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SPI-TAB+™ DB2 Product Overview

Tables play a central role in data processing applications, yet table management is often overlooked due to the diversity of problems associated with it. File management systems and application development tools perform some tasks of table management, but are generally limited.

Although DB2 provides table management tools (QMF, SPUFI, etc.), these tools merely execute basic orders in SQL language (DDL and DML). Consequently, you must plan additional development to create, feed, and manage your DB2 tables.

Using a table management system such as SPI-TAB+ allows you to create a controllable, centralized, and secure set of tables, as well as a higher quality of programs that are more adaptable to the needs and requests of their users.

Why You Need SPI-TAB+:

Problem	SPI-TAB+ Benefit
Redundancy of data and programming (e.g., same information found in multiple tables; codes to access given elements will be duplicated in each program accessing that table).	Centralized Control. SPI-TAB+ allows users to apply control on the data in tables (e.g., it verifies if data is present in another table).
Different design and implementation techniques (e.g., not standardized; costly to maintain and train).	Reduced table maintenance problems associated with reorganization, restructuring, backups, etc.
Inconsistent Table Updates (e.g., since data elements are duplicated, modification of one value must be done on all tables containing that data element; modification must be done by a user program if there is no link).	Referential Integrity. SPI-TAB+ allows users to make logical links between tables. By making only one modification to a table, all programs accessing that table are up-to-date.
Various backup and Security procedures (e.g., difficult to assure that the same access restrictions are enforced for all tables; files are not backed up simultaneously).	Consistent JCL and security procedures. JCL to access the tables is always the same and the security system is consistent for all tables.
System modifications (e.g., JCL, new entries in online system, inefficient use of resources)	Flexibility (e.g., easy for users to manage tables themselves without intervention; programmers can easily complete modifications).



SPI-TAB+ Functions

SPI-TAB+ DB2 is an effective and user-friendly tool that allows processing of any DB2 table without having to develop customized programs to create, update, or list each table.

SPI-TAB+ functions can be performed interactively (by using its interactive environment) or in batch (using its batch utilities).

- **Table Structure Definition**

You first define your tables in the SPI-TAB+ system. SPI-TAB+ captures this data within the SPI-TAB+ table structure itself. The Definition of Structure Transaction (DST) screen validates and stores this information. This operation can be performed interactively or in batch. The DST screen also validates data when tables are updated. This function can be customized to meet additional user or DP requirements.

SPI-TAB+ DB2 manages native DB2 tables without using intermediate files. DB2 views and sub-groups of columns related to a DB2 table or view can be managed or potentially reordered. You can also modify the structure of a DB2 table without affecting the structure of the corresponding SPI-TAB+ tables and vice versa. This gives you greater independence in using the tables.

The controls applied during execution of the Update (UPD) screen are defined in the DST format. Data validation can then be performed without requiring extensive and costly programming.

If desired, SPI-TAB+ DB2 can process tables created by native SQL commands. SPI-TAB+ DB2 can import these tables by executing a simple validation transaction.

SPI-TAB+ DB2 furnishes a transfer tool for SPI-TAB+ tables located on the VSAM or DL1 support. In addition, the VSAM or DL1 programming interfaces are compatible with the DB2 version.

Therefore, you can migrate from a SPI-TAB+ VSAM or DL1 environment to a SPI-TAB+ DB2 environment (and vice versa) without having to change your programs or re-enter data in your tables.

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Table Attribute Examples:

- General attributes (code name of the table, type of table, etc.).
- Element or field attributes (length, format, etc.).
- Inclusion of automated features (validity checks on data; controls such as presence check, date validation, etc.).
- Declaration of external subroutines dynamically invoked every time the table is updated through the UPD transaction.

- **Table Creation**

DB2 provides very few standard controls during table creation, requiring you to write complementary controls into your application programs. With SPI-TAB+ DB2, numerous controls can be put in place by simple indicators (such as date formats, inter-table controls, range of values).

As with other SPI-TAB+ screens, an area on the table creation screen enables users to specify the screen to be worked on after completion of the current transaction. This allows the chaining of successive operations without repeating common information.

As soon as a table is created, SPI-TAB+ DB2 provides two styles of formatted update screens, complying with all controls defined in the table structure. This validated update processing is available without writing a program, modifying CICS tables or generating IMS controls.

Specific protection may be assigned to each page of the table structure for updating and browsing. This facility effectively protects specific fields of information while allowing updating and browsing of less confidential data.

The UPD screen can be customized using descriptive titles, delimiters, and blank lines. This formatting is easily performed through the DST screen.

- **Table Space Management**

The management of table space and the table index is performed in a single operation. If you do not have a methodological tool for managing DB2 commands, you no longer have to submit multiple DDL commands. Automatic default values for certain parameters (tablespace name, name of index, primary and secondary space depending on the estimated number of table entries, storage group), allow you to easily create and delete DB2 tables while maintaining your methodology.



- **Table Update**

SPI-TAB+ provides two screens for table update (UPD and TUP), both of which use information from the DST transaction to automatically create an input screen for creating, editing or deleting table entries. Depending on your needs, SPI-TAB+ provides several methods for table update, including three interactive methods, a batch method, or via user applications. The batch utility is very useful when initially loading a large number of tables.

- **Browsing and Printing**

The LIS screen is used for printing a group of table entries. This screen permits browsing the values of elements contained within a page of the table entry structure. SPI-TAB+ formats the report, which is automatically tailored to the characteristics of the selected output medium (screen or printer). Reports can be printed on any device recognized by SPI-TAB+, including remote printers. The LIS transaction provides the number of entries in a table, as well as the number of entries processed. A range of table entries can be deleted using this transaction. The batch utility equivalent allows the processing of many tables in a single job execution.

- **Program Interface**

The program interface is a collection of subroutines provided with SPI-TAB+, enabling applications to access tables managed by SPI-TAB+ through an interface known as the Access Module.

SPI-TAB+ DB2's programming interface allows you to use DB2 tables in your programs without having to know the syntax of SQL commands.

This interface can execute static or dynamic SQL commands.

- **Optimization and User Exits**

SPI-TAB+ includes performance improvement features for applications using the interactive SPI-TAB+ Access Module with CICS. Tables can be loaded into CICS dynamic storage to provide access to the tables without requiring read operations on external disk storage.

SPI-TAB+ provides several entry points for calls to user subroutines (user exits) including the menu, DST screen, and update screens.



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- **Dynamic Screen Painting**

Users need only describe the structure of the data in the table and the validity checks to be applied to each element, and SPI-TAB+ will automatically display an input screen specific to the table. Users may design individual input screens using SPI-TAB+'s easy-to-use "screen painting" system to design different layouts.

In addition, SPI-TAB+ DB2 allows you to design an unlimited number of customized update screens for a given table. These screens allow you to work on any DB2 table or view without adding a program. You can adapt and respond to the various needs of different user groups without restrictions from the physical structure of the DB2 tables.

Screen Painting Features:

- Entirely dynamic; does not require updating of system tables. Once painted, screens are immediately ready for use.
- No limits on screens painted for a given table. Tests and checks are applied to all tables to preserve system integrity.
- Users are not required to use screen painting, but may select standard screens provided by any of the SPI-TAB+ update transactions.



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SPI-TAB+ Utility Examples

SPI-TAB+ provides a number of batch utilities that extend its capabilities.

Generation of COPY Books

By using the symbolic element name within the table structure, you can generate COPY books from the table definition. Descriptions of the SPI-TAB+ tables are provided for COBOL, PL/1 and ASSEMBLER. Use of this utility guarantees that application programs will include a precise and complete description of the tables.

SPI-TAB+ DB2 will generate the source code for the SQL commands used by the programming interface to create the plans of the application programs that use the programming interface.

Copy of Data

Provides multiple functions, including the ability to:

- Duplicate a SPI-TAB+ file
- Generate card images for input to the Structure Definition and Table Update utilities
- Print a dictionary of table structures
- Copy a table and its environment
- Copy dynamic screens

Table Reorganization

Modifies, in batch mode, the structure of tables that already contain data. It implies the creation of a new structure and a reloading of the data from an old to a new table.

Besides the existing functions for defining table structure and managing table entries, the SPI-TAB+ DB2 utilities also allow you to move a table from one DB2 subsystem to another. You can also modify the definition of a column (length, field format) while preserving the data in the columns.

Statistics

Provides statistics about data integrity and space used in SPI-TAB+ blocks, for reorganization of tables.

Cross References

Generates cross-reference lists in terms of “is used by” and “uses.” It also generates the list of the dynamic screens associated with a table.

Loading and Unloading

Allows SPI-TAB+ tables to be unloaded into sequential files and vice versa.



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SPI-TAB+ Features and Benefits

- **User Friendly.** SPI-TAB+ provides end user-oriented tools to allow easier, more secure maintenance. Its screen-oriented procedures make it easy to use by non-technical personnel. SPI-TAB+'s ease of use makes it a practical tool for performing recurring data processing tasks such as creation of test data, application prototyping, or other simple applications (management of terminal pools, job initiation, electronic agendas, etc.).

SPI-TAB+ DB2 provides an interactive HELP function for user tables and screens. You also may create user HELP to define data elements in user tables.

In addition, as soon as a table is created, a screen is provided to create customized documentation for the table and its columns. This documentation is accessible via a function key.

- **Programs and Data Independence.** SPI-TAB+ allows programs to be independent of the table structures. Programmers need only be concerned with tables and elements directly required by the program. As long as the name of the table and fields used in the program are left unchanged, no program modification is required.
- **Confidentiality and Security.** SPI-TAB+ guarantees security of access to the contents of tables through a three-level mechanism. This system allows the administrator to easily adjust the degree of security desired.
- **Table Storage.** SPI-TAB+ DB2 includes a memorization feature designed to improve the performance of applications using CICS and BATCH programming interfaces.

This feature can store tables or portions of tables in the dynamic memory of CICS or in the BATCH partition so that accessing a table entry does not require accessing an external support disk.

The memorization feature is important for the management of your DB2 tables in your application programs because no matter how many times a table entry is accessed for the entire CICS session or your batch application program, SPI-TAB+ DB2 will physically access the table only once.

With SPI-TAB+, you can take advantage of the flexibility offered by dynamic SQL commands in development without fear of diminished performance in system operation (no BIND in Execution).



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- **Table Access.** Applications using SPI-TAB+ can retrieve table data with just one call (e.g., an entire table entry, or a selection of elements from the entry). Many common programming functions are provided directly by SPI-TAB+'s program interface, making programs smaller and easier. In addition, performance of programs can be optimized either for online (CICS) or batch.
- **Table Definition.** SPI-TAB+'s validity key allows the definition of several versions of the same table entries. For example, entries can be validated by "effective date" so you can retrieve the correct entry value for any time period desired, at any time. You can proactively enter future values such as planned price increases or tax changes, or rerun applications to retrieve previous values without a table recovery procedure.
- **Program Improvement.** Table defined parameters can easily be changed online. SPI-TAB+ automatically controls data, making application maintenance easier.
- **Management of Dynamic Screens.** SPI-TAB+ immediately supplies an update screen when new tables are created, providing you with all the tools necessary to manage that table.
- **Integrity and Distribution of Tables.** You can establish relationships between tables (e.g., manage secondary, multi-criteria indices on one or several SPI-TAB+ tables; centralize table updates shared by several applications; You can establish relationships between tables (e.g., manage secondary, multi-criteria indices on one or several SPI-TAB+ tables; centralize table updates shared by several applications; share table updates among several users; and archive updates of tables).
- **Easy Installation.** SPI-TAB+ provides an Automatic Installation Module, a collection of instruction sets and procedures to facilitate installation.

How You Can Use SPI-TAB+:

- Controlled data acquisition for execution parameters of batch programs
- On-line phone directories
- E-mail support
- Application security management (user identification table; profile table; authorized actions table; etc.)
- Employee management (employee and/or department tables)
- Data dictionary support
- Dynamic menu management
- Automatic generation of JCL with a user table and program table

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