Exploring the PROC SQL _METHOD Option
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Abstract
The SQL Procedure contains powerful options for users to take advantage of. This presentation explores the fully supported _METHOD option as an applications development and tuning tool. Attendees learn how to use this powerful option to better understand and control how a query processes.

Introduction
PROC SQL supports a powerful option called _METHOD. Since its implementation, many SAS® SQL users have expressed very favorable comments for the value-added information it provides on the SAS Log. In fact, the _METHOD option is worth exploring simply due to the benefits associated with gaining a better understanding of the processes during specific PROC SQL operations, including complex table joins and subqueries.

Application of the _Method Option
The PROC SQL _METHOD option can be used as an effective way to analyze a query process as well as for debugging purposes. Information from the _METHOD option is displayed on the Log using a variety of codes. The codes and their corresponding descriptions associated with the _METHOD option appear in the table below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQXCRTA</td>
<td>Create table as Select.</td>
</tr>
<tr>
<td>SQXSLCT</td>
<td>Select statement or clause.</td>
</tr>
<tr>
<td>SQXJSL</td>
<td>Step loop join (Cartesian).</td>
</tr>
<tr>
<td>SQXJM</td>
<td>Merge join operation.</td>
</tr>
<tr>
<td>SQXJNDX</td>
<td>Index join operation.</td>
</tr>
<tr>
<td>SQXJHSH</td>
<td>Hash join operation.</td>
</tr>
<tr>
<td>SQXSORT</td>
<td>Sort operation.</td>
</tr>
<tr>
<td>SQXSRC</td>
<td>Source rows from table.</td>
</tr>
<tr>
<td>SQXFIL</td>
<td>Rows filtration.</td>
</tr>
<tr>
<td>SQXSUMG</td>
<td>Summary stats (aggregates) with GROUP BY clause.</td>
</tr>
<tr>
<td>SQXSUMN</td>
<td>Summary stats with no GROUP BY clause.</td>
</tr>
</tbody>
</table>

In the following example a _METHOD option is specified to show the processing hierarchy in a two-way equi-join. As illustrated in the SAS Log, the PROC SQL optimizer utilized a hash join algorithm in the performance of the join.

SQL Code

```sql
OPTIONS MSGLEVEL=I;
PROC SQL _METHOD;
   SELECT MOVIES.TITLE, RATING, ACTOR_LEADING
       FROM MOVIES, ACTORS
       WHERE MOVIES.TITLE = ACTORS.TITLE;
QUIT;
```
Log Results

NOTE: SQL execution methods chosen are:
    sqxs1ct
    sqxjhsh
    sqxsrc( MOVIES )
    sqxsrc( ACTORS )

Conclusion
The SQL Procedure’s _METHOD option provides users with a powerful and effective tool for gaining greater insight into complex join, subquery, and other programming processes.

References
Lafler, Kirk Paul (2002). PROC SQL Programming Tips; Software Intelligence Corporation, Spring Valley, CA, USA.

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