPANNED--+-YES+------
-----' '-NO--' Decfloat-spec: >-----
-----+----->
'-DECFLOAT_ROUNDMODE--+-ROUND_CEILING---+-'
      +-ROUND_DOWN-----+
      +-ROUND_FLOOR-----+
      +-ROUND_HALF_DOWN--+
      +-ROUND_HALF_EVEN--+
      +-ROUND_HALF_UP---+
      '-ROUND_UP-----'

```

Override-spec:

```

      V-----
>>-OVERRIDE--(-----+SYSTEMPERIOD-----+-----)----->< +-
IDENTITY-----+ +-TRANSID-----+ '-NONDETERMINISTIC-' INTO-TABLE-spec:
>>-INTO--TABLE--table-name--+------+-----+-----+----->
      'PERIODOVERRIDE-' '-TRANSIDVERRIDE-'
      .-IGNOREFIELDS--NO--.
>+-----+-----+-----+----->
      '-IGNOREFIELDS--YES-'

>+-----+-----+-----+-----
-----+>
      |                                     .-INDDN -SYSREC-----
----- |
      '-PART--integer--+------+--resume-spec--+------+-----
-----+'
      'PREFORMAT-'                                     +-INDDN-ddname--+------
-----++
DISCARD--ddname-' |                                     |
      'INCURSOR--cursor-name-----
-----'
>+-----+-----+-----+-----
----->
      '-NUMRECS--integer-' 'WHEN--+-SQL/DS='table-name'-----+-'
      'field selection criterion-'

>+-----+-----+-----+-----
----->< | .-,-----, | | V | | '-(---field specification--)-'
>+-----+-----+-----+-----
----->< | .-,-----, | | V | | '-(---field specification--)-'
Resume-spec: .-RESUME--NO-----, >>-----+-----+-----
-----+----->

```

```
|          '-REPLACE--+-----+--+-----+' |
|          '-REUSE-' '-copy-spec-' |
| '-RESUME--YES-----'
```

```
>--+-----+----->< '-
KEEPDICTIONARY-' Field selection criterion: >>+field-name-----+-----+
X'byte-string'----->< '-(start+-----+)-' +-'character-
string'+ '-:end-' +G'graphic-string'--+ +N'graphic-string'--+ Field
specification: >>-field-name-spec----->
```

```
>+-----+-----
----->
```

```
+CHAR--+-----+-----
```

```
| +-BIT-(length)-strip-spec-----+
```

```
| +-CCSID 1208-strip-spec-----+
```

```
| +-MIXED--strip-spec-----+
```

```
| +-BLOBF--+-----+--+-----+
```

```
| | '-PRESERVE WHITESPACE-' '-BINARYXML-' |
```

```
| +-CLOBF--+-----+--+-----+
```

```
| | '-MIXED-' '-PRESERVE WHITESPACE-' '-CCSID 1208-' |
```

```
| '-DBCLOBF--+-----+--+-----'
```

```
| | '-PRESERVE WHITESPACE-' '-CCSID 1200-' |
```

```
+VARCHAR--+-----+-----
```

```
strip-spec+
```

```
| +-BIT-----+
```

```
| +-CCSID 1208-----+
```

```
| +-MIXED-----+
```

```
| +-BLOBF--+-----+--+-----|
```

```
| | '-PRESERVE WHITESPACE-' '-BINARYXML-' |
```

```
| +-CLOBF--+-----+--+-----+
```

```
| | '+-----+--+-----'
```

```

|
|           |           '-MIXED-' '-PRESERVE WHITESPACE-' '-CCSID 1208-'
|
|           '-DBCLOBF'+-----+-----+-----+-----+'
|
|           '-PRESERVE WHITESPACE-' '-CCSID 1200-'
|
+-GRAPHIC+-----+-----+strip-spec+-----+-----+
-----+
|           '-EXTERNAL-' '-(length)-'           '-CCSID 1200-'
|
+-VARGRAPHIC--strip-spec--+-----+-----+-----+-----+
-----+
|
|           '-CCSID 1200-'
|
+-SMALLINT-----+-----+-----+-----+-----+
-----+
+-INTEGER+-----+-----+-----+-----+-----+
-----+
|           '-EXTERNAL'+-----+-----+'
|
|           .-(length)-'
|
+-BIGINT-----+-----+-----+-----+-----+
-----+
+-BINARY+-----+strip-spec-----+-----+-----+
-----+
|           '-(length)-'
|
+-+VARBINARY-----+strip-spec-----+-----+-----+
-----+
| '-BINARY VARYING-'
|
+-decimal-spec-----+-----+-----+-----+-----+
-----+
+-FLOAT+-----+-----+-----+-----+-----+
-----+
|           '-EXTERNAL-' '-(length)-'
|
+-DATE--EXTERNAL--+-----+-----+-----+-----+
-----+
|           '-(--+length-----+)-'
|
|           '-date-format-'
|
+-TIME--EXTERNAL--+-----+-----+-----+-----+
-----+

```

```

|          '-(--length-----+)-'
|
|          '-timestamp-format-'
|
+-TIMESTAMP-WITH-TIME-ZONE--EXTERNAL--+-----+-----+-----+
-----+
|          '-(length)-'
|
+-ROWID-----+
-----+
+-BLOB-----+
-----+
+-CLOB-----+-----+-----+
-----+
|          '-MIXED--+-----+-'
|
|          '-CCSID 1208-'
|
+-DBCLOB-----+-----+-----+
-----+
|          '-CCSID 1208-'
|
|          .-(34)-----,
|
+-DECFLOAT-----+-----+-----+
-----+
|          +--(16)-----+
|
|          '-EXTERNAL--+-----+-'
|
|          '-(length)-'
|
'-XML-----+-----+-----+-----+-----+-----+-----+
-----+'
          '-PRESERVE WHITESPACE-' '-BINARYXML-'

>-----+-----+-----+-----+-----+-----+-----+----->< +-NULLIF--
field selection criterion----+ '-DEFAULTIF--field selection criterion-' Field
name spec: >>-field-name--+-----+-----+-----+-----+-----+-----+
-->< +-POSITION(start+-----+)------+ | '-:end-' | '-CONSTANT(--+
'string'-----+)-' +-X'hex-string'-----+ +-integer-----+ +-CURRENT
DATE-----+ +-CURRENT TIME-----+ +-CURRENT TIMESTAMP+ '-NULL-----+'
Strip-spec: >>+-----+-----+-----+-----+-----+-----+-----+
----->
|          .-BOTH ----, |
'-STRIP-----+-----+-----+-----+-----+-----+-----+'

```





```
> +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
   '-DSNUM--integer-' '-CLONE-'
> +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
   '-DELETDS-' '-NOCOPYPEND-'
> +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----><
|           +-AGE--integer-+++ |
|           |           '-(*)-----' |           |
|           '-DATE--integer--+' |           |
|           '-(*)-----' |           |
'-RETAIN---+--LAST--(--integer-)------+----'
          +-LOGLIMIT-----+
          '-GDGLIMIT-----+'
                   +-LAST--(--integer--)-+
                   '-LOGLIMIT-----'
```

## MODIFY STATISTICS

```
>> -MODIFY--STATISTICS----->
> +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
   +-TABLESPACE--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
   |           '-database-name.-' |           |
   +-INDEXSPACE--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
   |           '-database-name.-' |           |
   '-INDEX--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----'
           '-creator-id.-'
> -DELETE--ALL-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----><
+-ACCESSPATH+ |           '-(*)-----' |
           '-SPACE-----' '-DATE--(integer)--+'
                   '-(*)-----'
```

## OPTIONS

```
>> -OPTIONS----->
> +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----><
| '-PREVIEW-' '-LISTDEFD-ddname-' '-TEMPLATEDD-ddname-' '-event-spec-' | +-
OFF-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-key-value-----' Event-spec
.-ITEMERROR,HALT-. .-WARNING,RC4-. >>-EVENT--(--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----)-----< '-ITEMERROR,SKIP-' '-,-' +-WARNING,RC0+
                   +-WARNING,RC8-'
```



```

.-SCOPE--ALL-----.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-SCOPE--PENDING-' '-REUSE-' '-SORTDEVT--device-type-'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-SORTNUM--integer-' '-stats-spec-'

.-FLASHCOPY--NO-----
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-->
'-FLASHCOPY--+-YES-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
'-CONSISTENT-' '-FCCOPYDDN--(--template-name--)-'

.-PARALLEL--(0)-----
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-->
'-PARALLEL--(--num-subtasks--)-'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-->
'-RBALRSN-CONVERSION--+-NONE-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+-BASIC-----+
'-EXTENDED-'

```

### Table-space-spec

```

>>-TABLESPACE--+------+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
'-database-name.-'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+<-
PART-integer-' Change-spec: .-MAXRO--integer-. .-LONGLOG--CONTINUE-. >>+-----
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
'-MAXRO--DEFER---' +-LONGLOG--TERM-----+
'-LONGLOG--DRAIN----'

.-DELAY--1200----.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+<-
integer-' Drain-sec: .-DRAIN_WAIT--IRLMRWT value-. .-RETRY--UTIMOUT value-.
>>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
'-DRAIN_WAIT--integer-----' '-RETRY--integer-----'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+<-
RETRY_DELAY--integer-' Stats-spec: .-REPORT--NO--. >>-STATISTICS--+------
---+---correlation-stats-spec----->

```

'-REPORT--YES-'

```
.-UPDATE-ALL-----,.-INVALIDATECACHE NO--.  
>+-----+-----+-----+-----+----->  
'-UPDATE--ACCESSPATH+' '-INVALIDATECACHE YES-'  
+-SPACE -----+  
'-NONE-----'  
  
>+-----+-----+-----+-----+-----< '-  
HISTORY--ALL-----+' '-FORCEROLLUP--YES--+' +ACCESSPATH+ '-NO--' +  
SPACE -----+ '-NONE-----' Correlation-stats-spec: .-KEYCARD-----, >+-----  
-----+-----+-----+-----+----->
```

```
.-FREQUAL--NUMCOLS--1--COUNT--10-----.  
>+-----+-----+-----+-----+----->  
| .-----+-----+-----+-----+-----|  
| V |-----+-----+-----+-----+-----| |  
'---FREQUAL--NUMCOLS--integer-----+-----+-----+'  
|-----+-----+-----+-----+-----|  
|-----+-----+-----+-----+-----| .-MOST--. |  
'-COUNT--integer-----+-----+-----+'  
|-----+-----+-----+-----+-----| +-BOTH--+  
|-----+-----+-----+-----+-----| '-LEAST-'
```

```
.-NUMCOLS--1--NUMQUANTILES--100-----.  
>--HISTOGRAM--+-----+-----+-----+-----+-----< |  
. -NUMQUANTILES--100-----, |  
| -NUMCOLS--integer-----+-----+-----+'  
|-----+-----+-----+-----+-----|  
|-----+-----+-----+-----+-----| '-NUMQUANTILES--integer-'
```

## RECOVER

```
>>-RECOVER-----  
->  
>+---LIST-listdef-name-----+---list-options-spec-----  
->  
| | .-----+-----+-----+-----+-----| |  
| | V |-----+-----+-----+-----+-----| |  
| '---object-----+-----+-----+' |  
| |-----+-----+-----+-----+-----| |  
| |-----+-----+-----+-----+-----| |  
+-object--+-----+-----+-----+-----+-----+ recover-options-spec-----+  
| |-----+-----+-----+-----+-----| |  
'-object--PAGE--page-number-----+-----+-----+'  
|-----+-----+-----+-----+-----|  
|-----+-----+-----+-----+-----| '-CONTINUE-'  
|-----+-----+-----+-----+-----| .-LOGRANGES--YES-----.
```



```
-->
'-REUSE-' '-CURRENTCOPYONLY-' '-ENFORCE--NO--'

>+-----+----->
'-NOSYSCOPY--+-'
      +-INLCOPY-+
      '-FCCOPY--'

>+-----+----->
FLASHCOPY_PRCP--+-NO-----+ '-PMNO--+ +-PMPREF-+ '-PMREQ -' Image-copy-
spec: >>-TOVOLUME-+-CATALOG-----+-----> '-
vol-ser-+-----+-----'
      '-TOSEQNO--integer-'
```

## REORG INDEX

```
>>-REORG--+-INDEX--LIST--listdef-name-+-----+----->
      '-index-name-spec-----' '-REUSE-' '-CLONE-'

      .-SHRLEVEL NONE-----.

>+-----+----->
'-SHRLEVEL-+-REFERENCE--deadline-spec--drain-spec-----+-'
      '-CHANGE--deadline-spec--drain-spec--change-spec-'

      .-FASTSWITCH YES----.

>+-----+----->
'-FASTSWITCH NO-----'

      .-FORCE--NONE----.

>+-----+----->
'-LEAFDISTLIMIT-+-----+-----+ '+FORCE--READERS-+
      '-integer-' '-REPORTONLY-' '-FORCE--ALL----'

      .-UNLOAD--CONTINUE-----.

>+-----+----->
'-UNLOAD--+-PAUSE-----+ '-stats-spec-----'
      '-ONLY-----'
      .-WORKDDN--(SYSUT1)-.

>+-----+----->
'-WORKDDN--(ddname)-' '-PREFORMAT-'

>+-----+----->
| .-NO-----| '-FLASHCOPY--+-YES-----+-----+ '-
CONSISTENT-' '-FCCOPYDDN(ddname)-' >+-----+-----+
-----> '-RBALRSN_CONVERSION--+-NONE-----+ '+
BASIC-----+ '-EXTENDED-' Index-name-spec >>+INDEX-+-index-
name----->
```



```

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
    '-UPDATE--+ACCESSPATH+' '-HISTORY--+ALL-----+'
      +-SPACE-----+             +-ACCESSPATH+
      '-NONE-----+'             +-SPACE-----+
                                   '-NONE-----+'
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->< '-FORCEROLLUP--+YES+' '-NO--' Correlation-stat-spec .-FREQVAL--
NUMCOLS--1--COUNT--10-----, >>+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----, | | V | '-----FREQVAL--NUMCOLS--integer--
COUNT-integer-+-' .-NUMCOLS--1--NUMQUANTILES-100-----, >--
HISTOGRAM--+-----+-----+-----+-----+-----+-----+-----+
          |
          .-NUMQUANTILES--100-----, |
          '-NUMCOLS--integer--+-----+-----+-----+-----+
                                   '-NUMQUANTILES--integer-'

```

## REORG TABLESPACE

```

>>-REORG-TABLESPACE-----
->
                    .-PARALLEL-YES-.
>+-LIST-listdef-name+-----+-----+-----+-----+-----+-----+-----+-----+-----+----->
|                        '-PARALLEL-NO--'                                |
'-----+-----+table-space-name+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
  '-database-name.-'                                |            .-,-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
                                                     |            V                               ||
                                                     '-PART---+integer-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
                                                         '-integer1:integer2-'
                    .-SCOPE ALL-----
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
    '-CLONE-' '-REUSE-' '-SCOPE PENDING-'
                    _DROP PART NO_
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
    |                        .-SORTCLUSTER--NO--. |                    }_DROP PART YES_|
    '-REBALANCE--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      '-SORTCLUSTER--YES-'
                    .-YES-.
.-LOG--YES-. .-SORTDATA--+NO--+-.

```









```

->< '-HISTORY--+-ALL-----+' '-FORCEROLLUP--+-YES--+' '+ACCESSPATH--+' '-NO-
-' '+SPACE-----+' '-NONE-----' Stat-table-spec .-TABLE--(--ALL--)-. >>+--+
-----+--+-----+--+-----+--+-----+--+>< | '-SAMPLE--
integer-' '-USE PROFILE-' | | .-----+-----+-----+-----+-----+-----
-----, | | V | | '----TABLE--(--table-name--)--+------+--+-----
-' '-| table-stats-spec |-' Table-stats-spec .-COLUMN--ALL-----
. >>+-----+--+-----+-----+-----+-----+----->
      '-SAMPLE--integer-' |                      .,-----, |
                        |                      V          | |
                        '-COLUMN--(----column-name+--)-'

>+-----+-----+-----+-----+-----+-----+>< | .,,-
-----+-----+-----+-----+-----+-----, | | | .,-----
. | | | V V | | | +---COLGROUP--(----column-name+--)-| colgroup-stats-spec
|+--+ '-USE PROFILE-----'
Colgroup-stats-spec: >>+-----+-----+-----+-----+-----
----->
      '-FREQVAL--+------+-----+'
          |                      .-MOST--. |
          '-COUNT--integer-----+-----+'
                      +-BOTH--+
                      '-LEAST-'

>+-----+-----+-----+-----+-----+----->< | .-
NUMQUANTILES--100-----, | '-HISTOGRAM--+------+-----+' '-
NUMQUANTILES--integer-' Stat-index-spec .-INDEX--(--ALL--)-. >>+--+-----
-----+--+| correlation-stats-spec |-----+--+>< | .,-----
-----+-----, | | V | | '-INDEX--(----index-name--| correlation-stats-
spec |+--)-' Correlation-stats-spec: .-KEYCARD-----, >>+-----+-----
-----+----->

      .-FREQVAL--NUMCOLS--1--COUNT--10-----,
>+-----+-----+-----+-----+-----+-----+>
| .-----+-----+-----+-----+-----, |
| V                                           | |
'---FREQVAL--NUMCOLS--integer-----+-----+-----+'
                        |                      .-MOST--. |
                        '-COUNT--integer-----+-----+'
                                +-BOTH--+
                                '-LEAST-'

      .-NUMCOLS--1--NUMQUANTILES--100-----,
>--HISTOGRAM--+------+-----+-----+-----+----->
      |                      .-NUMQUANTILES--100-----, |
      .-NUMCOLS--integer-----+-----+-----+'
                        '-NUMQUANTILES--integer-'

```

FROM-TABLE spec

```
>>-FROM--TABLE--table-name-----
->
>+-----+
->< '-WHEN--(--selection-condition-spec--)' Selection-condition spec >>+-
predicate----->
  '-selection condition-'
  .-----
  V                               I
>+-----+-----+-----><
'-+AND+--+predicate-----+' '-OR--' '-selection condition-'
Predicate >>+-basic predicate-----
----->< +BETWEEN predicate+ +IN predicate-----+ +LIKE predicate-----+
'-NULL predicate----' Basic predicate >>-column-name--+ = --+-----
----->
      +- <> +-
      +- > --+
      +- < --+ +- >= +-
      '- < = -' >--+constant-----+-----
----->< '-labeled-duration-expression-' Between predicate
>>-column-name--+-----+BETWEEN----->
      '-NOT-'
>+-----+-----AND----->
  '-labeled-duration-expression-'
>+-----+-----><
'-labeled-duration-expression-' IN predicate .,-----, V I >>-column-name-
+-----+IN--(--constant+)------>< '-NOT-' LIKE
predicate >>-column-name--+-----+LIKE--string-constant-----
----->
      '-NOT-'
>+-----+-----><
'-ESCAPE--string-constant-' NULL predicate >>-column-name--IS--+-----+NULL-
----->< '-NOT-' Reorg tablespace options
.-UNLDDN--SYSREC-. >>+-----+-----+-----+-----
----->
  '-UNLDDN--ddname-' '-SORTDEVT--device-type-'
>+-----+-----+-----+-----+----->
  '-SORTNUM--integer-' '-PREFORMAT-' '-ROWFORMAT--BRF-'
                                     | -RRF- |
>+-----+-----+-----><
'-RBALRSN_CONVERSION--NONE-----+'
      +-BASIC-----+
      '-EXTENDED-'
```



name.-'

## REPORT

```
>>-REPORT----->
                                .-INDEX NONE-.
>-+-RECOVERY+-TABLESPACE+-LIST-listdef-name---++-----++-----><
| | '-tablespace-name-spec' '-INDEX ALL-' | 'info' | | '-index-list-spec-----
-----' | '-TABLESPACESET-----+---table-space-
name-spec--+------+' '-TABLESPACE-' '-SHOWSNS-' Index-list-spec >>+-
INDEXSPACE--++-----+---index-space-name++----->< | |
'-database-name.-' | | | '-LIST-listdef-name-----' | '-INDEX--
+------+---index-name+-----' | '-creator-id.-' | '-LIST--
listdef-name-----' Info-options .-DSNUM--ALL----- . >>+-----+
+-----+-----+----->
    '-DSNUM--integer-' '-CURRENT-' '-SUMMARY-'
                                .-ARCHLOG--1----- .
>-+-----+-----+-----+-----+-----><
'-LOCALSITE-' '-RECOVERYSITE-' '-ARCHLOG--++2---+' '-ALL-' Table-space-name-
spec >>+-----+---table-space-name-----
--->< '-database-name.-'
```

## RESTORE SYSTEM

```
>>-RESTORE SYSTEM----->
>-+-| non-LOGONLY spec |----->< '-
LOGONLY--+------+-----+' '-SWITCH VCAT--
+-----+-----+' '-SYSVALUEDDN(ddname)-' Non-LOGONLY spec >>+-
----->
    '-ALTERNATE_CP(copy-pool)-'
>-+-----+----->
    '-RESTOREBEFORE-- X'byte-string'-'
>-+-----+----->
+-FROMDUMP+------++-----++-----++
|           '-DUMPCLASS-(dcl)-''-RSA-(key-label)-''-TAPEUNITS+-----+-'
|                                           'units' |
'-FLASHCOPY_PPRCP--+-NO-----+-----+'
      +-PMNO---+
      +-PMPREF+
      '-PMREQ -'
```

# RUNSTATS

```
>>-RUNSTATS--TABLESPACE--+-| listdef-spec |-----+----->
      '-| table-space-spec |-'

      .-| statistics-spec |-.
>--+-----+----->< '-|
reset-spec |-----' Listdef-spec .-INVALIDATECACHE NO--. >>-LIST--listdef-
name--+-----+----->< '-INVALIDATECACHE
YES-' Table-space-spec >>--+-----+-----table-space-name-----
----->
      '-database-name.-'

>--+-----+----->
      |                .-FORCEROLLUP--NO--. |
      '-PART--integer--+-----+-----'
                '-FORCEROLLUP--YES-'

      .-INVALIDATECACHE NO--.
>--+-----+----->< '-
INVALIDATECACHE YES-' Statistics-spec >>--+-----+-----
----->
      |                .-(ALL)-.                |
+TABLE-----+-----+--| all-tables-spec |-----+
      | .-,-----, |
      | V                | |
      '---TABLE-----table-name--| named-tables-spec |+-'

>--+-----+----->
      '-+-INDEX-----(--ALL--)--| correlation-stats-spec |-----+-'
      +-INDEX--(--*-----)--| correlation-stats-spec |-----+
      |                .-,-----, |
      |                V                | |
      '-INDEX--(----index-name--| correlation-stats-spec |+---)-'
                .-REGISTER--YES-.
      .-SHRLEVEL--CHANGE --+-----+--.
      |                '-REGISTER--NO--' | .-REPORT--NO--.
>--+-----+-----+----->
      '-SHRLEVEL--REFERENCE-----' '-REPORT--YES-'

      .-UPDATE--ALL-----,
>--+-----+-----+-----| history-spec |----->
      '---UPDATE--+-ACCESSPATH+---'
                +-SPACE-----+
                '-NONE-----'

>--+-----+----->< '-SORTDEVT-
```



```

-device-type- ' All-tables-spec >>---+ | sample-spec |---+-----
-+-+----->< | '-| use-profile-spec |-' | '-DELETE PROFILE-----
-----' Named-tables-spec >>---+ | sample-spec |-----+ | column-
spec |---+-----+-----+----->< | | '-| colgroup-spec |-' | | | | |
| '----| use-profile-spec |-----' | + | column-spec |---+-----
-----+-----+-----+-----+-----+ | '-| colgroup-spec |-' | | | |
'-| set-profile-spec |-----' | | | '-DELETE PROFILE-----
-----' Sample-spec >>---+-----
-----+----->< | .-25-----, | + -SAMPLE---+-----
+-----+ | '-integer-' | | .-AUTO-----
-----, | '-TABLESAMPLE SYSTEM---+ numeric-literal---+-----+
' '-REPEATABLE-integer-' Use-profile-spec >>---USE PROFILE-----
-----+----->< '-INCLUDE---+ (NPI)---+ ' '-NPI---' Column-spec:
.-COLUMN--(--ALL--)------, >>---+-----
+----->
| .,-----, |
| V | |
'-COLUMN--(--column-name-----+--)-'

>---+-----+----->< '-SORTNUM--
integer-' Colgroup-spec: .-----
----, | .,-----, | V V | | >>---COLGROUP--(--column-name---+---|
colgroup-stats-spec |--->< Colgroup-stats-spec: >>---+-----
-----+----->
'-FREQVAL +-----+-'
| .-MOST--, |
'-COUNT--integer-----+-----+-'
+-BOTH--+
'-LEAST-'

>---+-----+----->< | .-
NUMQUANTILES--100-----, | '-HISTOGRAM---+-----+-' '-
NUMQUANTILES--integer-' Correlation-stats-spec: >>---+-----+-----
----->
'-KEYCARD-----'

,-----,
V .-FREQVAL -NUMCOLS--1--COUNT--10--MOST-----, |
>---+-----+-----+----->
'-FREQVAL -NUMCOLS--integer-----+-----+-'
| .-MOST--, |
'-COUNT--integer-----+-----+-'
+-BOTH--+
'-LEAST-'

,-----,
V |

```





```
.-FILEDATA--RECORD--RECFM--VB--LRECL--32756-----.
```

```
>+-----+----->
```

```
'-FILEDATA--+-TEXT---+-RECFM--+-VB-+-LRECL--int-'
```

```
      '-BINARY-'           +-V--+
```

```
                                 +-FB-+
```

```
                                 '-F--'
```

```
.-PATHOPTS--(-+-ORDONLY-----+--)-.
```

```
|                '-OCREAT,OWRONLY-----'      |
```

```
>+-----+----->
```

```
|                .,-----,                |
```

```
|                V .-ORDONLY---. |            |
```

```
'-PATHOPTS--(----+-OCREAT-----+---)-'
```

```
              +-OWRONLY---+
```

```
              '-ONONBLOCK-'
```

```
.-PATHMODE--(SIRUSR)-----.
```

```
>+-----+----->
```

```
|                .,-----,                |
```

```
|                V                |      |
```

```
'-PATHMODE--(----+-SIRUSR-+-+---)-'
```

```
              +-SIWUSR-+
```

```
              +-SIXUSR-+
```

```
              +-SIRWXU-+
```

```
              +-SIRGRP-+
```

```
              +-SIWGRP-+
```

```
              +-SIXGRP-+
```

```
              +-SIRWXG-+
```

```
              +-SIROTH-+
```

```
              +-SIWOTH-+
```

```
              +-SIXOTH-+
```

```
              +-SIRWXO-+
```

```
.-PATHDISP--(KEEP,KEEP)-----.
```

```
>+-----+----->< '-PATHDISP-
```

```
-(-+-KEEP---+-,-+-KEEP---+-)-'
```

```
'-DELETE-'      '-DELETE-'
```

## UNLOAD

```
          .-----.
```

```
          V                |
```

```
>>-UNLOAD--+-DATA--from-table-spec-----+-----+----->>
```

```
-->
```

```
|                '-from-table-spec-'      |
```





```

--+ | '-BINARY VARYING-' | +-strip-spec-----
-----+ | .-PACKED---. | +-DECIMAL--+-----+--+-----
-----+-----+ | +-ZONED-----+ | .-,0-----. | | | '-EXTERNAL-' '-
(length)-+-----+)-' | | '-,scale-' | +-FLOAT+-----+-----+-----
-----+ | '-EXTERNAL-' '-(length)-' | +-DOUBLE-----
-----+ +-REAL-----
-----+ +-DATE--EXTERNAL--+-----+-----
-----+ | '-(length)-' | +-TIME--EXTERNAL--+-----
-----+ | '-(length)-' | +-TIMESTAMP--
EXTERNAL--+-----+-----+ | '-(length)-' | +-
TIMESTAMP WITH THE ZONE EXTERNAL-----+-----+-----+ | '-
(length)-' | +-CONSTANT--+-'string'-----+-----
--+ | '-X'hex-string-' | +-ROWID-----
-----+ +-BLOB+-----+-----+-----+-----
-----+ | '-(length)-' '-TRUNCATE-' | +-CLOB+-----+-----+-----+-----
-----+ | '-(length)-' '-TRUNCATE-' | +-DBCLOB+-----
--+-----+-----+ | '-(length)-' '-TRUNCATE-'
| | .-(34)-----, | +-DECFLOAT--+-----+-----+-----
-----+ | +-(16)-----+ | | '-EXTERNAL--+-----
--+ | | '-(length)-' | '-XML--+-----+-----+-----
-----' '-BINARYXML-' Strip spec >>+-----+-----
-----+----->
| .-BOTH----. |
'-STRIP--+-----+-----+-----+'
+-TRAILING--+ | |
'-LEADING--' +- 'strip-char'-----+
'-X'strip-char'-----'

```

### Selection-condition spec

```

>>+-predicate-----+-----+-----+-----+-----
->
'-selection condition-'
.-----,
V |
>-----+-----+-----+-----+-----+-----+-----
->< '-+AND+--+predicate-----+' '-OR--' '-selection condition-'
Predicate >>+-basic predicate-----+-----+-----+-----+-----
----->< +-BETWEEN predicate+ +-IN predicate-----+ +-LIKE predicate-----+
+-NULL predicate-----+ Basic predicate >>-column-name--+ = --+-----+-----
----->
+- <> -+
+- > --+
+- < --+ +- >= -+
'- < = -' >--+constant-----+-----+-----
----->
'-labeled-duration-expression-'

```

## IN predicate

```

      .,-----,
      V           I
>>-column-name--+-----+--IN--(---constant+--)------><
'-NOT-' LIKE predicate >>-column-name--+-----+--LIKE--string-constant-----
----->
      '-NOT-'
>+-----+-----+-----><
'-ESCAPE--string-constant-' NULL predicate >>-column-name--IS--+-----+--NULL-
----->< '-NOT-' Labeled-duration-
expression >>+--CURRENT_DATE-----+-----
----->
      '-CURRENT_TIMESTAMP-----+--'
      '-WITH TIME ZONE-'
      .,-----,
      V           I
>---+- + -+-constant--+--YEAR-----+-----><
+-YEARS-----+
      +-MONTH-----+
      +-MONTHS-----+
      +-DAY-----+
      +-DAYS-----+
      +-HOUR-----+
      +-HOURS-----+
      +-MINUTE-----+
      +-MINUTES-----+
      +-SECOND-----+
      +-SECONDS-----+
      +-MICROSECOND--+
      +-MICROSECONDS--+
```

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