Chapter 18. Generating DB2 High Performance Unload jobs

IBM DB2 High Performance Unload (DB2 HPU) is a high-speed DB2 utility for unloading DB2 tables from a table space or from an image copy. DB2 Automation Tool can generate DB2 HPU unload jobs through the Stand Alone Utilities option on the DB2 Automation Tool main menu. Tables can be unloaded to one or more data sets. You can unload all data, or filter the data to be unloaded by row or by column.

The following topics provide instructions for using DB2 Automation Tool to generate DB2 HPU unload utility jobs. For information about DB2 HPU job parameters, refer to the help panels or search the DB2 High Performance Unload documentation on the IBM Knowledge Center: (http://www.ibm.com/support/knowledgecenter).

Software requirements

This feature requires the following software and hardware:
* IBM DB2 High Performance Unload for z/OS V4.2.
* DB2 Automation Tool V4.1 (with APAR PM70641) applied or later.
* The Tools Customizer customization steps for DB2 HPU support must be completed.

Unloading all rows and columns from a table space

Use these steps to build a DB2 HPU job that unloads all rows and columns from a table space.

About this task

These steps describe how to configure and build a DB2 HPU job to unload all rows and columns from a table space. The data from all tables in the table space is unloaded to the DB2 HPU-required output data set, UNLDDN DD.

Procedure

1. On the DB2 Automation Tool Main Menu, specify the DB2 subsystem in the **DB2 Subsystem ID** field.
2. Enter 11 in the **Option** field and press Enter.
3. On the Stand Alone Utilities panel, enter 2 in the **Option** field and press Enter.
4. On the HPU Tablespace Selection panel, specify table space selection criteria in the header fields and press Enter. A list of table spaces that meet your selection criteria is displayed.
5. Enter S next to the table space that you want to unload and press Enter. The HPU Options panel is displayed, as shown in the following figure:

```
AUTOTOOL V4R2 -------------- HPU Options --------------- 2015/10/09  10:44:35
Option   ===>
--------------------------------------------------------------------------------
 Database   Name: DSNDB06                                          User: TWUSR
 Tablespace Name: SYSDDF                            DB2 Subsystem ID: SS01
 Creator    Name: SYSIBM    >
--------------------------------------------------------------------------------
                                                                  More:    +
 Build Unload Job  . . . . N (Yes/No)
 Utility ID . . . . . . .               (16 Characters)

 Optional Template Dataset and member name:
   Template Dataset
   Member name   . .

                          Include      Update
 Select   Table and Columns N (Yes/No)  . . N (Yes/No)
 UNLDDN   Options . . . . . N (Yes/No)  . . N (Yes/No)
 COPYDDN Options . . . . . N (Yes/No)  . . N (Yes/No)
 Options Block . . . . . . . . . . . . . . N (Yes/No)
 DB2 . . . . . . . . . . .   (blank, Y - Yes, N - No, F - Force)
 LOCK  . . . . . . . . . .   (blank, Y - Yes, N - No)
```

Figure 310. HPU Options panel

6. Optional: If you want to use an existing template for HPU instead of allowing DB2 Automation Tool to create the template, enter the template data set and member name in the **Template Dataset** and **Member name** fields. The template data set must already exist and the template members must follow DB2 syntax rules for the TEMPLATE control statement. Templates can be used for the UNLDDN, COPYDDN, OUTDDN, and LOADDDN DDs.

7. Optional: If you want to use an image copy as the source to unload the data, follow these steps.

    a. On the HPU Options panel, enter Y in the COPYDDN Options Include and Update fields and press Enter.

    b. On the COPYDDN Options or the TEMPLATE COPYDDN Options panel, specify the source of the image copy to be used for the unload job as follows:

       • To provide the image copy data set name, enter D in the **COPYDDN** field. If you are not using templates, enter the data set name in the **Data Set Name** field. If you are using templates, enter the template name in the **Template Name** field, or select a template name by entering Y in the **Select** field.

       • To use the latest image copy as the source, enter L in the **COPYDDN** field and press Enter.

       • To use an image copy older than the latest one, specify an integer of 2 or greater in the **COPYDDN** field and press Enter. For example, enter 2 to select the image copy that was taken before the latest image copy.

    c. Press PF3 until the HPU Options panel is displayed.

8. Specify the UNLDDN DD options. This DD receives the unloaded data. On the HPU Options panel, enter Y in the **UNLDDN Options Include** and **Update** fields and press Enter.

    • If you are not using templates, do the following:

       a. On the UNLDDN Options panel, enter a valid unit for the UNLDDN data set in the **Unit Type** field.

       b. (Optional) Specify catalog options, SMS parameters, or tape parameters.

       c. Enter Y in the **Update DSN create spec** field and press Enter.

       d. On the UNLDDN DSN Generation panel, enter the qualifier codes to specify the data set name for the UNLDDN data set. Press PF3 until the HPU Options panel is displayed.

    • If you are using templates, the TEMPLATEDD Name Selection panel is displayed. Select a template name to be used for the UNLDDN and press PF3.

9. Optional: On the HPU Options panel, specify other DB2 HPU options.

10. Generate the unload job as follows:

    a. On the HPU Options panel, enter Y in the **Build Unload Job** field and press Enter.

    b. On the Build Job window, specify the data set and member name where the generated job is to be placed, and a valid job card. Press Enter. The job is generated and placed in the member that you specified.

What to do next

To unload the table space, submit the generated job.

Unloading selected rows and columns from a table space

Use these steps to build a DB2 HPU job that unloads selected rows and columns from a table space.

About this task

When you select or filter data, an SQL SELECT statement is used to specify the data and to specify the output format. Each SELECT statement has its own output data set (OUTDDN).

Procedure

1. On the DB2 Automation Tool Main Menu, specify the DB2 subsystem in the **DB2 Subsystem ID** field.

2. Enter 11 in the **Option** field and press Enter.

3. On the Stand Alone Utilities panel, enter 2 in the **Option** field and press Enter.

4. On the HPU Tablespace Selection panel, specify table space selection criteria in the header fields and press Enter. A list of table spaces that meet your selection criteria is displayed.

5. Enter S next to the table space that you want to unload and press Enter. The HPU Options panel is displayed, as shown in the following figure:

```
 AUTOTOOL V4R2 -------------- HPU Options -------------- 2015/10/09  14:43:19
 Option   ===>
 ------------------------------------------------------------------------------
 Database    Name: DSNDB06                                         User: TWUSR
 Tablespace Name: SYSDDF                             DB2 Subsystem ID: SS01
 Creator     Name: SYSIBM    >

 ------------------------------------------------------------------------------
                                                                 More:     +
 Build Unload Job  . . . . N (Yes/No)
 Utility ID . . . . . . .                  (16 Characters)

 Optional Template Dataset and member name:
   Template Dataset
   Member name  . .

                            Include         Update
 Select  Table and Columns N (Yes/No)  . . N (Yes/No)
 UNLDDN  Options . . . . . N (Yes/No)  . . N (Yes/No)
 COPYDDN Options . . . . . N (Yes/No)  . . N (Yes/No)
 Options Block . . . . . . . . . . . . . . N (Yes/No)
 DB2 . . . . . . . . . . .    (blank, Y - Yes, N - No, F - Force)
 LOCK  . . . . . . . . . .    (blank, Y - Yes, N - No)
```

Figure 311. HPU Options panel

6. Optional: If you want to use an existing template for HPU instead of allowing DB2 Automation Tool to create the template, enter the template data set and member name in the **Template Dataset** and **Member name** fields. The template data set must already exist and the template members must follow DB2 syntax rules for the TEMPLATE control statement. Templates can be used for the UNLDDN, COPYDDN, OUTDDN, and LOADDDN DDs.

7. Optional: If you want to use an image copy as the source to unload the data, follow these steps.

   a. On the HPU Options panel, enter Y in the COPYDDN Options Include and Update fields and press Enter.

   b. On the COPYDDN Options or the TEMPLATE COPYDDN Options panel, specify the source of the image copy to be used for the unload job as follows:

      • To provide the image copy data set name, enter D in the **COPYDDN** field. If you are not using templates, enter the data set name in the **Data Set Name** field. If you are using templates, enter the template name in the **Template Name** field, or select a template name by entering Y in the **Select** field.

      • To use the latest image copy as the source, enter L in the **COPYDDN** field and press Enter.

      • To use an image copy older than the latest one, specify an integer of 2 or greater in the **COPYDDN** field and press Enter. For example, enter 2 to select the image copy that was taken before the latest image copy.

   c. Press PF3 until the HPU Options panel is displayed.

8. To select the tables and columns to unload, on the HPU Options panel, enter Y in the **Select Table and Columns Include** and **Update** fields and press Enter.

9. On the HPU Table Selection panel, do the following steps for each table from which you want to select rows.

   a. Enter S next to a table and press Enter. The Select Columns panel is displayed, as shown in the following figure:

```
AUTOTOOL V4R2   ------------ Select Columns ------------ 2013/07/23  21:12:57
Option  ===>                                            Scroll ===> CSR
  Commands: EAC - Exclude all columns.
            IAC - Include all columns.
  Creator: SYSIBM              >    Name: IPLIST            >
  Where Clause(s)  A (A - And, O - Or)                 DB2 Subsystem: SS01
                                              Row 1 of 3            >
--------------------------------------------------------------------------------

Select Column                    Column
Order  Name                      Type
1      LINKNAME                  VARCHAR
2      IPADDR                    VARCHAR
3      IBMREQD                   CHARACTER
**************************** Bottom of Data *********************************
```

Figure 312. Select Columns panel

    b. On the Select Columns panel, modify the column order or remove
       columns by using the Select Order column or the primary commands that
       are listed on the panel. By default, all columns are selected for unloading
       in the displayed order.

    c. To use DB2 selection criteria to include or exclude rows, scroll right (PF11)
       to the Where Clause column.

    d. Enter a valid WHERE clause for that column to identify when the row is
       to be unloaded. When multiple WHERE conditions exist, they are either
       ANDed or ORed, based on the value in the **Where Clause(s)** header field.

       Note: If you require a mixture of AND and OR conditions, you must enter
       them manually after the JCL is generated.

    e. When you finish selecting and ordering columns on the Select Columns
       panel, press Enter. The HPU Select Format panel is displayed, as shown in
       the following figure:

```
AUTOTOOL V4R2 ----------   HPU Select Format ---------- 2013/07/23  21:14:48
Option   ===>                                           Scroll ===> CSR
                                  DB2 Subsystem ID: SS01 User: TWUSR
  Creator: SYSIBM              >    Name: IPLIST              >
                                                        More:     +
                    Include      Update
OUTDDN  Options . . . Y (Yes/No)  . . N (Yes/No)
LOADDDN Options . . . N (Yes/No)  . . N (Yes/No)
FORMAT . . . . . . . . T    (D - Delimited, T - dsnTiaul, E - External,
                             I - Internal, U - User, V - Variable)
 DSNTIAUL STRICT . . .       (blank, Y - Yes, N - No)
 DELIMITED SEP . . . .       (blank, Single Character, or Hexadecimal value)
         DELIM . . .         (blank, Single Character, or Hexadecimal value)
          NULL DELIM         (blank, Y - Yes, N - No)
 Variable  . . . . . .       (blank, E - End, A - All)
 Like Table  . . . . .       >   (blank or valid table name)
 Like Creator . . . .        >   (blank or valid table creator)
ORIGINOBID . . . . . .       (blank or hexadecimal value)
       or . . . . . .        (blank or decimal value)
OUTMAXROWS . . . . . .          (blank, 1 - 2147483647)
OUTFREQROWS  . . . . .          (blank, 1 - 2147483647)
Scheme . . . . . . . .       (blank, E - Ebcdic, A - Ascii, S - aSis,
                             U - Unicode)
CCSID SBCS . . . . . .       (blank or Integer)
      MIXED  . . . . .       (blank or Integer)
      DBCS . . . . . .       (blank or Integer)
OUTEXIT exit name  . .         (blank or exitname)
          in . . .           (blank, A - Asm, C - C, O - cObol2)
```

Figure 313. HPU Select Format panel

f. On the HPU Select Format panel, update the options for the OUTDDN. Enter Y in the **OUTDDN Options Include** and **Update** fields and press Enter.

- If you are not using templates, do the following:
  1) On the OUTDDN Options panel, enter a valid unit for the OUTDDN data set in the **Unit Type** field.
  2) (Optional) Specify catalog options, SMS parameters, or tape parameters.
  3) Enter Y in the **Update DSN create spec** field and press Enter.
  4) On the OUTDDN DSN Generation panel, enter the qualifier codes to specify the data set name for the OUTDDN data set. You must specify a unique data set name for each table to be unloaded. If a duplicate data set name is specified, an error message will be displayed after you exit this panel, prompting you to rename the data set.
  5) Press PF3 until the HPU Table Selection panel is displayed. When all required options are complete for the table to be unloaded, a Y is displayed in the **Sel** column next to the table.
  6) Repeat these steps for each table that you want to select rows and columns.
  7)
- If you are using templates, the TEMPLATEDD Name Selection panel is displayed. Select a template name to be used for the OUTDDN and press Enter, then PF3. A message is displayed confirming the template name selection.

10. Optional: On the HPU Select Format panel, update other options as required.

11. Press PF3 until the HPU Options panel is displayed.

12. Optional: On the HPU Options panel, specify other DB2 HPU options.

13. Generate the unload job as follows:
    a. Enter Y in the **Build Unload Job** field.
    b. On the Build Job window, specify the data set and member name where the generated job is to be placed, and a valid job card.
    c. Press Enter. The job is generated and placed in the member you specified.

What to do next

To unload the tables, submit the generated job.