

# IBM UTILITIES IN DB2 12



(This article is part of our [Db2 Guide](#). Use the right-hand menu to navigate.)

## BACKUP SYSTEM

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

>+-----+-----+-----+-----+-----+-----+----->
  +--ALTERNATE_CP (copy-pool)--+-----+-----+-----+-----+
                               '-DBBSG(stogroup)-'  '-LGBSG(stogroup-'
>+-----+-----+-----+-----+-----+-----+-----><
+--FORCE-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+-----+
FORCE-' | '-DUMPONLY--+-----+-----+-----+-----+' '-
TOKEN- (X'byte-string')' '- dumpclass-spec -' dumpclass-spec: >--DUMPClass-(-
-dc1---)------< |-dc2-|
                |-dc3-|
                |-dc4-|
                |-dc5-|
```









'-creator-id.-'

From-copy-spec:

```
.-FROMLASTCOPY-----,
>>+-----+-----><
+-FROMLASTFULLCOPY-----+ +
FROMLASTINRCOPY-----+ +
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)-' '-l decfloat-spec l-'

>--+-----+--+-----+--+-----+----->
'-l override-spec l-'

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

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

.-----,
V          |
>----| INTO-TABLE-spec l+----->< 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                                           I
>-----+ + -+-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-' '-TRANSIDOVERRIDE-'
      .-IGNOREFIELDS--NO--.
>+-----+----->
      '-IGNOREFIELDS--YES-'

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

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

```



```

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

```

```

+-TRAILING--+ | (1) |
'-LEADING--' +- 'strip-char'-----+
               '-X'strip-char'-----'
>+-----+----->< '-
TRUNCATE-' Decimal-spec: .-PACKED-----, >>-DECIMAL-+-
-----+----->< +-ZONED-----
-----+
'-EXTERNAL-+-+-----+-'
               | .-,0-----. |
               '-(length-+-+)-'
               '-,scale-'

```

## MERGECOPY

```

>>-MERGECOPY-----
->
>+--LIST--listdef-name-----+
->
| .-DSNUM--ALL-----. |
'-TABLESPACE-+-+-----+-----+table-space-name-+-+-----+-'
      '-database-name.-'      '-DSNUM--integer-'
      .-WORKDDN--SYSUT1-.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----><
->
'-CLONE-' '-WORKDDN--ddname-'
      .-NEWCOPY--NO-.      .-COPYDDN--SYSCOPY-----.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----><
| +--COPYDDN(ddname1-+-+-----+-)-----+ |
| | | | | '-,ddname2-' | | | | |
| | | | | +--COPYDDN(,ddname2)-----+ | | | | |
| | | | | '-RECOVERYDDN(ddname3-+-+-----+-)-' | | | | |
| | | | | ',ddname4' | | | | |
| | | | | .-COPYDDN--SYSCOPY-----. | | | | |
'-NEWCOPY-YES-+-+-----+-----+-----+-----+-----+-----+-----+-'
+--COPYDDN(ddname1-+-+-----+-)-----+ '-RECOVERYDDN(ddname3)'
| | | | | ',ddname2-' | | | | | ',ddname4'
'-COPYDDN(,ddname2)-----+'

```

## MODIFY RECOVERY

```

>>-MODIFY--RECOVERY----->
>+--LIST--listdef-name-----+----->
'-TABLESPACE-+-+-----+-----+table-space-name-'
      '-database-name.-'
      .-DSNUM--ALL-----.

```





# QUIESCE

```

>>-QUIESCE----->
>--+LIST-listdef-name-----+>
    | .-----|
    | V                                             | |
    |---+-TABLESPACE+-----+table-space-name+-----++-'
        |             '-database-name.-'         '-PART-integer-' ||
    |-TABLESPACESET+-----+-----+table-space-name-|
                '-TABLESPACE-' '-database-name.-'
            .-WRITE--YES-.
>--+-----+-----+-----+-----+-----+-----+-----+-----+
->< '-CLONE-' '-WRITE--NO--'

```

# REBUILD INDEX

```

>>-REBUILD-----
----->

            .-,-----,
            V                                     |
>--+INDEX--+-(----creatorid.index-name-----+-----)-----+-----+-----+-----+>
|          |                                     '-PART--integer-'       |
|          |
|          |+- (ALL)--table-space-spec-----+
|          | '-LIST--listdef-name-----'
|          |
|          | .-,-----,
|          | V                                     |
|          |
|          |'-INDEXSPACE--+-(-----+-----+---index-space-name---+-----+-----+
+-----)--+
|          |         |          '-database-name.-'          '-PART-integer-
'|          |
|          |         +- (ALL)--table-space-spec-----
+-----+
|          |         '-LIST--listdef-name-----
+-----+'

        .-SHRLEVEL--REFERENCE-----,
>--+-----+-----+-----+-----+-----+-----+-----+-----+
->
        '-SHRLEVEL--CHANGE--change-spec-'         '-CLONE-'

```









```
|           '-creator-id.-'           |
'-INDEXSPACE-+-+-----+-index-space-name-'
      '-database-name.-'
>+-----+-----><
'-PART--integer-' Deadline-spec .-DEADLINE--NONE-----,
>>+-----+-----><
.-DEADLINE--+-timestamp-----+' '-labeled-duration-expression-'
Drain-spec >>+-----+-----+-----+-----+-----
----->
      '-DRAIN_WAIT--integer-'         '-RETRY--integer-'

                                 _TIMEOUT TERM--
>+-----+-----+-----+-----+-----+-----+-----><
'-RETRY_DELAY--integer-' |-TIMEOUT ABEND_| Change-spec .-DRAIN--ALL-----,
>>+-----+-----+-----+-----+-----+----->
      |                 (1) | '-DRAIN--WRITERS-'
      '-MAXRO--+-integer+-----'
      '-DEFER--'

      .-LONGLOG--CONTINUE--.   .-DELAY--1200-----,
>+-----+-----+-----+-----+-----+----->
      '-LONGLOG--+-TERM--+-'   '-DELAY--integer-'
      '-DRAIN-'

      .-LOGRANGES--YES-.
>+-----+-----+-----+-----+-----+----->
      '-LOGRANGES--NO--'

      .-SWITCHTIME--NONE-----,
>+-----+-----+-----+-----+-----+-----><
      | .-NEWMAXRO--NONE----. | '-SWITCHTIME--+-timestamp-----+-----+
      -----+' '-labeled-duration-expression-' '-NEWMAXRO--integer-'
Labelled-duration-expression >>+-CURRENT_DATE-----
----->
      '-CURRENT_TIMESTAMP--+-+-----+-----+'
      '-WITH TIME ZONE-'

      .
      V                               |
>+-----+-----+-----+-----+-----+-----+-----+-----+
-><+-YEARS-----+---+---+---+---+---+---+---+---+---+---+---+---+
-DAYS-----+---+---+---+---+---+---+---+---+---+---+---+---+
-----+---+---+---+---+---+---+---+---+---+---+---+---+
Stats-spec .-REPORT--NO--. >>-STATISTICS--+-+-----+-----+-----+
spec----->
      '-REPORT--YES-'

      .-UPDATE-ALL-----,
```





```

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-LOG--NO--'          '-NOSYSREC-'
      .-AUTOESTSPACE YES-.
>--| copy-spec |-----+-----+-----+-----+-----+-----+-----+-----+
->
      '-AUTOESTSPACE NO--'

.-SHRLEVEL NONE-----,
>----->
'-SHRLEVEL--+REFERENCE--| deadline-spec |--| drain-spec |-----+-->
      '-CHANGE-|deadline-spec|--|drain-spec|--|table-change-spec|-'

.-FASTSWITCH YES-.  .-AUX NO--.    .-FORCE--NONE----.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
'-FASTSWITCH NO--.  -'AUX YES-'    +-FORCE--READERS-+
                                   '-FORCE--ALL-----'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+-SORTNPSI--AUTO---+
+-SORTNPSI--YES-----+
'-SORTNPSI--NO-----'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
|          .-10-----.          .-10-----.          |
'-OFFPOSTLIMIT--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      '-integer-'          '-integer-'  '-REPORTONLY-'
.-UNLOAD--CONTINUE--.

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| |          (1) | '-KEEPDICTIONARY-'  '-| statistics-spec |-' |
| '-UNLOAD--PAUSE-----'          |
+-UNLOAD--ONLY-----+
'-UNLOAD--EXTERNAL--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      '-NOPAD-' | .-----|
| V          | |
|---| FROM-TABLE-spec |+-'

.-PUNCHDDN--SYSPUNCH-.  .-DISCARD--SYSDISC-.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-PUNCHDDN--ddname---'  '-DISCARD--ddname--'

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-| reorg tablespace options |-'

```

```

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
|                                     |
|                                     V                                     |
'-DISCARD--+-+-----+-----+-----+-----+-----+-----+-----+
      '-NOPAD-'
.-PARALLEL-0-----
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-PARALLEL--(--num-subtasks--)-'

```

Copy-spec

```

.-COPYDDN(SYSCOPY)-----
>>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-COPYDDN(-+-ddname1--+-+-----+-----+-----+-----+-----+-----+-----+
|                                     '-,ddname2-' |
'-,ddname2-----'
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-RECOVERDDN(ddname3--+-+-----+-----+-----+-----+-----+-----+-----+
|                                     '-,ddname4-' |
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->< | .-NO-----, | '-FLASHCOPY--+-YES-----+-----+-----+-----+-----+-----+-----+
'-CONSISTENT-' '-FCCOPYDDN(ddname)-' Deadline-spec .-DEADLINE--NONE-----
-----, >>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
----->< '-DEADLINE--+-timestamp-----+-----+-----+-----+-----+-----+-----+
labeled-duration-expression-' Drain-spec >>+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
'-DRAIN_WAIT--integer-' '-RETRY--integer-'
                                     .-TIMEOUT--TERM--.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+>
'-RETRY_DELAY--integer-' '-TIMEOUT--ABEND-'
.-LOGRANGES--YES-. .-DRAIN_ALLPARTS--NO--.
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+
->
'-LOGRANGES--NO--' '-DRAIN_ALLPARTS--YES-'
.-SWITCHTIME--NONE-----
>+-----+-----+-----+-----+-----+-----+-----+-----+-----+><
| .-NEWMAXRO--NONE----, | '-SWITCHTIME--+-timestamp-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Change-spec: .-MAXRO-----, .-DRAIN--ALL-----, >>+-----+-----+-----+-----+-----+-----+

```





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-'
>--+constant-----+AND----->
      '-labeled-duration-expression-'
>--+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-' 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 |

```











```

--+ | '-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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