Converting LIS Data into CO:

A Case Study from the
Coca-Cola Bottling Co. Consolidated SAP Project

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Editor's Note: *Recently, several readers asked us if we could cover more material pertaining to SAP® product costing. So we tracked down Bill McNaughten, who is one of the most knowledgeable product-costing experts we know, and someone who has been consulting in the CO module since the glory days of the '90s. Bill is currently working on a project for Coca-Cola Bottling Co. Consolidated, and his team has been kind enough to let him use their project as a case study for a series of papers on CO-related topics. Bill's first topic pertains to a key theme in this month's SAPtips: better reporting for happier SAP users. In this case, Bill's team took on the task of setting up an automatic data conversion process between LIS and CO. The end result? Users now had access to CO data for a variety of reporting needs, and nobody has to manually type in information from LIS into CO anymore. In this twenty-seven-page paper, which Bill packed with screen shots, he takes readers through each step in the process of transferring data from LIS to CO. He explains how to create a Statistical Key Figure (SKF) and link the SKF to LIS and then to CO. The end result? Happy SAP users, who can now access this data directly in CO and generate custom reports in Report Painter that allowed them to calculate cost center quantities and payment calculations.*

Introduction

As a Controlling module specialist, I am always looking for innovative ways to help SAP projects enhance their implementations by digging deeper into the many capabilities SAP provides within CO that are not always taken advantage of. At Coca-Cola Bottling Co. Consolidated's PIVOT (Process Improvement via Optimizing Technology) project, one of my most recent efforts involved the conversion of data from LIS into the CO module. Once this data was converted into CO, we were able to use this data to provide users with a number of reporting and allocation options that were not previously available to them.

Users were now able to use Report Painter for custom-developed reports that provided cost center quantities, dollars, and per-unit calculations based on the data that was transferred from LIS. This solution avoided the expense necessary to create custom reports using the traditional ABAP develop approach. They were also able to access this new CO data for their standard SAP reporting needs, and this new CO data provided a very useful way to handle assessments and distributions. Another major benefit of this project is that the LIS data did not need to be entered manually into CO, as the porting of data is automatic. This white paper will illustrate in a step-by-step manner how we accomplished all of these goals.

Before we get into the specifics of how this was accomplished, I should say a few words about the various reporting options that are now available to SAP users. If you listened to all the marketing hype, you might think that all SAP users had transitioned to BW for all of their reporting needs. But in fact, that's not the case. Although BW offers very robust reporting capabilities, there is also something to be said for the "if it ain't broke, don't fix it" approach to SAP project management. In our case, the client has made an investment in the core SAP modules, and their preference was to utilize a simple solution that allowed them to fully utilize standard 4.7 SAP functionality. LIS is a very stable data repository, and, properly linked to the CO module via Statistical Key Figures (SKF), you will be very pleased with your enhanced cost center reporting capabilities.

To get you started, this white paper contains a practical example that outlines the four steps that are necessary to transfer values from the Logistics Information System into the CO module. In addition to the set up necessary, several other important topics are covered, such as investigating the contents of LIS info structures, detailing the steps necessary to avoid LIS conversion errors,

and copying associations for use in future periods. Once the actual values are transferred from LIS, the practical application shows three ways the LIS data may be used in the CO module for standard SAP reporting, as a basis for allocations and for the development of Report Painter reports containing quantities and dollar amounts. Keep in mind that the tips outlined in this paper are based on an R/3 Enterprise (4.7) installation. But as long as you are running SAP on any version of R/3 from 4.0 onward, you should be able to utilize the recommendations in this article.

LIS Info Structure Summary

LIS info structures contain a vast amount of data that can be utilized in the CO module. While it is possible to create custom LIS structures identifying specific fields and update rules, the existing tables should be completely investigated before attempting to create custom structures. Characteristics and values are populated in LIS tables by application area (Sales and Distribution, Purchasing, Inventory Controlling, Shop Floor Control, etc.). Within each application, info structures that are SAP tables are listed by purpose. More information on researching the available data is covered later in the paper.

Advantages of Transferring Actual Data From LIS

- **As a basis for creating a reporting solution.** Many organizations require a reporting solution to provide quantities, dollars, and a per-unit (dollars/quantities) view for production and sales reporting.

- **As a basis for allocations.** The values transferred from LIS are generated in LIS based on business transactions such as produced quantities, labor hours, and machine hours. By transferring the updated values into the CO module on a monthly basis, we have created an up to date source for assessments and distributions. Values such as labor hours, production quantities, and machine hours may be used as an accurate basis for cost allocation.

- **As a basis for providing LIS values on standard SAP reports.** No configuration is necessary to use LIS for reporting. The set up is all master data, and standard transfer values process is part of standard SAP functionality. While the manual transport features of the CO module allow the creation of transports for master data (statistical key figures, links to LIS, assignments, and variants), all components of the set up may also be entered directly into a production system.

Practical Example

There are four basic steps to converting LIS data into CO:

Step 1: Create SKF and Link to LIS
Step 2: Validate the Table to Ensure It Contains the Data Expected
Step 3: Maintain Assignments and Variant
Step 4: Transfer Actual Data from LIS

Before we look at each step, let's review the basic business and technical objectives:

Business Objective:

Production quantities and sales quantities are needed to provide quantities and per-unit calculations for reporting. Additionally, the same information is needed as a basis for allocating costs.

Technical Objective:

The following example shows the set up necessary to create a statistical key figure (SKF), link the SKF to the Logistical Information System (LIS), create an association to the Controlling (CO) module, and, finally, transfer values from LIS to CO.

Transferring data from LIS to CO eliminates the need to manually key data that exists in LIS into the CO module.

Step 1: Create SKF and link to LIS

The creation of a Statistical Key Figure (SKF) is a straightforward process; however, many times the SKF's ability to link to LIS is overlooked. Often, data already existing in SAP is manually keyed into LIS as a monthly process. Linking to LIS prevents this common mistake.

The first step is to create the Statistical Key Figure:
menu path accounting>controlling>cost center accounting>master data>statistical key figures>individual processing>KK01- Create

Then, enter the SKF name and select the Master Data button, as shown in Figure 1.
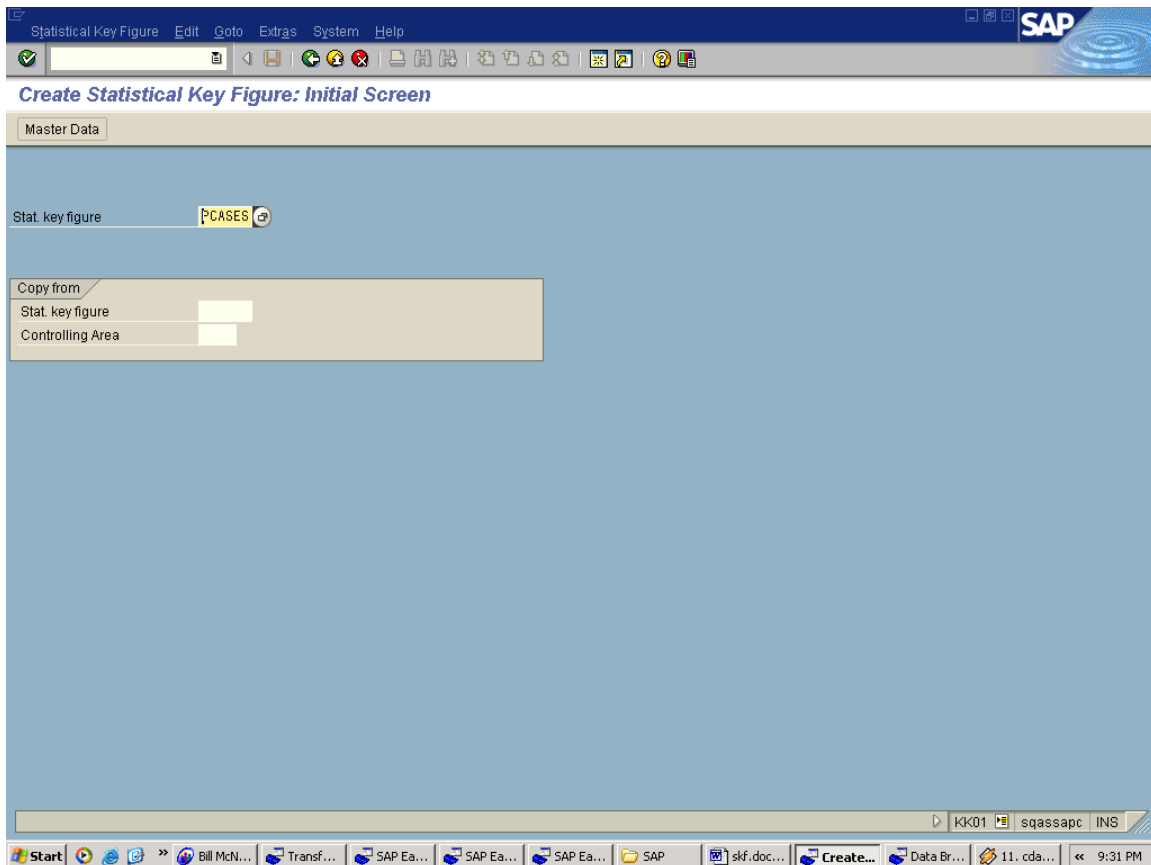
Figure 1: Initial SKF Screen Where the SKF Name Is Entered

Next, the description (Name), units of measure, and the key figure category are entered, as shown in Figure 2. Note: The key figure category **Total** is used for key figures that are updated on a monthly basis. The **Fixed** value entry is intended for values that are entered once, remain unchanged, and will be used for the remainder of the year; for example, the square footage of buildings.

Figure 2: Entering the Description, Units of Measure, and the Key Figure Category

Next, link the SKF defined in CO to an LIS info structure and field. In the upper-left corner, select the Link to LIS button (see Figure 3). Then ensure the option search by making sure the info structure is selected.
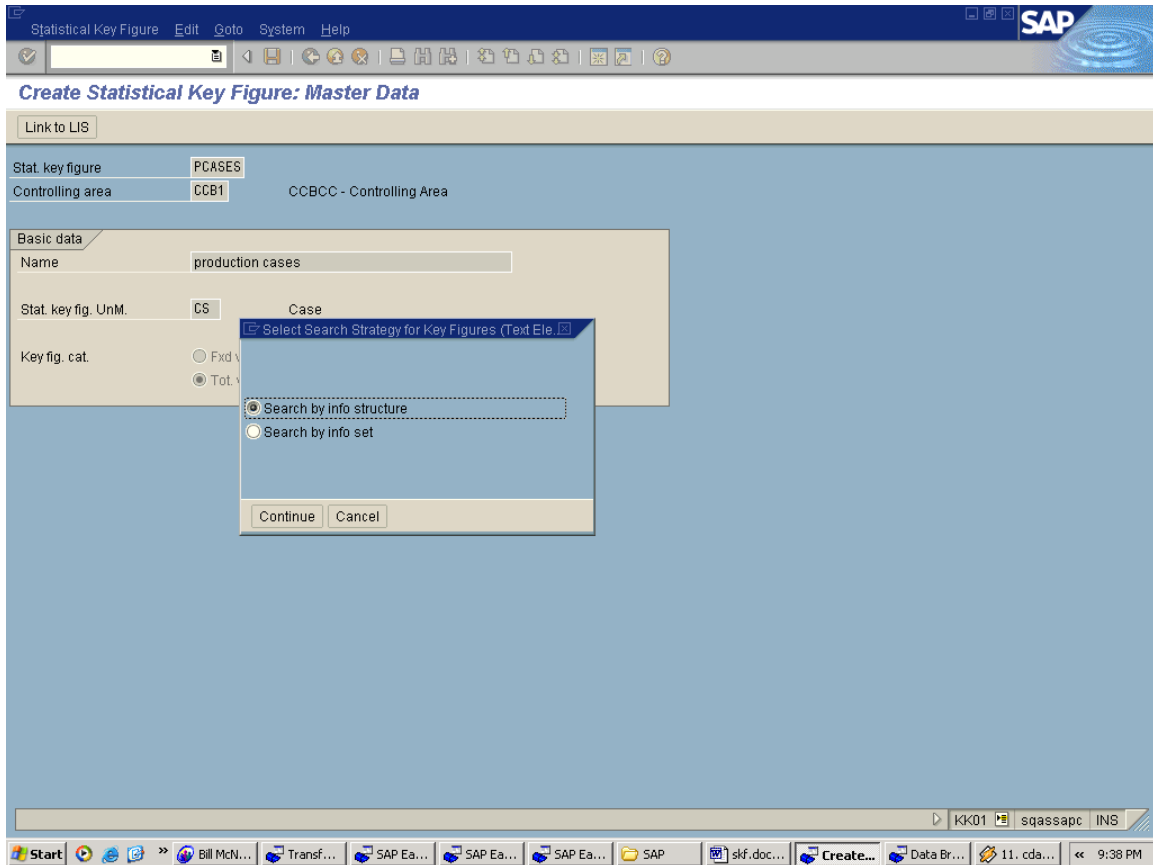
Figure 3: Linking the SKF Defined in CO to an LIS Info Structure and Field

Select the "Continue" button (see popup screen within Figure 3) to display the applications available in LIS, as shown in Figure 4.
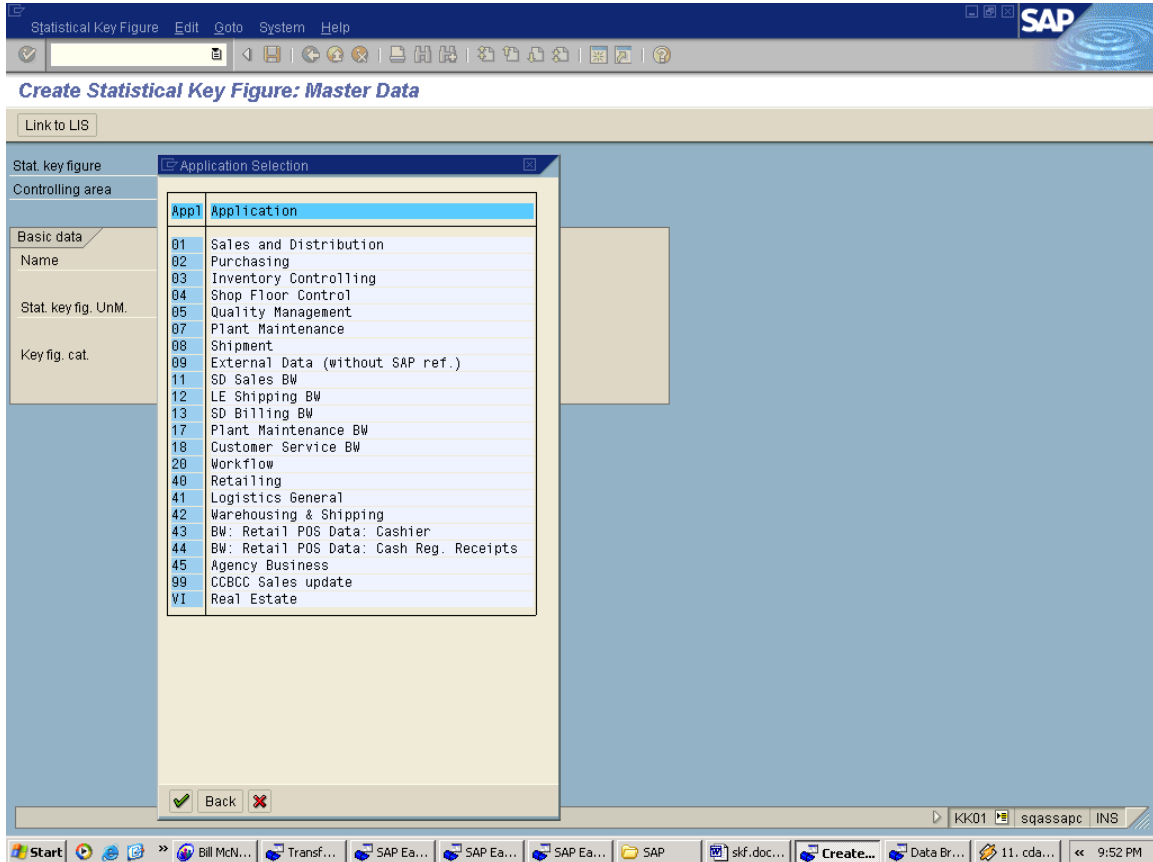
Figure 4: Displaying the Applications Available in LIS

Since we are associating the SKF PCASES (produced cases) to the LIS info structure that will show goods receipts for production orders, we will select the application Shop Floor Control. Once selected, the associated LIS (tables/info structures) will be displayed (see Figure 5). Note: In LIS the standard SAP tables are referred to as info structures.

Figure 5: The Associated LIS for Shop Floor Control

The objective here is to determine the produced quantity by cost center. Realizing that work centers are assigned to cost centers, we select info structure S024. While it would be possible to select goods receipts at a lower level of detail such as table S023, by material this is not required. In this case, many data selection choices are available. Once the info structure S024 is selected, the fields in the table are displayed (see Figure 6).

Figure 6: Displaying the Fields in the SO24 Table

Out of the list of choices, the Delivered Lot Size is selected. This field ensures that the quantity of goods receipts for production orders is captured. If there is any concern at this point about the data contained in each field, it may be a good idea to visit with your PP functional resource. Having selected the LIS info structure and field to be linked to the Controlling module, it is a good idea to display the contents of the table to ensure the expected values are populated in the LIS info structure.

Step 2: Validate the Table to Ensure It Contains the Data Expected

Displaying the contents of LIS info structure (table) may be accomplished using the transaction SE16. To do this, open the Data Browser and enter table name S024 (see Figure 7).
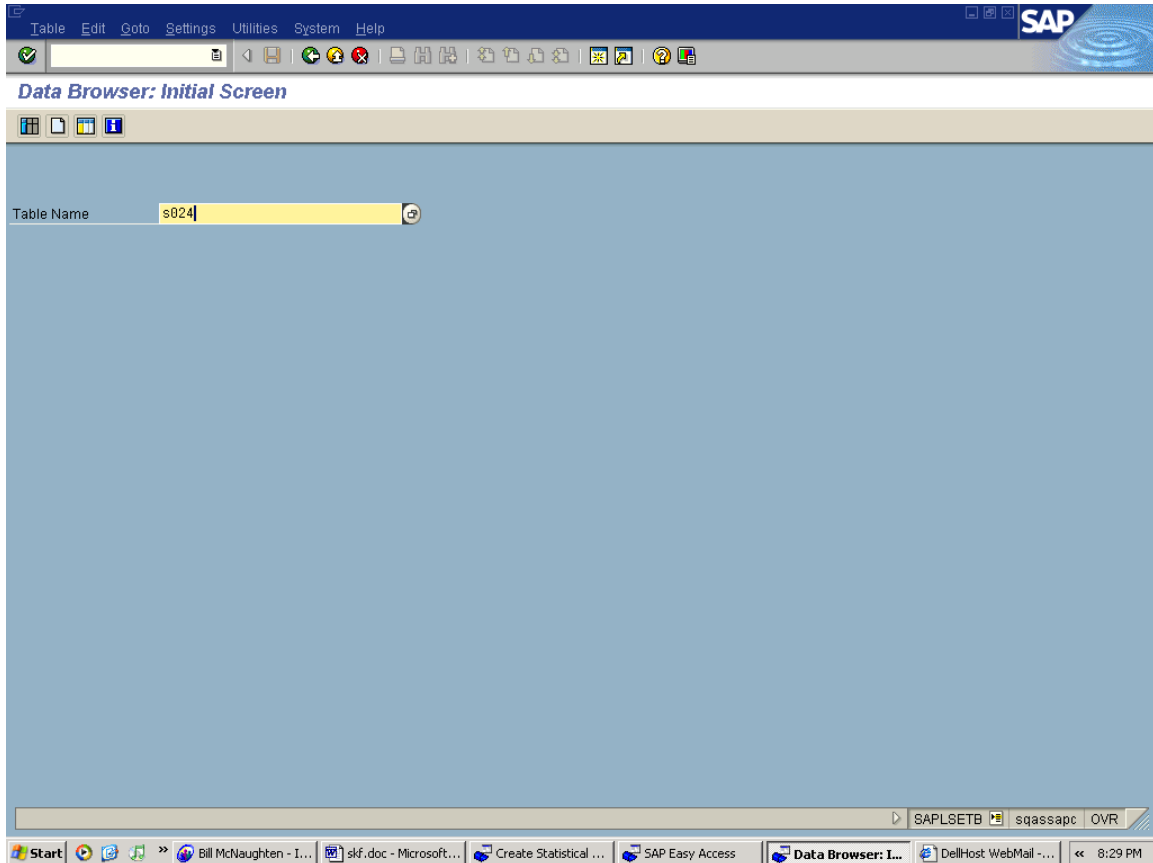
Figure 7: Entering Table Name S024 into the Data Browser

Next, select the "enter" icon for table S024 (see Figure 8).
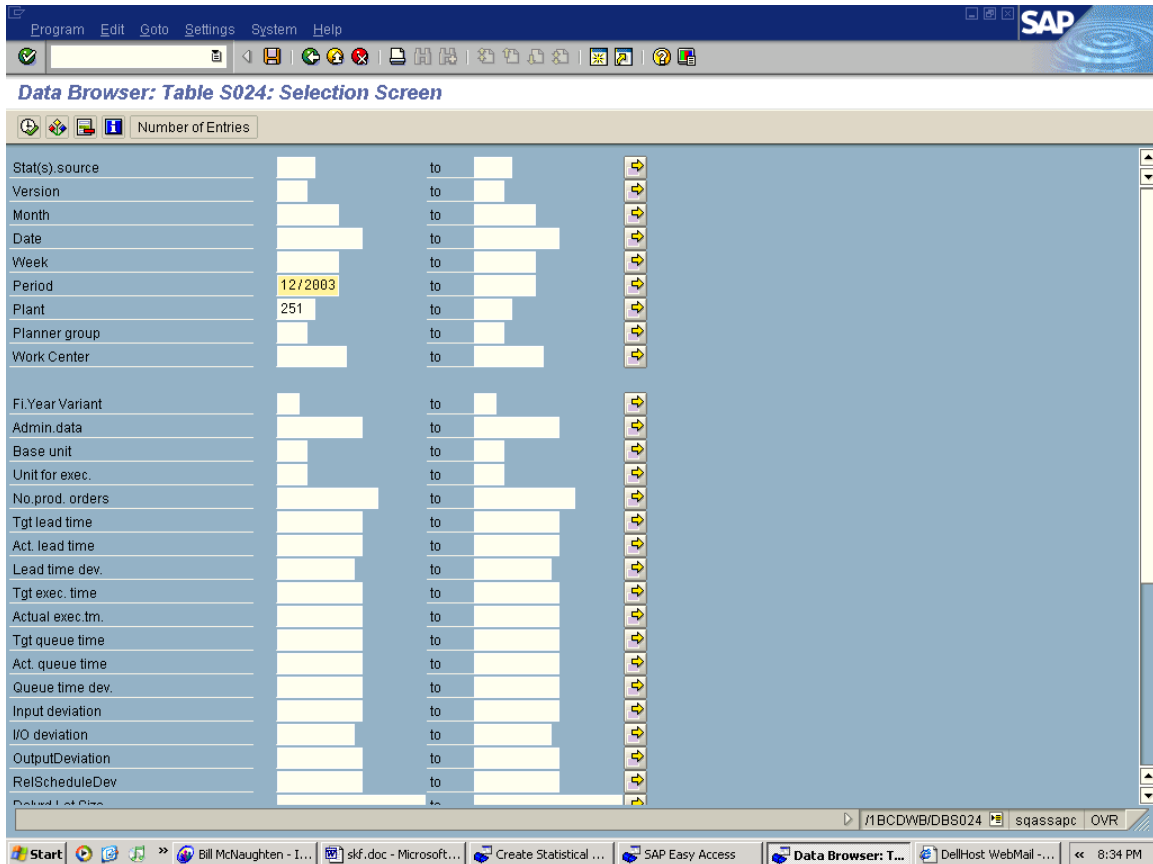
Figure 8: Selecting the "Enter" Icon for Table S024.

Next, enter any selection parameters known to limit the table contents shown and select the "execute" icon to display table contents as shown in Figure 9.

Figure 9: Selecting the Execute Icon to Display Table Contents

Tip: To limit the fields shown, use menu path settings>list format>choose fields

The first record displayed in the example in Figure 9 shows that 35 production orders in work center LINE01 yielded 108,157 cases of production in fiscal period 12/2003. The base unit of CS should be the same base unit defined in Step 1 (Create SKF and Link to LIS), or have a unit of measure conversion. If the base unit is not the same or does not have a successful conversion, an error message is generated in Step 4 (Transfer Actual Data from LIS).

Tip: Table S024 contains many other fields that might be useful for other reporting solutions requiring LIS data. Additionally, many other LIS tables may be utilized to provide data for many other similar solutions. This effort will usually require several iterations to obtain the fields needed.

Tip: The LIS is set up in standard SAP to record the LIS transactions at summarized levels based on characteristics. If this is your first time using the LIS tables, check to determine the time period used in LIS (month, date, week, or period) to collect data. Example: If the FI module is using a fiscal year and periods, then the LIS should be set to populate by period. In the event that the LIS tables were collecting data by month and the FI module used a fiscal calendar with periods, the data collected by month would not match the fiscal calendar periods.

Step 3: Maintain Assignments and Variant

Having created the CO statistical key figure master data PCASE and the linkage to LIS structure S024 – Work Center, Field – GMNGA delivered lot size, it is now necessary to create an assignment. The assignment is necessary to associate the work center and field identified in LIS to a cost center, version, fiscal year, and SKF in CO.

Use this menu path:
Accounting>Controlling>Cost Center Accounting>Period End Closing >Single Functions>Transfers>KVA5 – Activity Independent Statistical Key Figures, LIS

The screen shown will be used in the next step to transfer actual values from LIS.

We must first create assignments as shown in Figure 10.

Select the menu Assignments>Maintain:
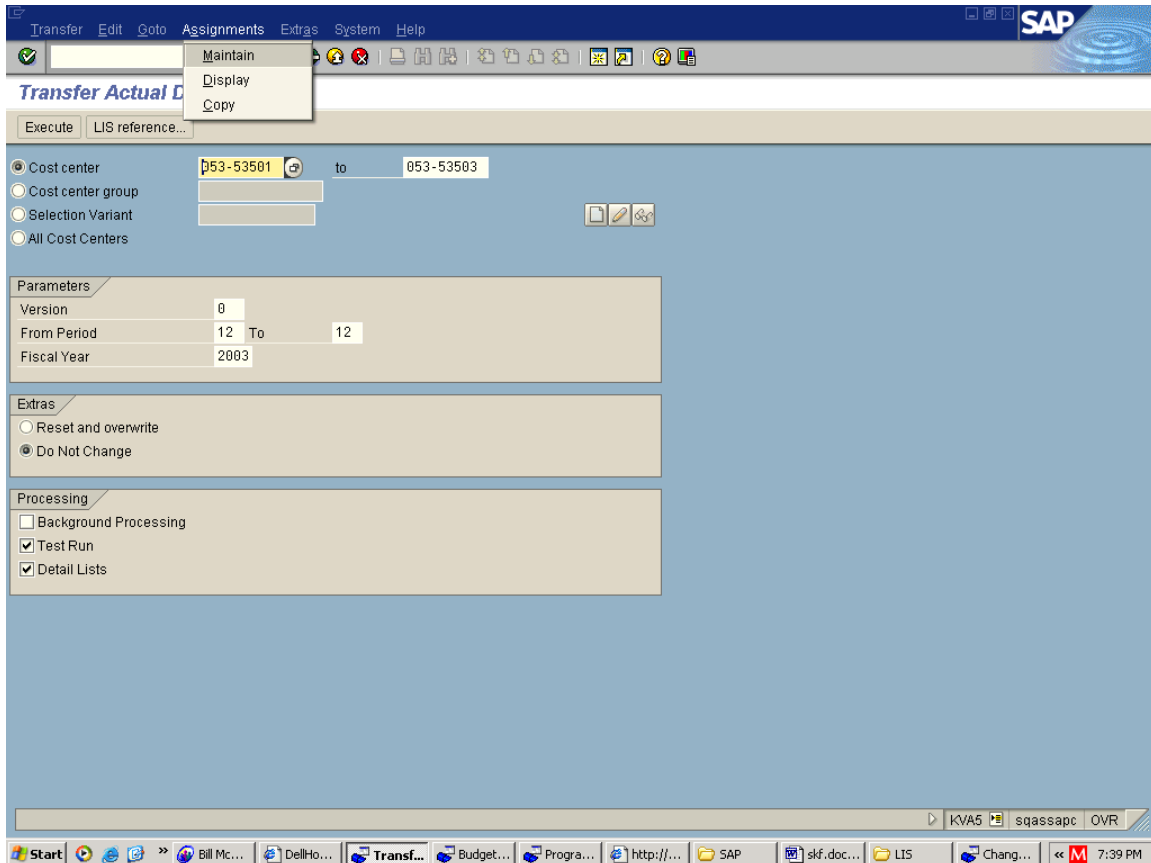
Figure 10: Creating LIS Assignments

The following screen is the first of three used to set up an assignment and statistical key figure and variant.

The first screen allows the cost center, version, and fiscal year to be input (see Figure 11).
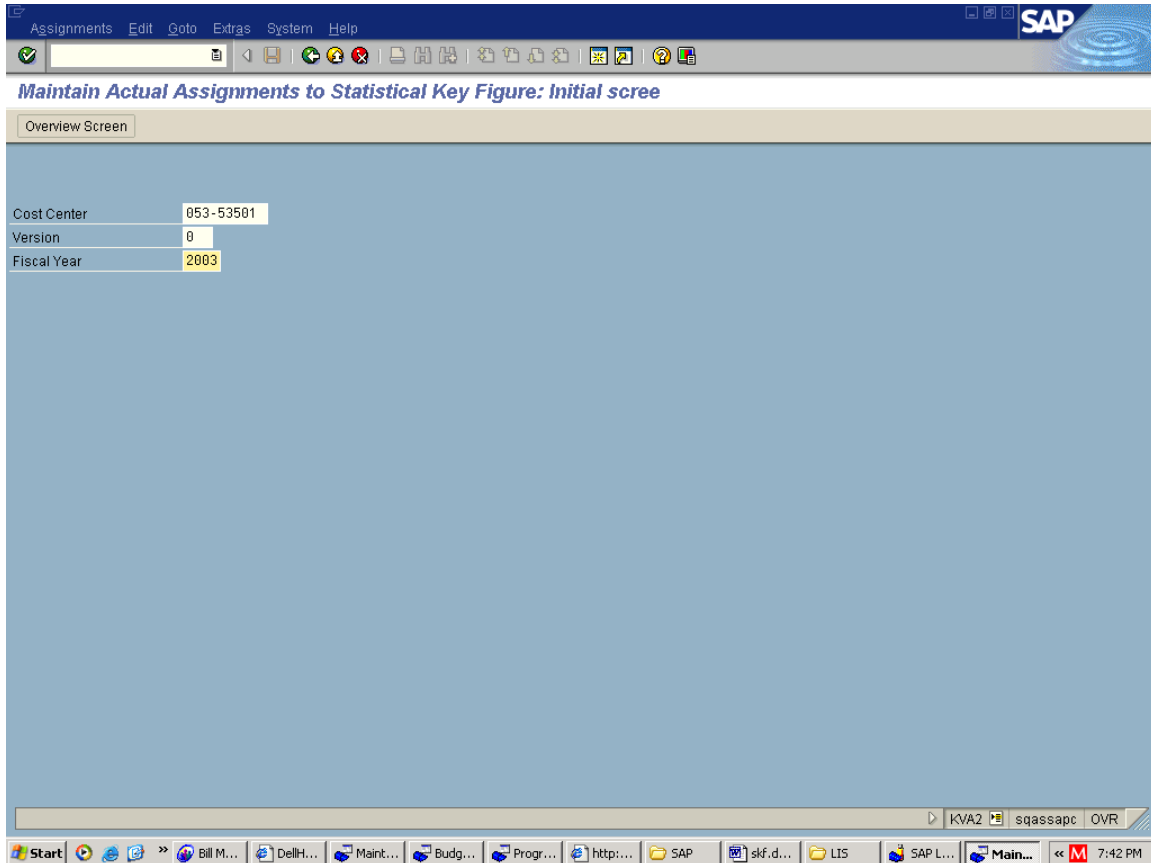
Figure 11: Entering the Cost Center, Version, and Fiscal Year to Be

Having selected cost center - 053-53501, version - 0, year - 2003, we will now assign a SKF on the second screen. Select the "Overview Screen" button and type in PCASES.

On the third screen, we will create a variant that will link cost center - 053-53501, version - 0, year - 2003, and SKF: PCASES to the LIS table and field identified in Step 1 (see Figure 12).

Figure 12: Creating a Variant to Link the Cost Center and the SKF

Select the "Create Variant" icon in the upper-left hand corner.

Now, the variant description - produced cases, work center - LINE01, and plant - 053 are inputted (see Figure 13).
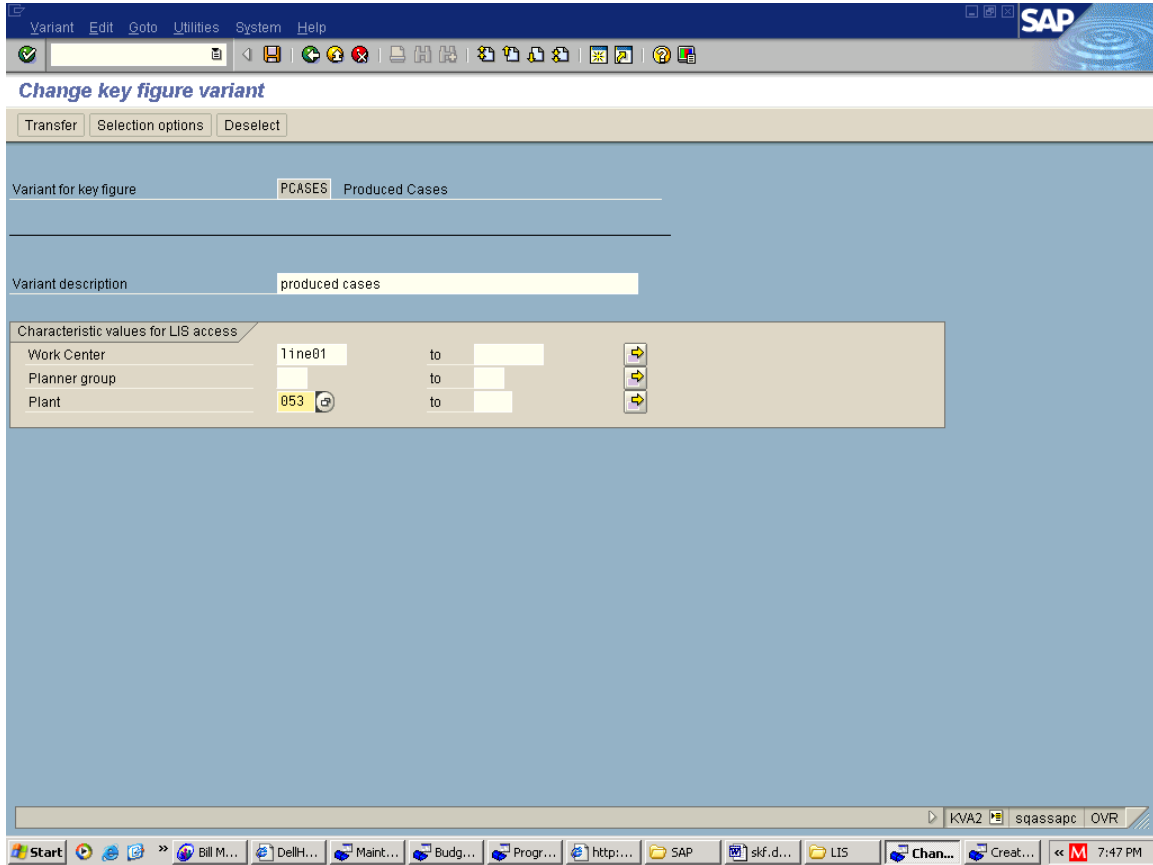
Figure13: Entering the Variant Description

Next, select the save icon to create the system-generated variant shown in Figure 14.
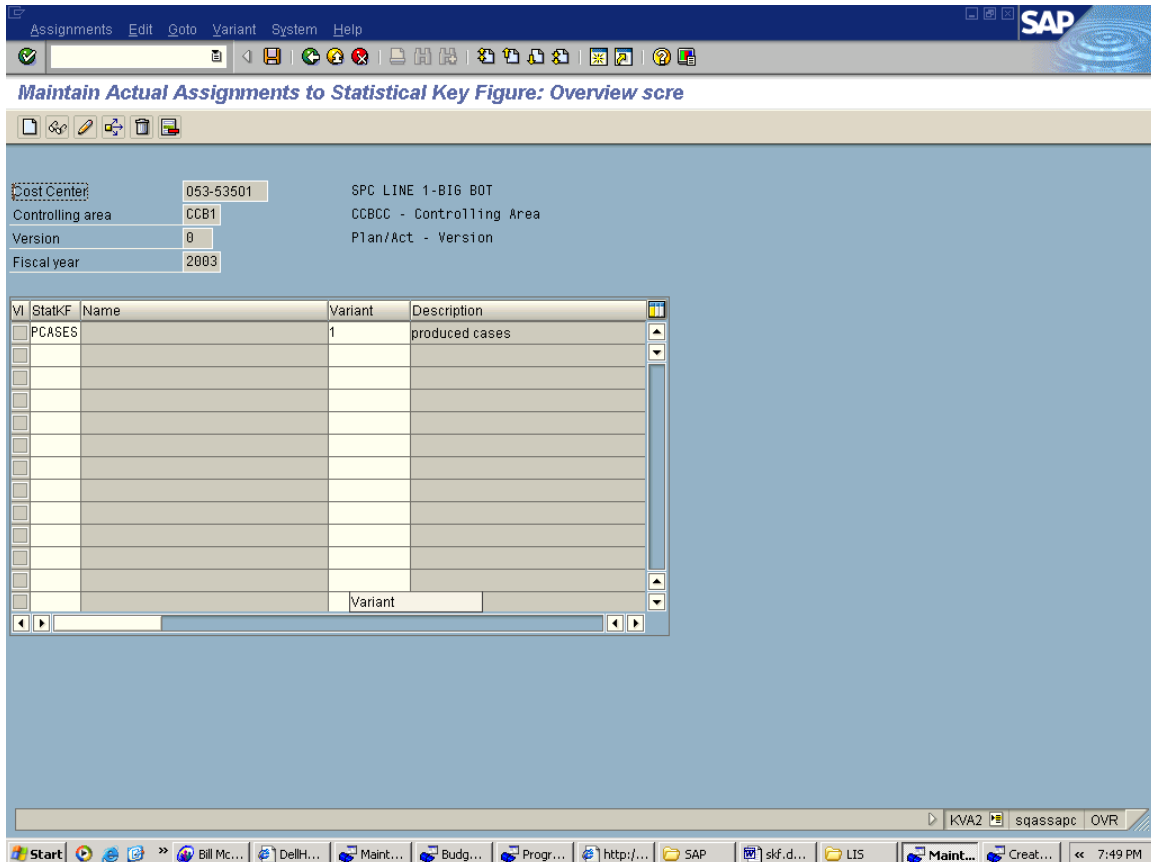
Figure 14: Creating the System-Generated Variant

Tip: Note that from the screen shown in Figure 14, it is necessary to select the save icon one additional time to save all settings.

Note: The "maintain" assignments may be repeated many times. Having set up PCASES and linked to LIS info structure S024 in Step 1, we can now reuse this relationship as often as needed.

Example of Re-Using the "Maintain Assignments" Relationship

Let's show how this works with a brief example:
At this point, the following relationship has been built:

Cost center - 053-53501, version - 0, year - 2003, statistical key figure - PCASES, LIS table - S024, work center - LINE01, plant – 251, field - GMNGA Delivered lot size.

Having created the SKF and linked to LIS in Step 1, the relationship PCASE with a unit of measure "cases" linked to LIS table S024 - work center and field - GMNGA delivered lot size, remains constant. We can create many assignments to related work centers and to cost centers.

Creating five assignments could yield the following relationship between LIS and CO for values.

For version 0, year 2003:
Cost center 053-53501 may be associated to work center LINE01 plant 251
Cost center 053-53502 may be associated to work center LINE02 plant 251
Cost center 053-53503 may be associated to work center LINE03 plant 251
Cost center 053-53504 may be associated to work center LINE04 plant 251
Cost center 053-53505 may be associated to work center LINE05 plant 251

Building on this approach, we can use a handful of statistical key figures and LIS info structures to populate all CO cost centers based on assignments. Examples are too numerous to mention, and can only be identified by investigating the data contained in the LIS info structures. Once the assignments are created, they are valid for the period of a year and may be easily copied for future years.

Creating Assignments For the Future

The assignments are created for a fiscal year. Planning is necessary to ensure new assignments are created as part of year-end processes. This may be accomplished from the screen Maintain actual assignments to statistical key figures (KVA2).

Select menu Assignments>Copy as shown in Figure 15.
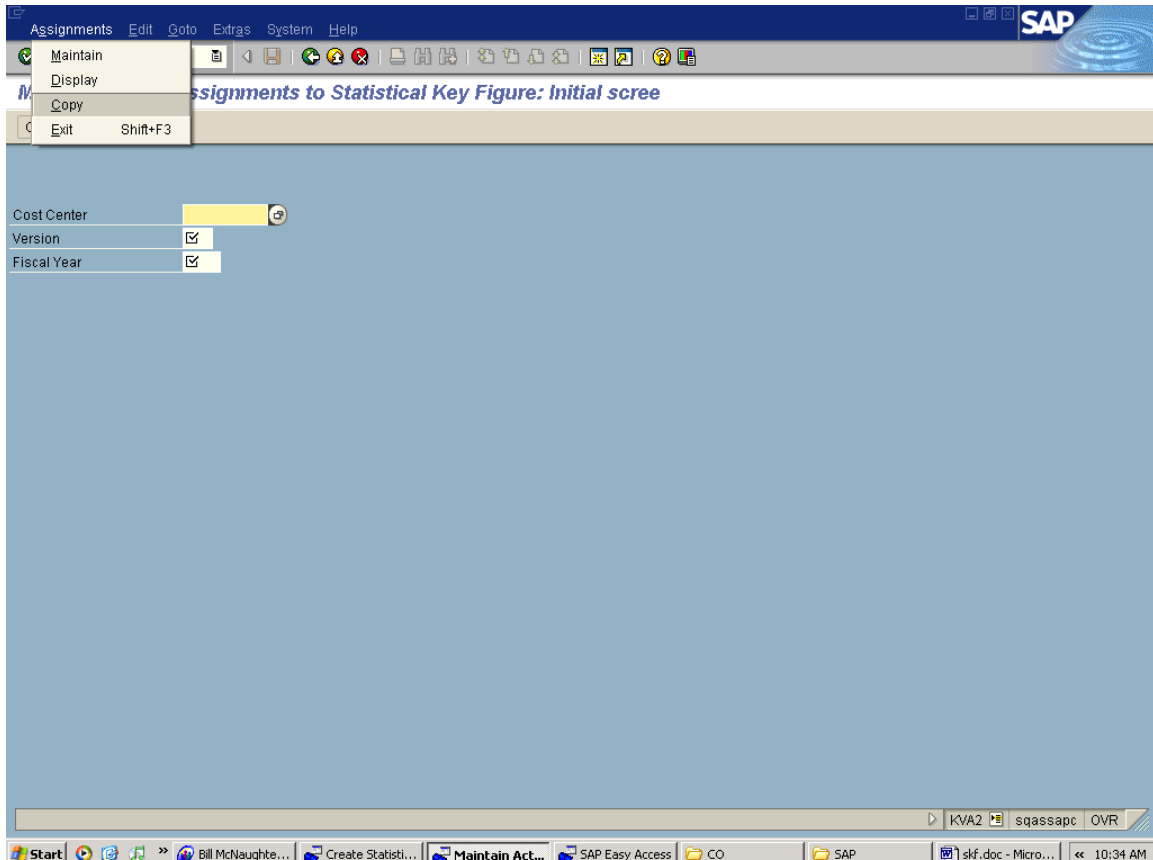
Figure 15: Selecting the Copy Function from the Assignments Menu

As displayed below in Figure 16, some or all of the existing assignments may be copied easily into the next fiscal year using the selection parameters below.
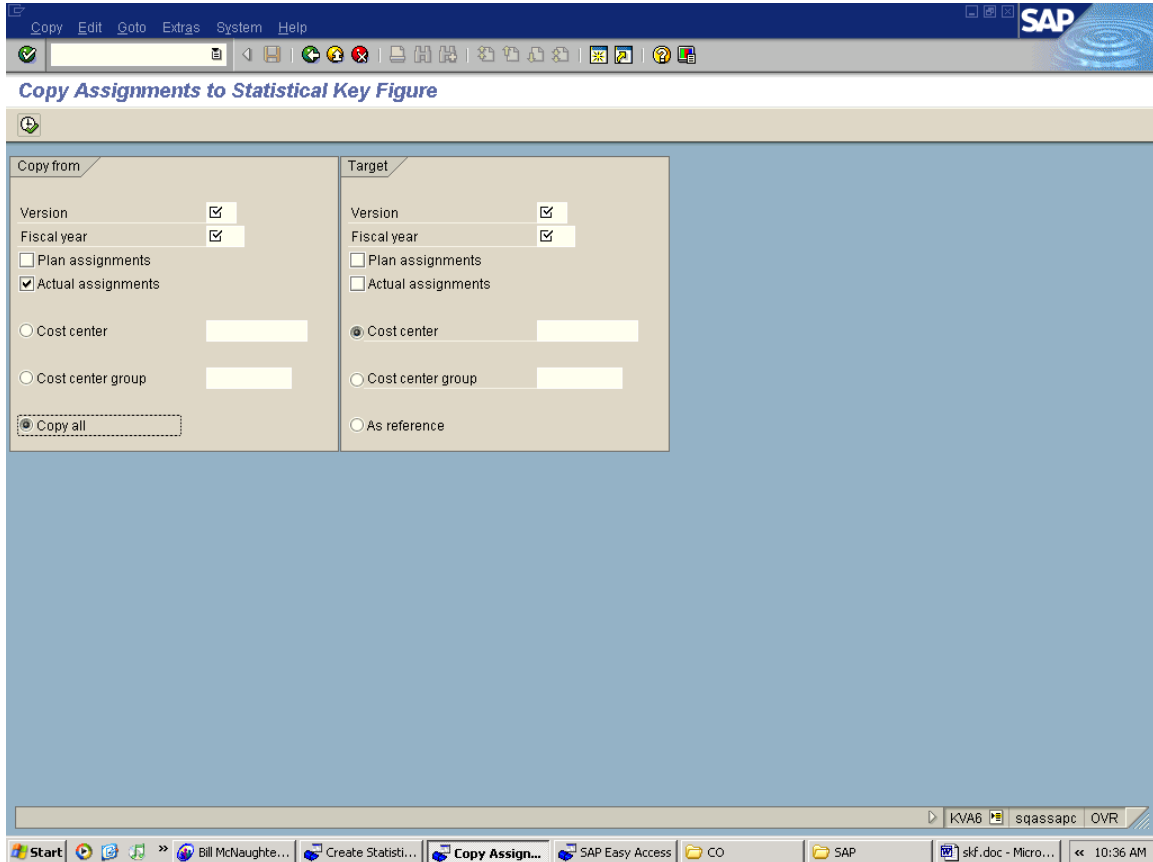
Figure 16: Copying Assignments into the Next Fiscal Year

Step 4: Transfer Actual Data from LIS

Now that we have completed the setup Steps 1 through 3, we are ready to transfer LIS values into the CO module.

Select the "Back" icon to display the screen Transfer Actual Data From LIS transaction KVA5.

By entering the cost center, version, period, and year as shown in Figure 17, we are ready to transfer values from LIS to the CO module.

Figure 17: Entering the Cost Center, Version, Period, and Year

Next, select the "execute" icon.

The screen shown in Figure 18 responds with each cost center SKF and the quantity transferred from LIS.

Figure 18: This Screen Responds with Each Cost Center SKF and the Quantity Transferred from LIS

In the event there are errors during this process, the message button should be used to get a detailed breakdown of any errors that should be investigated. In the event there are any problems with unit of measure conversion, error messages would also be generated. Example: The statistical key figure in CO is defined with a unit of measure as "gallon" and the LIS characteristic is defined as "each." Since the unit of measure is not the same and there is no conversion from gallon to each, a conversion error message would be generated during the transfer process.

Practical Application of LIS-to-CO Conversion

1. Custom-Report Painter Reporting
2. Standard SAP Reporting
3. Allocations: Assessments and Distributions

1. Custom Report Painter Reporting

Once the SKFs have been populated with quantity values, it is possible to develop custom Report Painter reports that provide quantities, dollars, and per unit calculations based on the values transferred from LIS.

The example in Figure 19 shows a custom Report Painter report that contains quantities of produced materials in the first section of the report: Quantity Produced Fin 1, Quantity Produced Fin 2, and Quantity Produced Semi 1. Following the quantity information, the report contains the typical cost center expense postings.

Having combined the quantity and cost information on one report, the second column "Per Unit" is computed by using the quantities as a denomination for costs incurred to create a per unit calculation column.

Figure 19: Custom Report Painter Reports

2. Standard SAP Reporting

The values transferred from LIS to CO may now be displayed on standard SAP cost center reports.

Follow this menu path:
Accounting>Controlling>Cost Center Accounting>Information Systems>Reports for Cost Center Accounting>Plan/Actual Comparisons>S_ALR_87013611 Cost Center Actual/Plan/Variance

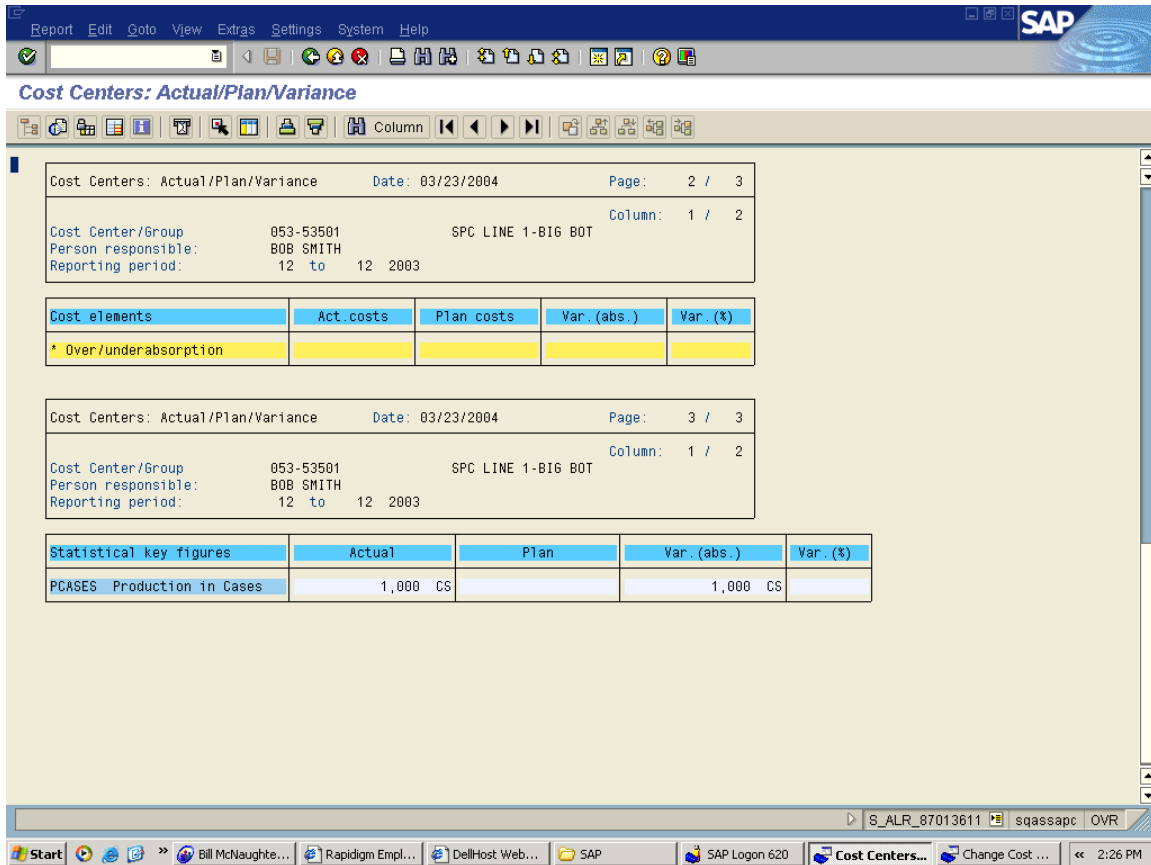A sample of this type of report is shown in Figure 20.

Figure 20: Standard CO Report with LIS Data

In addition to the debit and credit transaction information provided on the cost center report, we now have statistical key figure quantity data available.

3. Allocations: Assessments and Distributions

Statistical key figures transferred from LIS provide an excellent basis for assessments and distributions. Typically, in the month-end procedures, allocation processes would follow the process transferring actual data from LIS. Once the values are provided for the new period/month, a meaningful and accurate basis for allocation has been established.

Example: Assessment using CO module statistical key figures populated from the transfer of actual values from LIS.

After displaying a cycle, select the "First segment" button as shown in Figure 21.
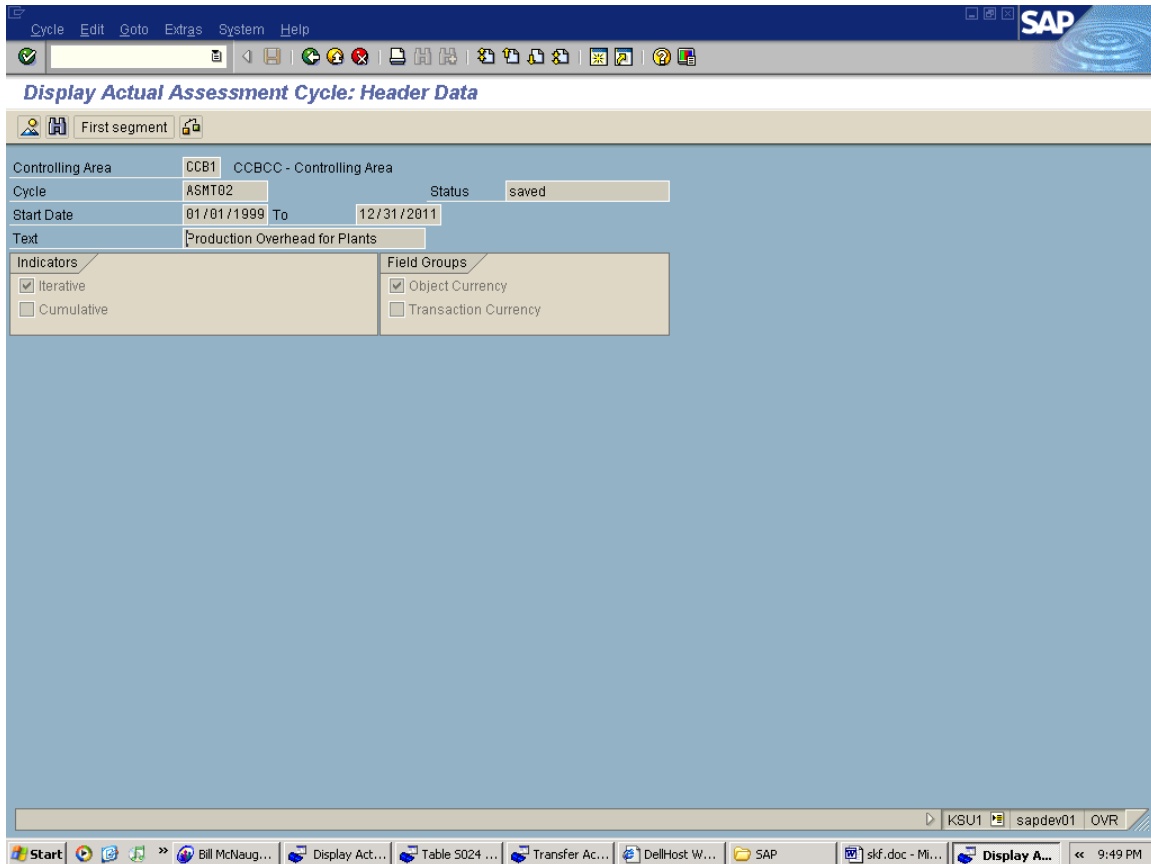
Figure 21: Selecting the First Segment Button

Segments may be defined that reference statistical key figures, such as receiving tracing factors. The field "Variable portion type" references "Actual statistical key figures" (see Figure 22).
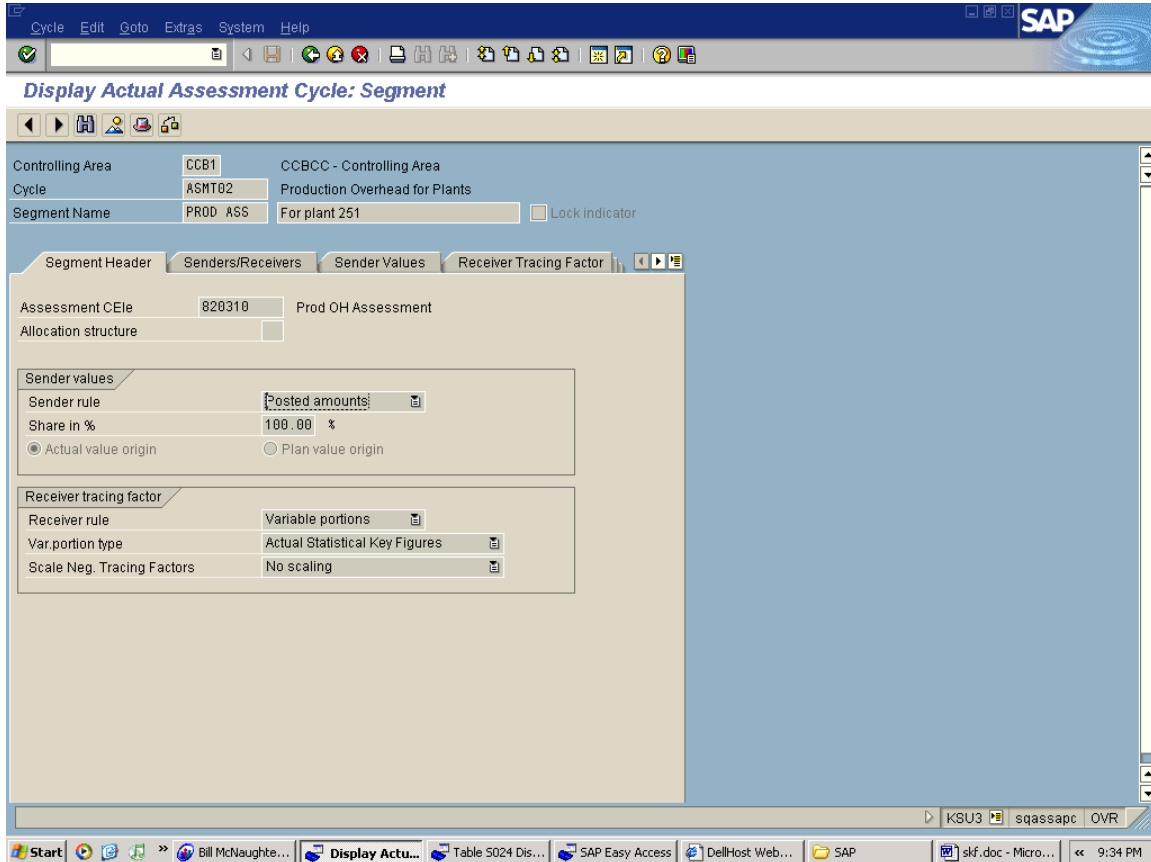

Figure 22: Screen Showing the Variable Portion Type of Actual Statistical Key Figures

By selecting the Receiver Tracing Factor tab as shown in Figure 23, the statistical key figures used for the assessment are displayed. The other tabs displayed (Senders/Receivers, Sender Values, Receiver Weighting) determine the cost elements used, cost centers processed, and weighting factors that may be associated with values transferred for each value.
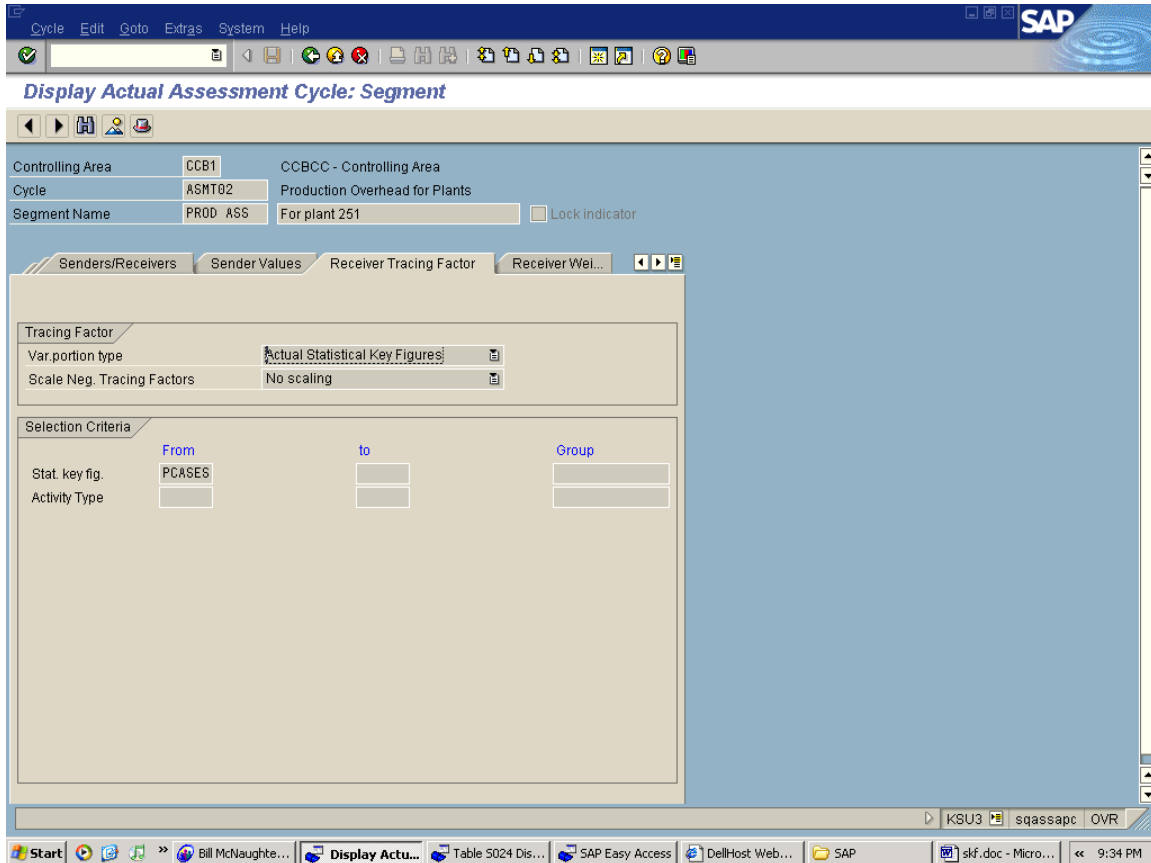

Figure 23: Selecting the Receiver Tracing Factor Tab

The approach outlined for assessments may also be applied to distributions.

Conclusion

In this article, we have shown how to link LIS to CO for enhanced reporting capabilities and better cost center management. We covered all the major steps in this process, including the creating the SKF and linking it to the LIS, validating the new table, maintaining assignments and variants, and transferring the actual data from LIS. We also reviewed some of the benefits that SAP users can gain from this conversion process. Perhaps the best thing about linking LIS to CO is that once it's done, you don't have to worry any more about manual data entry needs from LIS into CO. It is hard to truly benefit from an SAP installation if you can't get the reports you need. I hope this paper has provided you with the methodology and understanding to improve your cost center functionality. I look forward to writing more about my Controlling module work at Coca-Cola Bottling Co. Consolidated as a guest contributor to SAPtips.

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