

# Data integrity within SAP<sup>®</sup> data copy tools

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## Introduction

There are a few ad hoc, SAP data copy tools available on the market. Each of these, in theory, provides non-technical users with the ability to automate data copying from a source SAP system to a target SAP system where the data is needed.. Enormous effort and time is spent manually creating data on QA, Development, and other systems, in support of daily work that these users do. As an alternative to a full system refresh, these tools provide substantial productivity gains to your organization, as well as other benefits. However, there is a profound difference in the capabilities and the value of these tools.

To illuminate these differences, we must discuss your organization's SAP data. Your transactional data objects represent an event that happened at a certain point in time. How the process flows depends on customizing as well as the conditions in the system at the time, e.g. stock levels, budgets and number range pointers. When copying isolated transactions with an ad hoc SAP data copy tool, it is not safe to simply move the records directly from one client to another, since the conditions which permitted the original transaction will almost certainly be different on the target client.

## You are copying a process – not point-in-time data!

The **ONLY** proper way to copy data from one system to another is through SAP's application layer. When you are copying data from one SAP system to another, you aren't just copying data, you are copying a process.

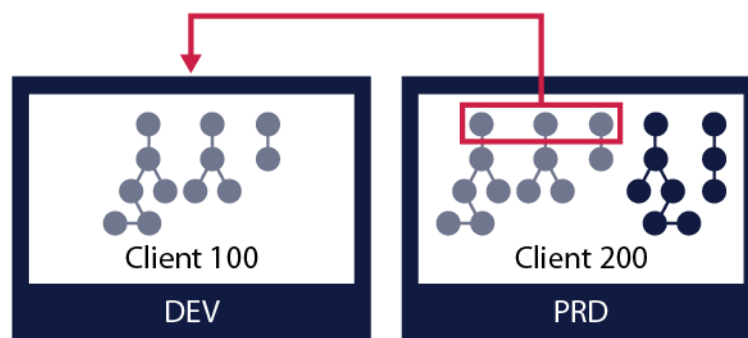
Let's look at an example of a sales document flow and let's say that there is an issue with the way a delivery splits on your production system. An ad hoc data copy tool should allow you to select the specific sales order for the copy as well as any other integration objects that may also be of interest. It also should allow you to copy the preceding and subsequent documents associated with the sales order. This would enable you to test the particular part of the process flow where there is an issue. Copying the scenario from production to development, for instance, allows you to replicate all the steps up to the point where the problem occurs, i.e. you could copy the preceding sales contract and sales order and then try to deliver on the development system to debug what is going wrong.

If the tables are simply copied as-is, the sales order will be pointing to the broken delivery already and there would be no way to re-deliver the sales order on the target system to debug what is going wrong, since it would be considered delivered. It is critical that any ad hoc data copy product allows you to debug the entire process – in addition to just copying the data.

## There are many calculations that must occur on the target system

When inserting transactional data, there are many calculations that must be executed and many balances to be updated on the target system. By using the SAP application layer, an ad hoc data copy tool would ensure that all of the calculations, aggregates, balances, etc., are updated properly on the target system. It would ensure that referential integrity (foreign key relationships), number ranges and logical system references are also correctly maintained in the target system. These same assurances are impossible if the ad hoc data copy tool copies data directly in a table-to-table manner instead of through the SAP application layer. There is no way to invoke these processes when copying in any other manner but through the SAP application layer! Thus, data integrity and other critical conditions cannot be delivered with an SAP ad hoc data copy tool that copies directly from table-to-table. With these products, the first time that transactional data is copied to a target system, these totals and other values will be out of sync and will remain so until the entire client is totally refreshed!

The Object Sync component of Data Sync Manager (DSM) product suite, from EPI-USE Labs, allows you to select data at the SAP business object level (such as Material or Employee data) or at the document flow level (such as Sales Order or Delivery data) and copy it to a target non-production system. The product is very easy to use, enabling your functional users, developers and production support personnel to copy what they need, when they need it, and where they need it. No longer will they have to enter endless amounts of data manually. Object Sync is an amazing productivity enhancer for developers, testers, trainers, and all manner of users throughout your organization.



When you ask for a specific object to be copied from one system to another, Object Sync automatically finds and copies all related objects on the source system – ensuring that full data integrity is maintained on the target system. This approach is not dissimilar to other competitive products on the market, but there is one very significant difference between Object Sync and the other products; DSM Object Sync copies data through SAP's Application Layer using Business Application Program Interfaces (BAPIs) and other native SAP mechanisms. Other solutions use direct table updates.

Further, Object Sync allows your Basis team to fully enable and empower users to copy data for themselves, without compromising the quality of the systems being accessed. The Basis team retains full control of what data is copied, how data is inserted on the target system, how data is masked and many

other aspects of the copying task. Your users get what they need, quickly and painlessly, and your Basis team is freed up to spend their time on more value-add activities for the business. This capability is delivered through Object Sync's administration function, which allows the Basis team to control the manner with which the product will be used. This critical control capability allows Object Sync to be used by your functional users across the enterprise. No other available tool has this capability, severely limiting the business value that can be gained from the tool.

In addition to the serious issues discussed above, consider these advantages of Object Sync's approach of using the SAP transaction layer when copying data:

- Object Sync allows for 'cloning' of the data being copied (creating multiple instances of the data on the target system for repeated execution or testing, or for creation of a volume of data);
- Object Sync allows for numerous people to be copying data into the same client without 'stepping on each other's toes.' By using the application layer, data will be inserted using the next available number on the target system, thus avoiding instances of one inserting data over another;
- Not only will Object Sync include any custom data that exists in the source system (such as z-tables), but it will also trigger any necessary custom processes or user exits that are defined on the target system;
- Object Sync ensures the user's peace of mind because all of the data on the target system is complete and accurate, just as if it had been posted normally (i.e. manually). Other products that don't use the SAP application layer will mean data inconsistencies on your target system. Users will be unsure if these inconsistencies are caused by inconsistent data, by configuration or code changes that are being tested. This makes problem resolution a nightmare. Your organization doesn't want more uncertainties - it wants less, when it comes to testing and problem resolution.

Let's take a slightly deeper dive into the assertions made above, and look at some example areas in which problems can be experienced when using such the crude, direct table-to-table approach when copying object level data from one client to another:

## Transactions are not recorded correctly

### Master or Customizing data does not support the transaction

Material may be marked for deletion, a Sales Organization may not exist or a characteristic essential for the document may be missing. **The direct update approach ignores these facts and creates an inconsistent document.**

### ATP

"Availability To Promise" checks on the likely position of stock for Delivery before a Sales Order is created. Where this functionality is used, it is a very important part of the process. **How would a direct update transfer tool handle ATP?**

## User exits which require additional information on a process are missed

Some organizations create user-exits within important processes to record additional information specific to the company. The direct update approach means that the product has no visibility of this process at all. Any information gathered, for example for interfaces, will be ignored and any checks on the data will also be missed.

## Controlling documents are not updated

The configuration and conditions of the target system determine how accounting documents will trigger controlling documents. The BAPI ensures this happens in a correct and consistent manner.

**How would a direct transfer approach handle this?**

## Stock levels do not reflect the activity of the transactions

When a process buys or sells materials there is usually an effect on the stock levels available. **Without updating the stock levels the system history is inconsistent and there is no correlation between the documents in the client and the stock levels.** How will this affect future activity on the testing client?

## Account balances, budgets, forecasts, etc., will not be updated

When one accounting document posts it can affect numerous other areas of the system. Budgets, Forecasts and Account balances should all be updated. **Without understanding the configuration of the source and target system it would be impossible to consistently update a target client directly.** This is where the SAP application layer can do the work for you.

## Further processing is not consistent

### ALEs and Deltas

All SAP systems interface with other systems in one way or another. If transactions are not processed via the SAP application layer, or via human input, will they correctly affect all outgoing interfaces? For example, would a BW system linked to the target client pick up the delta change? **Would a document which crosses between CRM and ERP be correctly reflected in both systems?**

### Support pack changes

Testing the application of enhancement packs is compromised if documents are simply placed in the tables, as they were originally created on the source system (when support packs were not applied). **By using the BAPI approach DSM tests that a document with the same properties now posts on an upgraded or patched system.**

## Workflow is not triggered

When testing complex processes customers often wish to test workflow on the client. **How would the workflow know of a change made directly at table level?**

## Summary

DSM Object Sync uses the SAP application layer to create a new document by replicating the process which created the original document. This allows the creation of entire document flows with guaranteed consistency and data integrity on the target system. This is impossible using any other data copy mechanism!

Object Sync copies the data through SAP's application layer – it ensures that all processes occur exactly as they would if the data was being manually posted. Doing it any other way will result in data integrity problems and an inconsistent client. Tools that employ the crude direct table-to-table method try to portray their approach in a positive light but, at the end of the day, there is no way that they can ensure that all related data will be copied - and there is certainly no way that they can emulate all the processes that must occur for each object. Be very wary of any product provider that tells you otherwise!

## About EPI-USE Labs

EPI-USE Labs provides software and services to help our clients manage their SAP landscapes. Our clients work with us to reduce costs of landscape management and to implement significant changes to their landscape, like moving to the cloud, mergers and acquisitions and heterogeneous migrations. For more information visit <http://www.epiuselabs.com>