CFI

the PBS archive add on for financial accounting and material documents

Manual Part B

- Administration –

Compatible with

SAP R/3 4.x

SAP® Certified
Powered by SAP NetWeaver®

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Introduction to the PBS ILM Concept

Information Lifecycle Management

Information Lifecycle Management (ILM) means the administration of information related to the time when it is used, taking into account its total costs and compliance. A conclusive, efficient ILM concept must, as a result, control data growth, manage retention rules, and also ensure compliant data storage. Furthermore, an easy access to archived data is decisive and, for example, its transfer during internal and external audits.

PBS ILM Concept

PBS software provides existing SAP customers extensive solutions to put into practice the requirements that were described above for a stringent and successful ILM concept. PBS is considered as an expert for complex, integrated data accesses to archived and database data and meanwhile, also to data that is located on decommissioned SAP systems. In addition to classical SAP data archiving, SAP BI-specific nearline storage is also supported.

PBS archive add ons®

PBS archive add ons always rely on SAP archiving having been carried out successfully. This is the basis for a permanently high-performing SAP system. In principle, you can indeed retain posted documents in the SAP database for a very long time due to a large database capacity. Depending on the document volume, this may result, however, in massive performance losses and, sooner or later, heavily increasing operation costs. The daily backup becomes difficult for large data stocks, for example.

A convenient display and evaluation of archived transaction data – as the SAP user is used to for database data – can often only be carried out in a very restricted manner using SAP standard means depending on the application module. This is particularly the case for large archive data stocks. The PBS archive add ons can be used here. They can be provided for nearly all SAP modules and release levels, and start with a "C" (for Complete) in their description. For example, PBS archive add on CCOPA for the SAP module COPA.

Using the PBS archive add ons you can quickly and easily access your archived data even after data archiving during your day-to-day business. The unrestricted data access is realized by an intelligent indexing concept. It extends the SAP archive infrastructure components and integrates itself optimally with SAP archiving. Archive data that has been indexed can still be provided after a release upgrade immediately, without restrictions, and without migration effort. The PBS archive index is stored in sequential files of the SAP file system in the same way as the SAP

archive data. Afterwards, you can access the archive data online via the familiar transactions. The SAP user can display the data from the SAP database and the archive data simultaneously via the PBS archive add on index. For the user, it seems as though the archived data is still in the SAP database.

The deep integration of the PBS transactions also enables direct navigation to subsequent and previous documents both within the indexed SAP module as well as to linked documents from other SAP modules. This applies not only for resident but also without restrictions for archived data. The benefit for the user increases the more PBS archive add ons are used.

The potential benefits of the ILM concept raises substantially if you take into account the savings that result from the SAP mirror systems. There are usually at least two of them meaning that the saved disk storage can be tripled by performing data archiving. Thus, time is saved for the data backup.

Table of Contents

1. Introduction

The ***PBS archive add ons*** are constructed in modular form and cover the application modules FI, SD, MM, CO etc. with a special program package for exactly this application. You can easily see from the name which *PBS archive add on* belongs to which SAP module: CFI, CSD, CMM, CCO etc. All *PBS archive add ons* have in common that they can be easily installed in the SAP system via the SAP transport utilities **"tp"** and "SAINT". For installation details of the *PBS archive add ons* please see the specific installation manual (manual part A).

This administration manual was written to make construction and administration of the *PBS archive add on CFI* as easy as possible. At first, data archiving with transaction SARA is discussed; the second topic is the PBS index construction from the SAP archive files.

The modular user manual of each *PBS archive add on* is composed of partial manuals:

- Part A: Installation
- Part B: Administration, Archive Construction and Maintenance
- Part C: Application Programs / Transactions
- Part D: Migration Support R/2 => R/3 (if available)

There are additional manuals for the PBS utilities: Conversion Tool, Archive Browser, Translation Tool.

Should you have questions regarding the installation of the *PBS archive add ons* or if you have problems when installing the software please call directly the **Service Hotline of PBS Software GmbH**:

Phone: +49 - 6251 - 174 110
Fax: +49 - 6251 - 174 174
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Release Compatibility

The ***PBS archive add on CFI*** discussed in this manual runs with the basis programs of SAP AG, 69190 Walldorf/Baden, R/3 system, **releases 4.0, 4.5, 4.6, R/3 Enterprise**.

2. Overview of the PBS archive add on CFI

2.1. Nomenclature

Speaking in the R/2 environment of *Reorganization* when actually meaning the *Archiving* of completed documents, the first term today is mostly allocated to the *physical* reorganization of the database whereas the second means writing completed documents to sequential files while removing them from database.

In this manual we use the term *Archiving* completely in the SAP sense: Processes controlled by SAP programs like the checking of documents regarding their archivability, the writing of these documents to sequential archive files and the removing of the documents from the database are called in summary *Archiving*. The archiving is controlled centrally by the SAP transaction SARA (see chapter 3).

With the archive add on CFI PBS now provides a program package which allows the user to access the SAP archive files in the online operation in a way as if they never were archived. To completely relieve the database from index data also, the documents on the SAP archive files are read by our index generation programs and - provided with all necessary index information - transferred into the file system. This process is called *Indexing* respectively *Construction* of the PBS archive add on CFI.

2.2. Navigation up to 4.5

If you have not yet integrated the central PBS transaction into your user profile as described in chapter 3.1 of the CFI user manual (part C of manual), you can get into the PBS main menu with the following transactions; from the main menu you can start all PBS functions by mouse click:

Central PBS menus	Transaction codes		
	Up to SAP release **3.1**	SAP release **4.0**	From SAP release **4.5**
PBS main menu	ZPBS	/PBS/PBS + Click on button *PBS archive add on*	/PBS/PBS_45 + Click on button *PBS archive add on*
PBS CFI menu	ZCFI	/PBS/CFI	/PBS/CFI

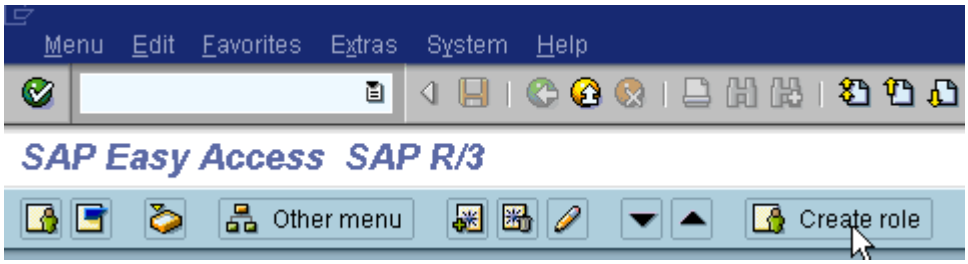
Please note that it can be necessary to enter /n or /o before all PBS transactions (other than original naming area). If you get a message such as "function code cannot be selected" or anything similar after entering e.g. /pbs/cfi, try again with /n/pbs/cfi.

Another way to integrate the PBS transactions into the R/3 system is the entry of the PBS report names under the SAP original transaction names in transaction table TSTC. This is a modification which can be reversed and is carried out with the report /PBS/CFI_TMOD (respectively ZZCFTMOD): "Set up PBS transaction code" realizes the modification. Then, being in the SAP menu, the user is provided with all PBS CFI display transactions (under the SAP original transaction names). "Set up SAP transaction code" reproduces the original SAP status, i.e. resets the modification of table TSTC.

2.3. Navigation from Release 4.6

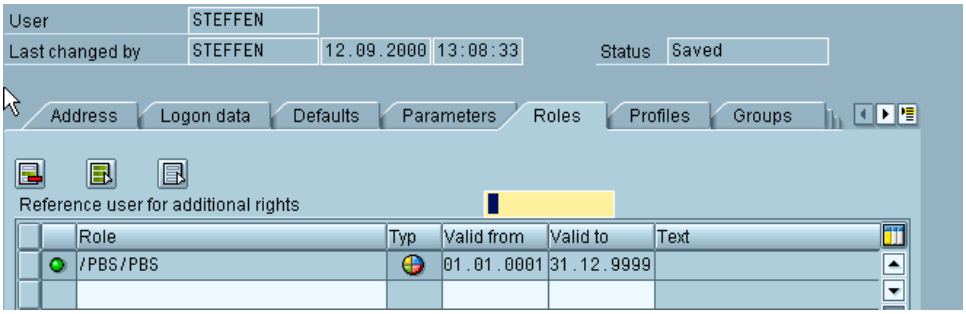
From release 4.6 the navigation has completely changed due to the implementation of the SAP Easy Access technique. This has also its effects on the transactions in the environment of the PBS archive add ons.

The delivery of the PBS archive add on CFI contains area menus /PBS/PBS (main menu of the PBS modules) and /PBS/CFI (financial accounting functions). From these menus, you have to generate now activity groups (4.6B) respectively roles (from 4.6C) which then can be integrated into the user master. You can also create an activity group/role directly from the Easy Access menu.



You are free to choose the name of the activity group/role; the name can also be within the PBS naming area. A PBS area menu is then transferred by pressing the function key **'Transfer menus from area menus'** by indicating the corresponding PBS menu name. During the transfer, the system query for the resolution of the area menu is to be answered with 'yes'.

The role/activity group created this way can now be integrated in the corresponding user master. We recommend to allocate global activity group/role /PBS/PBS to the administrators and the special function menu /PBS/CFI to the end users.



Please see the current SAP standard documentation for more details on the creation of activity groups/roles.

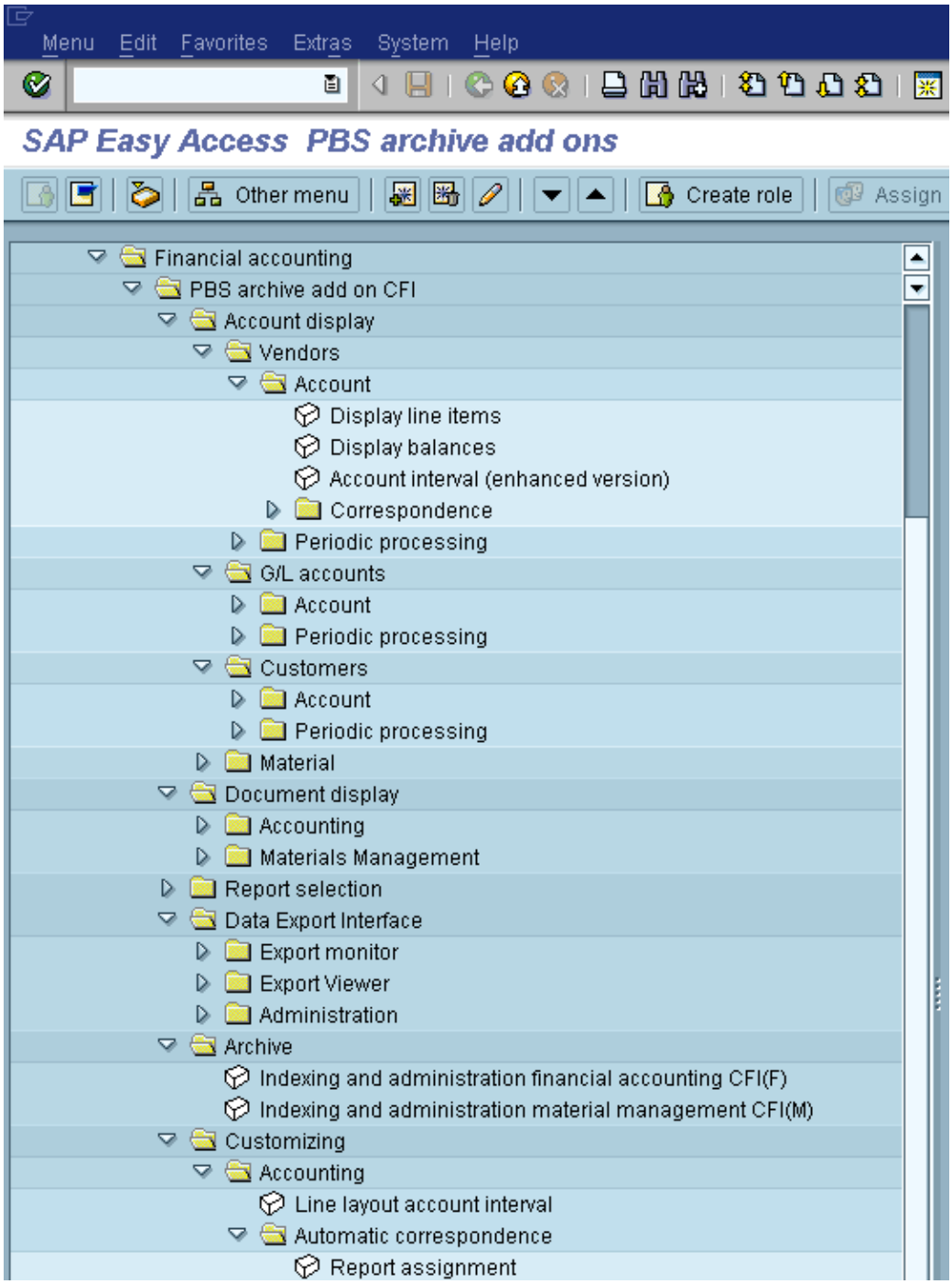


Diagram 1: PBS archive add on CFI via Easy Access Menu

2.4. Modules FI and MM

The PBS archive add on CFI covers the archiving object FI_DOCUMNT of the module FI and the archiving object MM_MATBEL of the module MM. This has practical and historical reasons: In the R/2 module RF there are financial accounting documents (document types WE, WA, etc.) which also contain material information. In R/3, these documents were assigned to the module MM. However, also under R/3 there is a close relationship between the material movement and the corresponding financial accounting document.

3. Archiving in the SAP R/3 System

If you are already familiar with transaction SARA and the Customizing for the archiving objects FI_DOCUMNT and MM_MATBEL, you should nevertheless read this chapter carefully because certain definitions and adjustments have to be carried out already in the present stage regarding the later construction of the PBS archive add on.

However, we do not try here to substitute the detailed SAP documentation on this topic, published under the title "Managing SAP R/3 Archiving Projects" and provided in the SAPnet. We urgently recommend to read this documentation without restriction.

3.1. General Customizing of Transaction SARA

The ways through the menu of the transaction SARA are somewhat different in the various SAP releases. Here we discuss the Customizing in release 4.0B; however, the adjustments mentioned here also apply for the other releases and can be carried out at the corresponding positions. Normally, they can be found easily, although the details may differ compared to 4.0B.

Having called transaction SARA the following initial screen is displayed (Diagram 2):

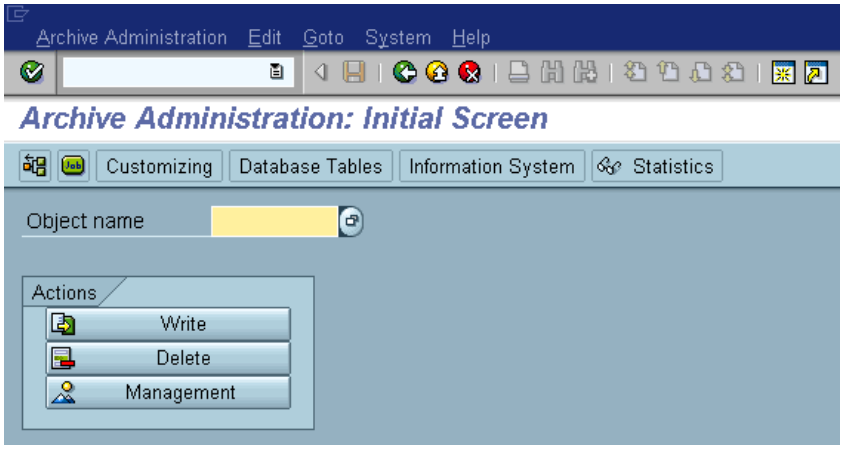


Diagram 2: Initial screen transaction SARA

Now you should enter one of the archiving objects (FI_DOCUMNT or MM_MATBEL) covered by the PBS archive add on under *Object Name* and press the button *Customizing*. Under 4.0B a popup like in Diagram 3 is displayed (or under 3.x directly in Diagram 3).

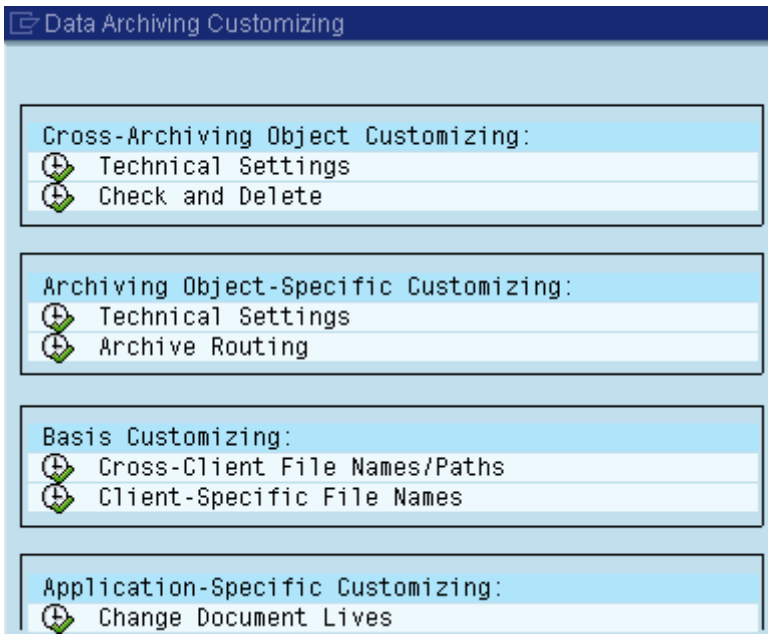


Diagram 3: Selection of customizing transactions - archiving object FI_DOCUMNT

3.1.1 Technical Settings

If you carry out now the first of the selection possibilities (*technical settings*) a screen like Diagram 4 opens (under release 3.x you get there directly without the intermediate popup Diagram 5).

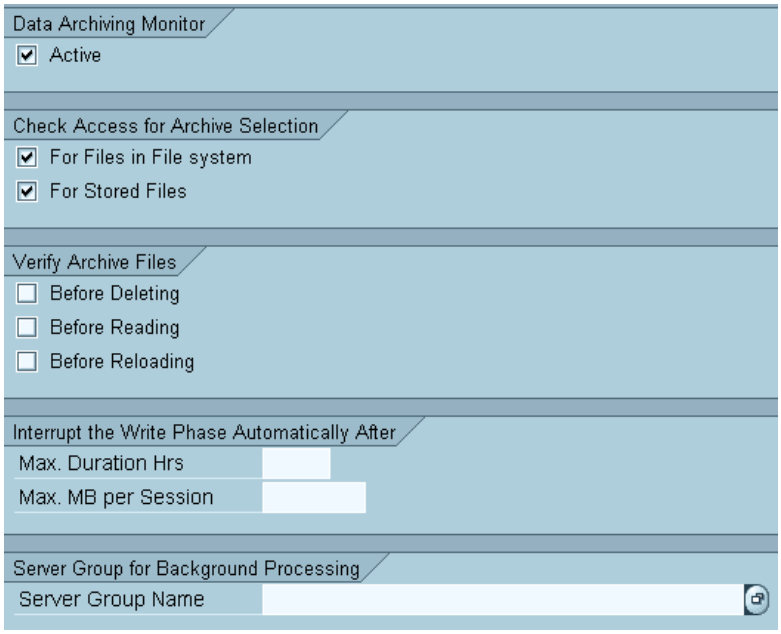


Diagram 4: General Technical Settings

You should deactivate 'Verify Archive Files → Before Reading' in this screen. If this button is activated, the archive is sequentially read for each individual access to the document.

If you execute the second selection possibility (*technical settings*) you will get Diagram 5.

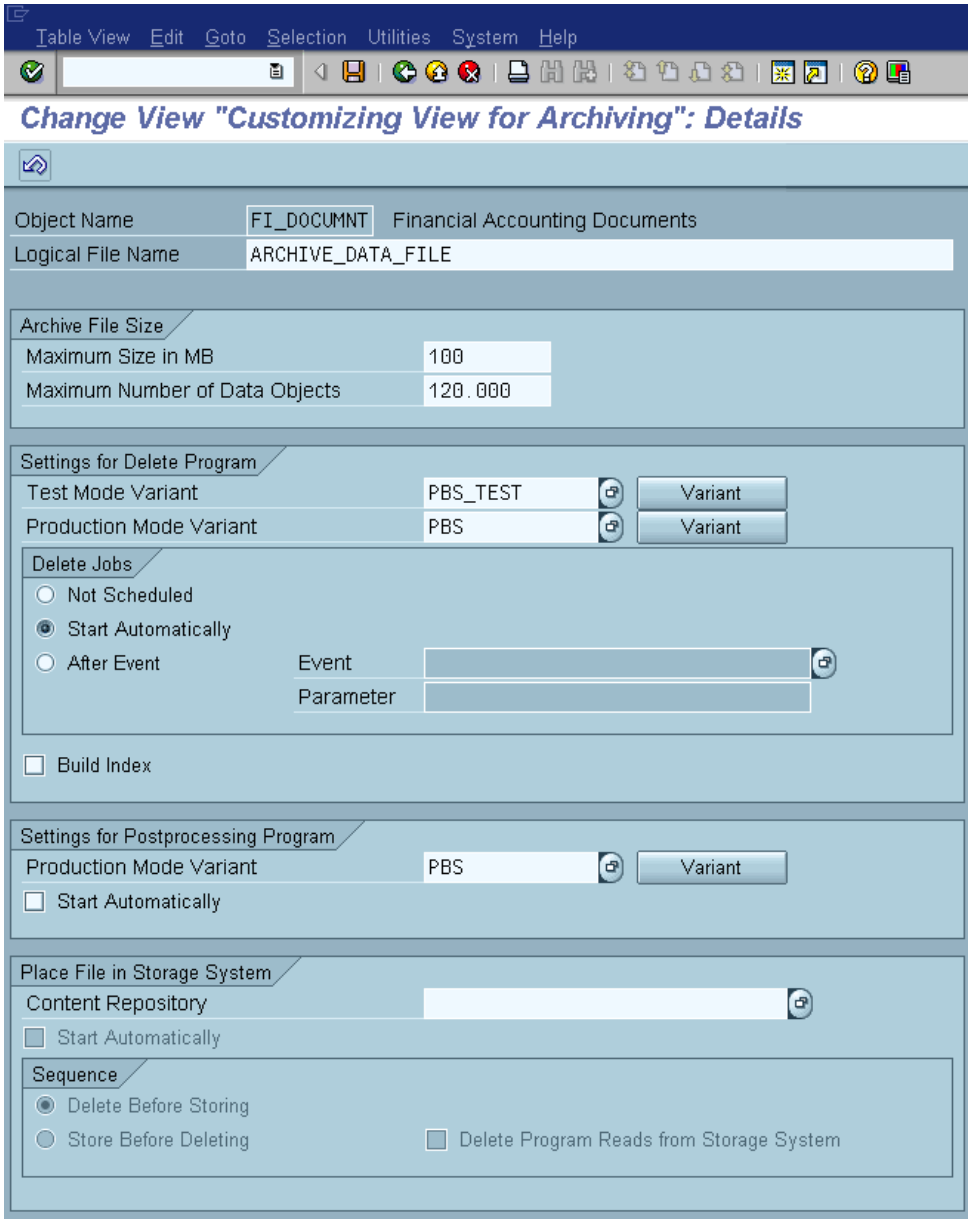


Diagram 5: Technical Settings (default examples which can be used)

The default setting of the *logical file name* ARCHIVE_DATA_FILE can normally be maintained.

Although for the *size of an archive file* 25 MB or 30.000 data objects are suggested, SAP lately recommends to select here 100 MB (and max. 120.000 data objects = documents). Should more documents than indicated be archived during an archiving run, a subsequent file with sequential number is opened under the same run number.

Diagram 5 shows the settings for the archiving object FI_DOCUMNT. In case of the archiving object MM_MATBEL the settings have to be carried out in analogy. In this case, you should critically check the default settings regarding the size of the archive file and, in case of doubt, enter the same values like for the object FI_DOCUMNT (Diagram 5). The same applies for all other values which can be adjusted.

The *connection to archive system* is important for optical archiving only and is not discussed in this manual.

The *settings for delete program* can be maintained as displayed in Diagram 6. It is important that *Start Automatically* is selected so that the deletion run is automatically started as soon as the archive file is written. The deletion run deletes the archived documents from the database. The *postprocessing* for the deletion of the secondary indices should also be started automatically. For this purpose, in Diagram 5 the check box *Start Automatically* is to be ticked and a variant to be indicated.

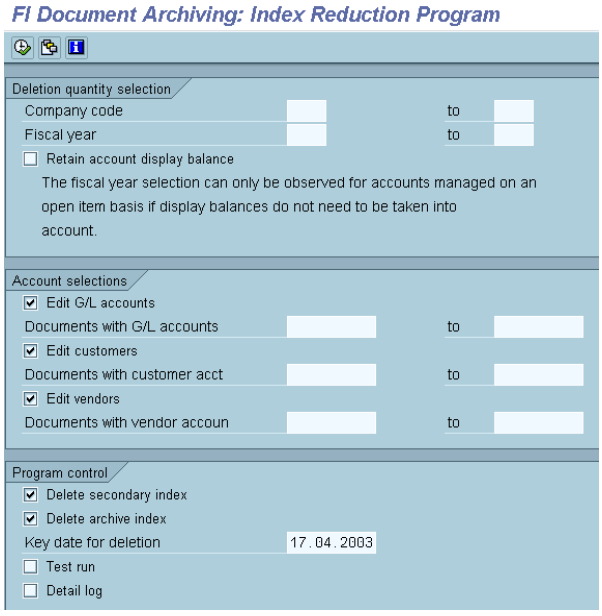


Diagram 6: Settings for the automatic postprocessing

In this postprocessing variant for the deletion of the indices the delimitations should be made like in Diagram 6 if a construction of the PBS archive add on CFI is planned, i.e. do not restrict the *deletion quantity*, select all account types and accounts, do **not** mark *Test Run*.

3.1.2 Basis Customizing

The next point in the popup (Diagram 3) is the *Basis Customizing* (for 3.x users and enthusiasts of Tcodes: transactions FILE and SF01). Here we are dealing with the allocation of logical to physical file names and paths. Normally it is not necessary to make changes here.

3.1.3 Deactivation of the archive information system (SAP-AS)

The archive information system (AS) is a generic tool to execute retrievals in the data archives and is completely integrated in the SAP data archiving environment. The retrieval and display of data is executed on the basis of so-called *archive information structures* that are defined by the user and can be filled with data from the archive. During the delete phase the archive info structures are filled within an archiving process. A precondition is that the archive info structure is active.

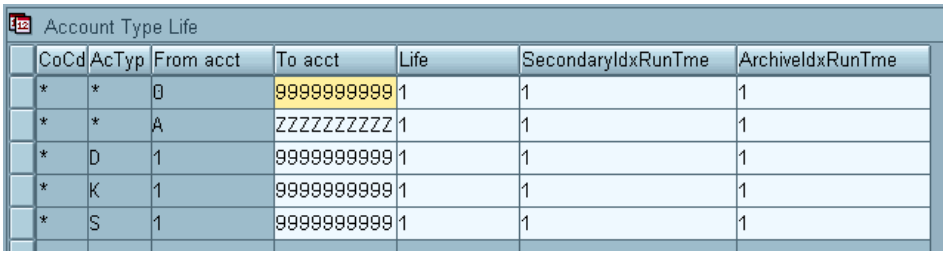
Using the PBS archive add on CFI this information, however, is not necessary and disk space is occupied unnecessarily in the database. For this reason, the archive structures should be deactivated. To do this, call the archive retrieval configurator via the transaction SARA→Info system→Customizing. First, determine the archive info structures that affect the archiving object FI_DOCUMNT or MM_MATBEL via the input help. Then you can deactivate the filling of the archive info structures via archive info structure → Deactivate. In SAP Release lower than 4.6 transaction SARI allows to deactivate SAP-AS functionality.

3.2. User-Specific Customizing

3.2.1 Financial Accounting FI_DOCUMNT

Before an archiving run takes place certain criteria with regard to the archivability of a document must be defined. The principal accounting criteria (if the document is cleared) are already checked by the archiving program. In addition, however, the accountant can determine account runtimes and document runtimes specifically for an account or document type. In case of the archiving object FI_DOCUMNT this is made in the popup (Diagram 3) under the header *Application-specific Customizing* with the menu options *Maintain Account Type Life* (or: Tcode OBR7 Diagram 7) and *Maintain Document Type Life* (or: Tcode OBR8 Diagram 8).
A completely cleared document remains in the database as long as the archiving program does not intent to archive this document. Now, after the clearing date, the runtimes which can be maintained here must have been passed so that the document is transferred to the archive file. These runtimes are, so to say, minimum runtimes which the document passes beyond its clearing date in the database: This way you can prevent archivable documents from being archived yet. From a technical point of view, however, this is not desirable (load on the database) and - when using the PBS archive add on CFI - also not necessary from the accounting point of view. We therefore urgently recommend to define all runtimes to the smallest possible value, namely one day (see Diagram 7 and Diagram 8)!

Which of the archivable documents are really archived and which of them have to remain in the database, should be restricted at a different place via posting period and fiscal year (see "The Archiving Job" below).

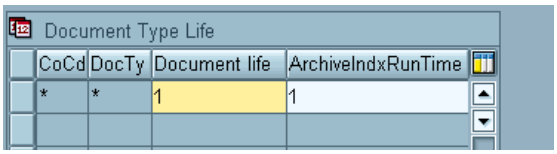


Account Type Life

CoCd	AcTyp	From acct	To acct	Life	SecondaryIdxRunTme	ArchiveIdxRunTme
*	*	0	9999999999	1	1	1
*	*	A	ZZZZZZZZZZ	1	1	1
*	D	1	9999999999	1	1	1
*	K	1	9999999999	1	1	1
*	S	1	9999999999	1	1	1

Diagram 7: Account type runtimes (transaction OBR7), recommended default values (archiving object FI_DOCUMNT)

The runtimes are generally indicated in days. If a runtime (or even an account type or document type) is not explicitly chosen a value of 9999 days is used as default. In order to really remove documents from database, you must see that all runtimes and all account types are filled in.



Document Type Life

CoCd	DocTy	Document life	ArchiveIndxRunTime
*	*	1	1

Diagram 8: Document runtime (transaction OBR8), recommended default values (archiving object FI_DOCUMNT)

3.2.2 Materials Management MM_MATBEL

For the archiving object MM_MATBEL basically the same applies as for FI_DOCUMNT. Also in this case a runtime which is the *document runtime* can be defined (Diagram 9, transaction OMB9).

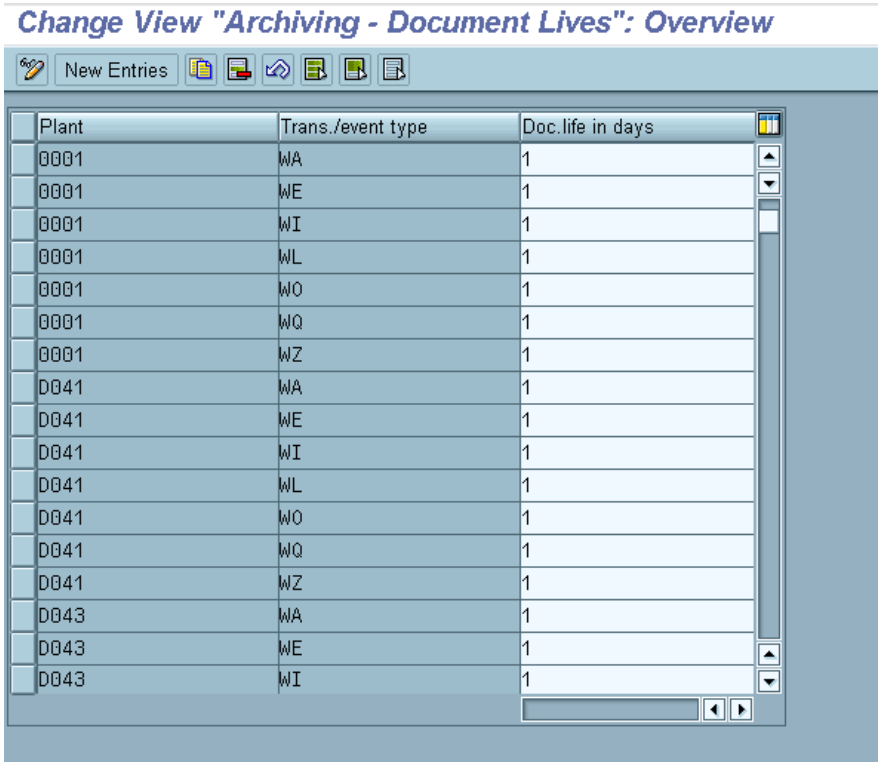


Diagram 9: Archiving object MM_MATBEL: Document runtimes (transaction OMB9)

Here it seems that the value can be masked with a star, but in reality no plant is selected in this case! This means that you must explicitly list all plants and transaction types!

3.3. The Archiving Job

3.3.1 Create a Variant

On the entry screen of SARA (Diagram 2) an object name (FI_DOCUMNT or MM_MATBEL) is to be entered and the button *Archive* to be pressed. A screen like Diagram 10 is opened where a variant name must be entered. One after the other, the variant (button *Maintain*), the *Start Date* and the *Spool Params.* must be maintained.

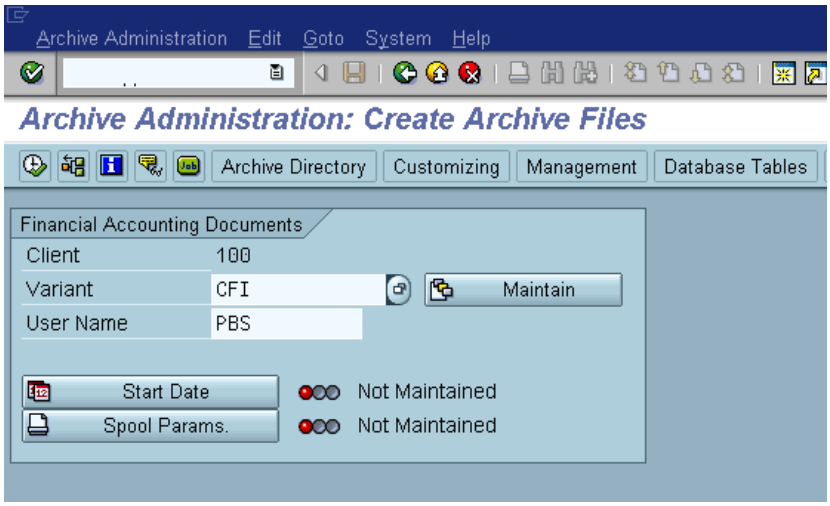


Diagram 10: Create variant for archiving job

3.3.2 Maintain Variant

Here the volume of the data to be archived is determined. Three topics should be considered:

- Requirements by financial accounting (which data is to be remained in the database?)
- Relieving the load on the database (archive first the archiving objects with a large data volume!)
- Simplicity of management (clear delimitation of the documents to be archived!)

As - when using the PBS archive add on CFI - the archived documents can be accessed as fast and comfortable as the database documents, the role of the first topic is not that important. In case of a large document volume the archiving can be carried out every month. You can transfer completed documents even of the current fiscal year to the archive. It is never necessary to keep completed documents of completed fiscal years in the database.

For this reason, the second topic is much more important. If you do not know exactly which database tables and which archiving objects put most of the load onto your database, we are pleased to recommend our database analysis tool, the PBS Database Analyzer PLUS. In general, also in R/3 a lean database should be aimed at because display transactions and batch evaluations perform faster. Especially in case of the archiving runs themselves it is important that the database has not increased unnecessarily. The runtimes of the archiving job increases at least in proportion to the data volume on the database and can reach unpleasantly high values (several days) if your periods for archiving are too long. If it then happens that you cannot archive although it is necessary because the time for the archiving run is not even available during the weekend you are caught in the archiving trap. The aim is to prevent such a situation in time.

Finally, it is useful to carry out simple delimitations during archiving in order to guarantee completeness and clearness.

Diagram 11 is a good example:

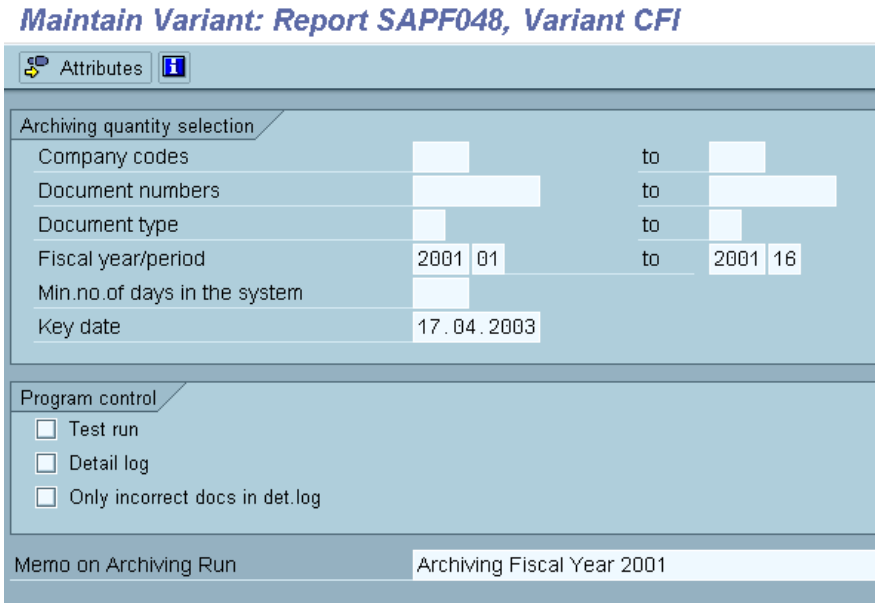


Diagram 11: Maintaining the variant of the archiving job

In *Memo on Archiving Run* a note having an identifying character was entered. Under the delimitations of the *Archiving quantity selection* only the delimitation useful from the accounting point of view - which is *fiscal year/period* - was made. We recommend not to delimit via company code, document type or document number. As this would lead to vagueness and such a delimitation should only be used for test runs but never for productive runs.

The parameter *Min.no.of days in the system* indicates the minimum retention period of the documents on the database and should, if you have decided to delimit via posting period and fiscal year, also remain blank. Otherwise there is the danger that not all archived documents of the requested fiscal period are archived.

The *Key date* is the relation date for the account type and the document type runtime. At the time of the archiving run the parameter should be a past date or - as default value proposed - the current date.

At *Program Control* you must **not** select *Test Run*. If this parameter was marked the archiving would only be simulated but no archive file would be created. Neither would documents be removed from the database.

In case of mass data, we also recommend to delimit to *Only incorrect docs in det.log*.

3.3.3 Starting Date and Spool Parameters

The next thing to do is to fix the starting date and to update the spool parameters. The settings made her depend on the situation at the customer's. We only recommend to carry out the archiving run at times where the load on the system is low (at night, during the weekend). During a first archiving after a long phase of unlimited database growth you should archive in each run only one fiscal year (see Diagram 11), in case of a large data volume only one quarter of a fiscal year and schedule at least a complete weekend for this job (or jobs).

3.3.4 Archiving Rota

Further archiving runs should then be carried out in regular periods. Example: Your document volume in FI is ca. 100.000 documents per month. I.e. the load on the database increases every month by the corresponding amount of data. In this case you should schedule an archiving run every month or every quarter at the latest; this archiving run should be followed by an immediate indexing run - i.e. a construction run - of the PBS archive add on CFI.

4. Index Generation Programs (up to SAP Release 4.6C)

As already mentioned, the PBS archive add on CFI covers the R/3 archiving objects FI_DOCUMNT and MM_MATBEL. Moreover, migrated R/2 data can be processed which has been created with the SAP migration objects BELA (for archived RF financial accounting documents) and MBLA (for archived RF material movements).

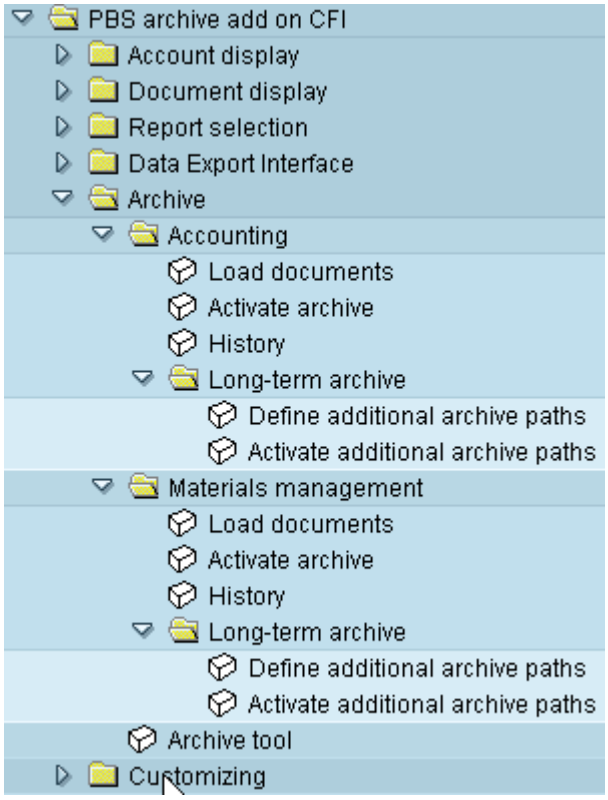


Diagram 12: Navigation to the index generation programs

According to whether you are dealing with pure financial accounting documents (FI_DOCUMNT) or material movements (MM_MATBEL) you can reach the corresponding index setup program (see Diagram 12) in the menu of CFI via ⇨ *Archive* ⇨ ***Accounting*** ⇨ *Load Documents* (explained in this chapter) or via ⇨ *Archive* ⇨ ***Materials Management*** ⇨ *Load documents* (explained in chapter 4.2).

Attention: If your company is situated in a country of the European Community and if the local currency has already been converted to the EURO, there are two different types of SAP archive files: i.e. such files created before the conversion of the local currency (e.g.: "DM archives") and such files created after ("EURO archives"). When indexing these SAP archive files into the PBS archive add on you must take care that on the same day either only DM archives or only EURO archives are processed.

4.1. Archiving object FI_DOCUMNT

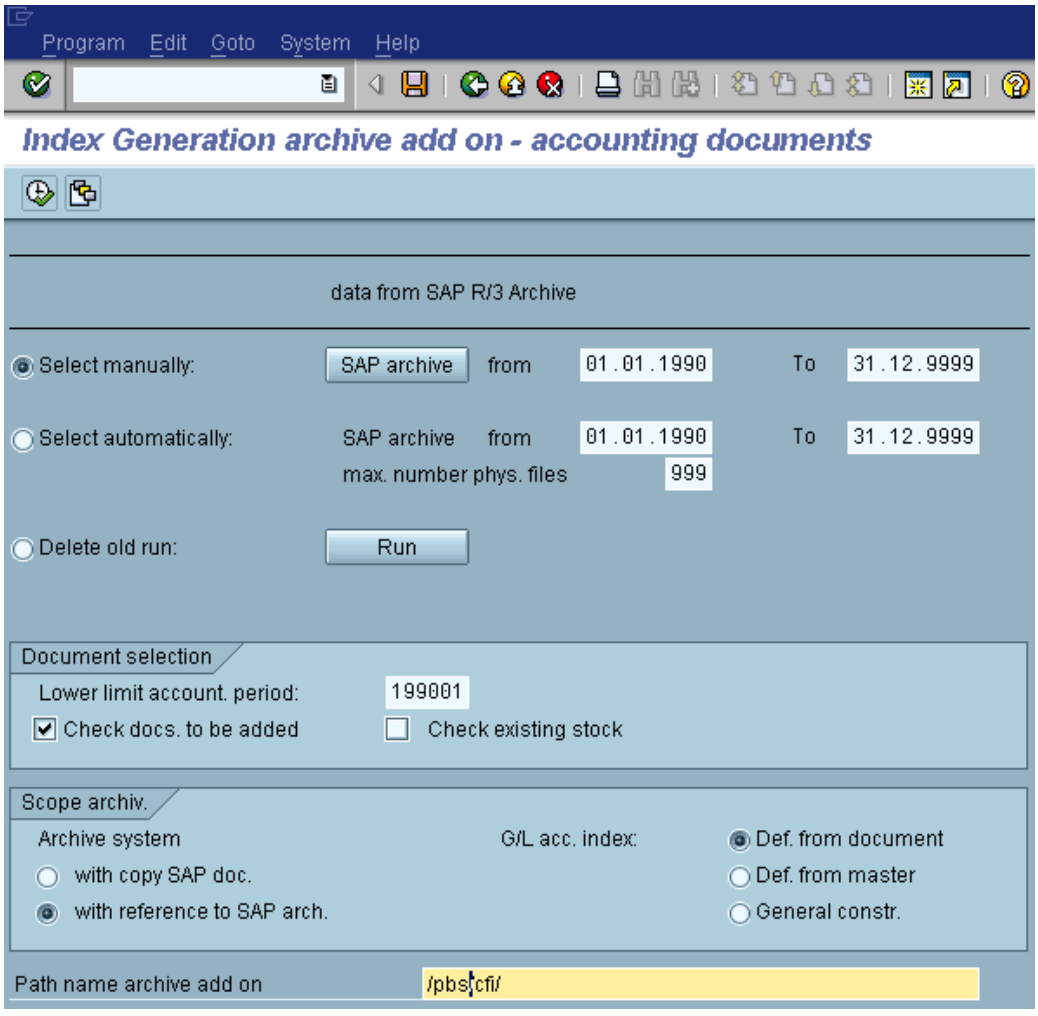


Diagram 13: Selection screen of the index generation program

Generally the secondary indices for documents, G/L accounts, customers and vendors are created during each indexing run. This means that you can access the

documents and the document lines of an account (G/L account, vendor or customer) directly via the secondary indices.

The selection of the SAP archives of the archiving object FI_DOCUMNT and the migration object BELA can be carried out manually or automatically.

In case of manual selection, a list of SAP archives is offered after you have pressed the button *SAP archive*. Only SAP archives created between the dates indicated are displayed. We recommend to process during each run of the index generation program only **one** SAP archive file. If an SAP archive is selected which was already processed during an earlier run of the index generation program, an error message is displayed. Thus you avoid double indexing in the PBS archive add on within a directory.

In case of an automatic selection, all SAP archives between the indicated dates are indexed into the PBS archive add on. SAP archives which have already been processed are not considered so that automatic selection also never admits to index an SAP archive into the PBS archive add on for a second time. In addition, it is possible to delimit the "max. number of physical files". This is essential if not all selected files can be processed in one run. The program processes the number of files that you have indicated in one run and generates runs until all files were processed.

4.1.1 G/L account indexing

As already mentioned before, in any case, the indices are constructed for document numbers, customers, vendors and G/L accounts. In case of the *G/L account indices* you can choose between three different possibilities for the construction:

◉ Definition from document

○ Definition from master

○ General construction

If parameter **'Def. from document'** is active, the field 'General ledger account resident (BSEG-XHRES)' respectively 'Line item display possible via account (BSEG-XKRES)' determines if an entry is constructed in the archive index table for the G/L account line item display.

If parameter **'Def. from master'** is active, the index construction via the standard from the account control of the G/L account master is used. The consequence is that an index entry is created for resident reconciliation accounts.

If parameter **'General constr.'** is selected, an entry in the archive index table is created for all normal G/L account items. In case of items of a reconciliation account to the customer or the vendor, an index entry is only created for postings not

having an influence on the turnover (turnover indicator = SPACE). Parameter **'General constr.'** must also be selected if you want to create G/L account indices for postings to the account types A (assets) and M (material).

4.1.2 Archive storage

This parameter indicates the file path in which the PBS archive add on is generated. Please keep in mind that the path name has not more than 54 digits and ends with a slash '/' (UNIX) respectively a backslash '\' (Windows NT). **It is important that this path is defined in the system.** This path cannot be defined explicitly by the index generation program. Please provide an own path for each index setup program.

Unix users have to keep in mind that the R/3 administrator <SID>adm is the owner of the indicated directory and has read and write authorizations for the directory. Write authorizations are activated in the example of the directory pbs/cfi with the command **chmod u+w /pbs/cfi**. However, if the owner is to be changed please contact the system administrator.

4.1.3 Further selection parameters

4.1.3.1 Document Selection

☑ Check docs. to be added

The value indicated in the "lower limit account. period" is checked in all documents from the above mentioned archive files. An index for older documents is not constructed, younger documents are processed as described in chapter 4.1.3.2.

☑ Check existing stock

All documents that were already processed in previous runs are checked against the value indicated in the "lower limit account. period". Older documents and the indices are removed from the PBS archive. No changes are made for younger documents. Selecting this parameter, the runtimes will increase.

4.1.3.2 Scope of Archiving

At first, you have to select the *PBS archive system*: In which format do you want to keep the archived documents in the file system?

◉ With copy SAP document

○ With reference to SAP archive

The default variant "with copy SAP doc." copies the archived documents from the sequential SAP archive file, storing them in the PBS format in the PBS archive path. This allows you to save the SAP archives immediately after indexing, for example, on tape and to delete them from the hard disk. The displaying accesses to the archived documents, in addition, are somewhat faster then in case of the second variant "with reference to SAP arch.".

The crucial advantage here is that the keeping of redundant data is avoided. The SAP archive files, however, must remain on a fast data carrier. A manual relocation to slower data carriers is not possible. However, you can leave the administration and possible relocation of the files to automatic systems (like HSM systems or IBM Common Store); they would only relocate files which are seldom used, for example, to tape but would keep the frequently accessed files on the hard disk.

It is important that you decide at the beginning of the archive construction which of the two options is to be used, then realizing all index setup runs with the same technique. Although, technically, switching between the options from run to run is possible, this would lead to disadvantages in the administration: SAP archive files can only be relocated for good if the first variant was used. On the other hand it must still be possible to access quickly the SAP archives indexed with the second variant. Users of a productive PBS archive add on CFI, which was constructed with the old index setup program not disposing of the above select option, should continue using the predefined variant!

4.1.4 Dynamic Selections

With these additional select options you can further restrict document quantity you want to index into the archive. For this purpose you have to select dynamic selections in advance as explained here:

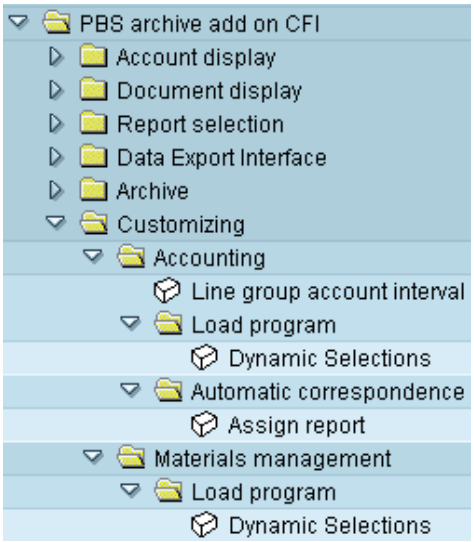


Diagram 14: Navigation to the delimitation programs

Depending on the document type either pure financial accounting documents or material movements, from the CFI menu you can move to the corresponding delimitation program by ⇨ *Customizing* ⇨ ***Accounting*** ⇨ *Dynamic Selections* or by ⇨ *Customizing* ⇨ ***Materials Management*** ⇨ *Dynamic Selections* (see Diagram 14).

In the delimitation program, all delimitations you can select are listed. With a double-click on the corresponding line the delimitation is selected and a “green tick“ is displayed (see Diagram 15). Having selected all requested delimitations, you must save the selection. From this time, the dynamic selections are available in the index generation program.

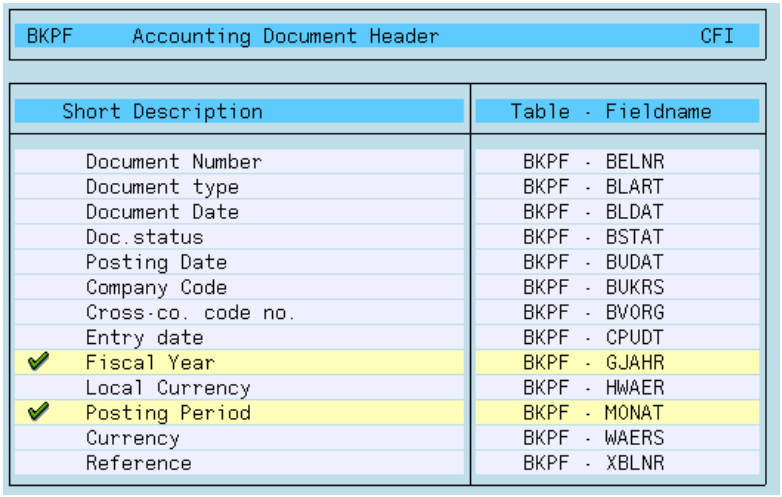


Diagram 15: Select options in the Customizing of the dynamic selections for financial accounting documents

Important: If the PBS archive add on CFI is used for documentation purposes (balance audit trail, accounting reconciliation), the dynamic selections must be selected in a way that a period-related evaluation is still possible.

4.1.5 Restart

With the restart option you can cover yourself from cancellations of the index generation program (for example by a system shutdown).

If a run is cancelled, the next run can reset the status of the PBS archive add on to the status ***before*** the cancelled run and then proceed as if the cancelled run never had taken place. An index run is correctly completed if finally the complete log is available saying at the end: "Archive add on CFI successfully set up". If you do not receive this log (or only partly) because of a cancellation the next index run should be started with the same delimitations like the cancelled run – especially with the same input file.

However, the restart option cannot be considered as a protection against manipulations of the PBS archive add on path on the operating system level. After creating this path, its subdirectories BELEGE and BIBxxx and the files inside must not be deleted manually (except in case of a completely new construction or to reload a data backup). For this reason, we still recommend a periodical data backup of the PBS archive add on path with all files contained (e.g. after each - or say every fifth or tenth - successful merge run).

4.1.6 Batch Job

If all necessary definitions have been made the selection screen can be saved as a variant. Here you should not start the batch job via *Program - Execute in Background* - because this way only the spool parameters can be maintained. Instead you should use SE38 (or *Tools - ABAP Workbench - ABAP Editor*) and indicate the name of our index generation program (3.x: **ZZCFLDR3**; 4.x: **/PBS/CFIFLDR3**) to schedule the job via *Program - Execute - Background* (see Diagram 16). In this case, all job control possibilities are offered.

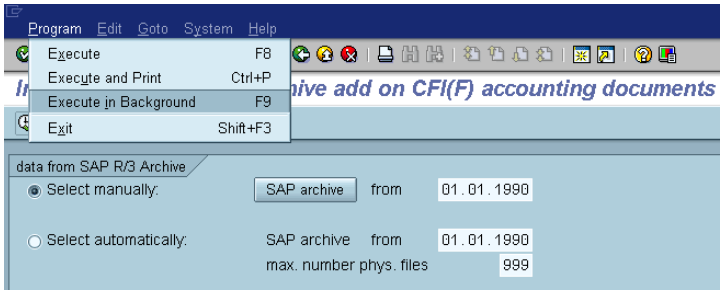


Diagram 16: Under SE38: way through the menus to schedule a job

Important:

The PBS archive add on for Accounting Documents has to be constructed for each client separately.

During the runtime, the program generates an archive add on for accounting documents from the archive data and transfers this archive add on into the indicated path. The program generates new directories and files (Diagram 17).

```
Gesamt 32
drwxrwxrwx   2 e31adm   sapsys       512 Dez  2 11:56 BELEGE
drwxrwxrwx   2 e31adm   sapsys       512 Dez  2 11:56 BIB001
wuerz@sun45:/pbs/wuerz2 3% cd BELEGE
wuerz@sun45:/pbs/wuerz2/BELEGE 4% dir
Gesamt 112
-rwxrwxrwx   1 e31adm   sapsys       100 Dez  2 11:56 003AF_Lauf
-rwxrwxrwx   1 e31adm   sapsys      1057 Dez  2 11:56 003AF_Protokoll
-rwxrwxrwx   1 e31adm   sapsys         2 Dez  2 11:56 003AF_Restart
-rwxrwxrwx   1 e31adm   sapsys        50 Dez  2 11:56 003AF_Steuerung
-rwxrwxrwx   1 e31adm   sapsys       100 Dez  2 11:56 003AF_Summen
-rwxrwxrwx   1 e31adm   sapsys      7050 Dez  2 11:56 003C0000000001
-rwxrwxrwx   1 e31adm   sapsys      1600 Dez  2 11:56 003C0000000021
wuerz@sun45:/pbs/wuerz2/BELEGE 5% cd /pbs/wuerz2/BIB001
wuerz@sun45:/pbs/wuerz2/BIB001 6% dir
Gesamt 112
-rwxrwxrwx   1 e31adm   sapsys       928 Dez  2 11:56 003AF_ZZFFILE
-rwxrwxrwx   1 e31adm   sapsys        50 Dez  2 11:56 003BF_Steuerung
-rwxrwxrwx   1 e31adm   sapsys       100 Dez  2 11:56 003BF_Summen
-rwxrwxrwx   1 e31adm   sapsys       300 Dez  2 11:56 003E00530013400186
-rwxrwxrwx   1 e31adm   sapsys      2950 Dez  2 11:56 003J005300000151880000001
-rwxrwxrwx   1 e31adm   sapsys       900 Dez  2 11:56 003L005300001000000000001
-rwxrwxrwx   1 e31adm   sapsys       300 Dez  2 11:56 003V0013400186005319 97
wuerz@sun45:/pbs/wuerz2/BIB001 7%
```

Diagram 17: PBS archive add on CFI after initial construction on file system level

Directory BELEGE contains, in addition to general control information, the complete documents in document clusters.

In directory BIBxxx the secondary indices are managed besides the general control information. The directory is marked at the end with a serial number (here 001).

After the successful generating of the accounting document archive the index generation program displays an archive selection statistic (Diagram 18). At the end of a completed run the message **"Archive add on CFI successfully set up!"** must be displayed.

The logs are kept in directory /BELEGE/ and can be displayed any time via the menu (Diagram 12) ⇨ *Archive* ⇨ *Accounting* ⇨ *History.*

```
--------------------------------------------------------------------------------
02.12.1998       Index generation program for accounting documents into the PBS
Online Archive CF
--------------------------------------------------------------------------------
11:56:02 Start-of-Selection
Delimitations log. database
Automatic/manually   MANU
SAP archives from:   01.01.1990
Sel. SAP archives
FI DOCUMNT000749000749-001FI DOCUMNT                                        EQ I
Report delimitations
All documents loaded:'  X
Seq. no. interval:      1                  9.999.999
Sub-lim. posting per.:  199001
Check acquis:           X
Check stock:
Archive complete document              X
Constr. secondary index customer:      X
Constr. secondary index vendor:        X
Sec. Ind. G/L acc.(def. from doc.   ): X
Sec. Ind. G/L acc (def. from master ):
Sec. Ind. G/L acc (constr. general):
Path PBS archive add on CFI:           /pbs/wuerz2/

02.12.1998       Index generation program for accounting documents into the PBS
Online Archive CF
--------------------------------------------------------------------------------
R U N  P R O T O C O L
This is run number 001
11:56:07 End-of-Selection
11:56:07 End read SAP archive, start sort
:
:


02.12.1998       Index generation program for accounting documents into the PBS
Online Archive CF
--------------------------------------------------------------------------------
S E C O N D A R Y  I N D E X  S T A T I S T I C
-------------------------------------------------
                               Written  Read      Written   Archived   Written
                               Acquis.  Stock     Stock     Stock      Total
--------------------------------------------------------------------------------
No. document indices:              23         0         0         0        23
No. customer indices:              47         0         0         0        47
No. vendor indices:                 0         0         0         0         0
No. G/L account indices:           23         0         0         0        23
No. general indices:                0         0         0         0         0
No. reference indices:             23         0         0         0        23
The following SAP archives were processed:
000749-001FI DOCUMNT 29.09.1998 08:46:03          ...in Lauf 001  am 02.12.1998
             PBS archive add on CFI successfully installed!
```

Diagram 18: Archive selection statistic

4.1.7 Further Indexing Processes

If the next SAP accounting document archive is to be loaded to the already existing PBS archive add on from the first indexing run, please proceed as described before. The index generation program is to be started again as batch process. From the existing PBS archive add on and the added data a new PBS archive is constructed. Files from the archive directory which are no longer needed are deleted by the index generation program.

Important:

The archive format of the current version is not compatible without a conversion to certain previous versions of the index generation program (status **prior to** 20.5.1997). I.e. a PBS archive add on CFI, constructed with one of the old reports ZZCFLADE or ZZCFLDFI, has to be converted **before** a merge run, in order to be compatible to the current indexing technique. A conversion program is provided on request.

4.1.8 Update of the Administration Table

In order to access the archive via online transactions it is necessary to define the current directory tree of the PBS archive add on in the database (table /PBS/CFIFFILE (4.x) respectively ZZFFILE (3.x)).

The report which updates this table *can* be started after each merge run if you want to access the PBS archive add on after each run. However, the run *needs* to be carried out only once which is after the processing of the *last* archive file. You can access the report if you select in the screen as displayed in Diagram 12 ⇨ *Archive* ⇨ *Accounting* ⇨ *Activate Archive*.

If not enough TABLESPACE was reserved for this table and if the directory tree needs more space than having been reserved due to the large number of merge runs a cancellation may occur during the update on the table.

Attention:

If the indexing process terminates with message ABAP/4 runtime error message

SYSTEM_NO_MORE_PAGING respectively **EXTRACT_NO_MORE_PAGING**

this is due to the insufficient size of the SAP paging (see chapter 7!).

What should be done?

Via transaction SM04, Goto -> Memory an overview of the amount of memory being used for the roll and paging area by the active users and their transactions is displayed. Try to clarify whether it is not the current program but another program that requires so much memory.

Use transaction RZ10 (in older versions: DB11) to check the parameters **'rdisp/ROLL_MAXFS'** and **'rdisp/PG_MAXFS'** in the current instance profile. The values stored there indicate the current block sizes for the roll or paging area (1=Block = 8 Kilobytes, 1 Kilobyte = 1024 Bytes

As far as the system is concerned, compare the size of the common partition for the roll and paging areas with the values from transaction RZ10 (in older versions: DB11). If the converted values do not correspond to the size of the partition, the parameters 'rdisp/ROLL_MAXFS' and 'rdisp/PG_MAXFS' have to be adjusted to the value of the partition provided.

Please start your system again.

If the parameter was changed the run has to be repeated. Usually the run can be started again without problems under the same delimitations. It could be useful, however, to limit the data volume to be processed by selecting a sequential number interval.

In addition, we should like to draw your attention to SAP note no. 14779 which provides more information regarding the above error (see also chapter 7 of this manual!).

4.1.9 Long-term Archiving FI Documents

General Information

If you want to keep the PBS archive add on CFI via long periods of time (and this in case of very large quantities of archive data added each year), for reasons of runtime or disk space it may by useful to add our long-term concept to the simple PBS archive technique:

The people working in the user department do not realize any difference: All display transactions and the complete retrieval still work the same way; only the administrator or the person responsible for archiving has to add some more tasks to his usual routine.

If, for example, the annual document amount of one million is exceeded considerably in the area financial accounting and if you want to keep the archive for 10 years or more, we recommend to open in regular intervals – e.g. each year – an additional archive directory. New documents are merged only to this last current directory; the directory used up to this date remains unchanged from this day on. Nevertheless, parallel access to this archive is still possible. Over the years, this method allows the parallel use of as many directories as you want, only the latest increasing its data volume. Depending on the demand to access older data or on the disk space capacity you can now exclude the oldest directories from the parallel access an archive the data contained in these directories on slower media.

However, if - e.g. for audit purposes - access to such archived directories is necessary you can easily reload them to the hard disk and make them available again to the general PBS accesses.

Below, we describe in technical details the *splitting with regard to the future.*

Define additional archive paths

Each different directory required for a long-term concept with regard to the future can, if necessary, be set up with transaction /PBS/CFI_Y83 (respectively in the CFI menu via "Archive - Accounting – Long-term archive – Define additional archive paths"). For example, we assume that archiving has started in 2000, and the one and only archive path existing at present is named /pbs/cfi2000/. At the change of the year, a new archive directory is to be created into which all new SAP archives from January 1, 2001 are to be indexed. In this case, table /PBS/CFI_PATH is to be maintained as follows with transaction /PBS/CFI_Y83:

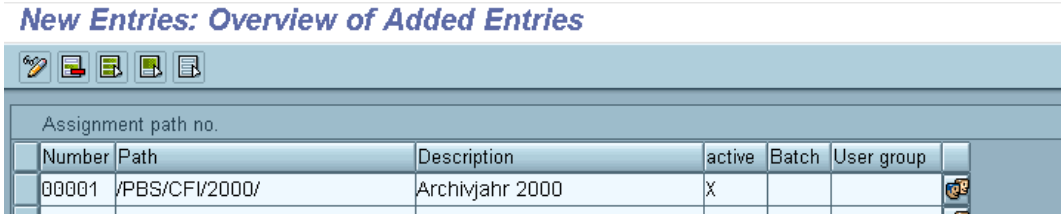


Diagram 19: Define additional paths

As you see, the new directory is not displayed in this list. After the indexing runs of the year 2001 the access to this new directory is activated as usual by updating administration table /PBS/CFIFFILE. In table /PBS/CFI_PATH, the old directory /pbs/cfi2000 which cannot be changed anymore is made known to the PBS read routines as the first path where additional retrievals are to be made. Only if 'active' is set to 'X', in addition to the current path, the path indicated here is searched.
After some more years the table could be like this:

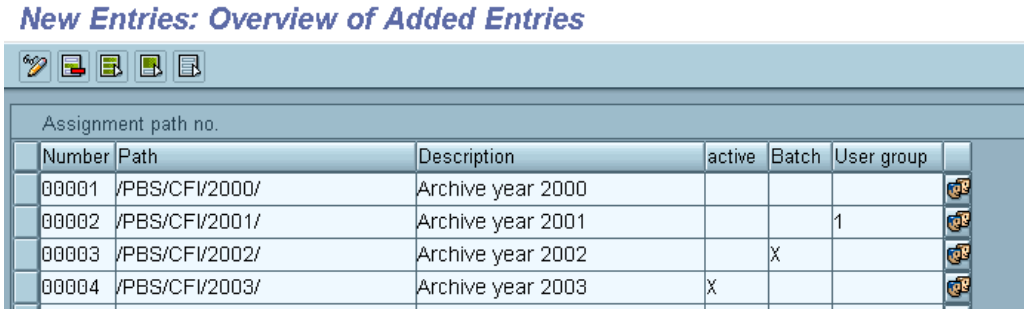


Diagram 20: Paths after several years

We are now in the year 2004: The current directory is named /pbs/cfi2004, and during each indexing run of the current year more data is added. Now the four directories in the table are not changed anymore. As, in this example, the users only want to see archived documents from the previous two years. In this case online access

is possible for archive data from 2003. Data from 2002 can only be selected in a background process. Data from 2001 can only be accessed by the user group 1.

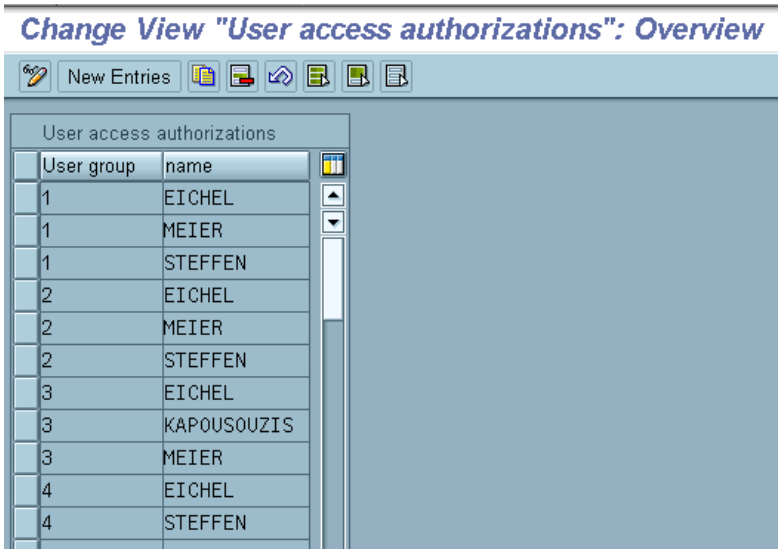


Diagram 21: Access authorizations

Activate the additional archive paths

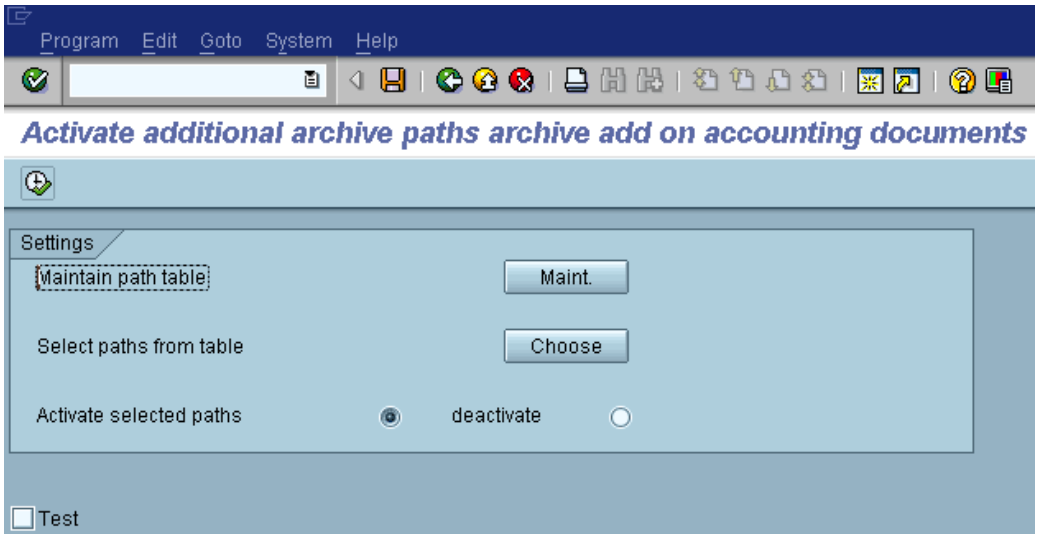


Diagram 22: Activate the additional archive paths

Having defined the parallel directories and qualified the access as described in the previous chapter, you now have to – exactly like in the standard case with only one archive directory – fill the corresponding administration tables in the database: This activation is carried out via transaction /PBS/CFI_Y81 respectively in the CFI menu via "Archive - Accounting – Long-term archive – Activate additional archive paths". Normally, this activation must only be carried out if an additional directory is integrated into the table of the partial archives which cannot be changed anymore (see above).

The upper select button "Maint." branches to the definition of archive paths we have discussed before. The select button "Choose" offers **all** archive paths which have been defined for selection. If you have selected "Activate", all corresponding administration tables are filled and in table /PBS/CFI_PATH the read access is set to 'X', i.e., from now on the PBS read routines try to read all these paths. If, for reasons of runtime, you want to do without some older paths when retrieving the data, you can set the read access (field "active") again to SPACE via "Maint." or as described in the previous chapter.

Should you have chosen 'Deactivate', the corresponding entries in the administration tables are deleted and the variable "active" in the path table is set to SPACE.

If you want to have the data stored on slower media again available in the online operation, you have to reload this data into a directory on the hard disk. The name of the directory is not important, however, the directory must be empty and is to be made known to the PBS archive accesses via "Define additional archive paths". In a second step, the administration table for this directory is to be filled (as just discussed).

You can see if you have been successful by using archive tool /PBS/CFI_SCAN, having entered manually the path number.

Important Hints:

1. **A PBS archive path, in which new ADK files are added from the running archiving procedures, may not be defined and activated as main path and additional path at the same time.**

2. **PBS can prevent that ADK files are indexed twice in one archive path by validation. If several archive paths are defined, please keep in mind that archive runs cannot be indexed several times. The sum of all indexed ADK files must not be larger than the sum of the existing ADK files.**

4.1.10 New multi-purpose Index from Release 4.0B

With *customer patch* 1 to the final release 2nd edition additional secondary indices are available, accelerating considerably the retrieval via the document header fields *posting date, entry date, document date, document type and reference document number*, if the document number has not been predefined.

The new index can be created either only for those documents which are added during a new indexing run or they can be constructed again for the complete archive stock.

In the first case, the only thing the user has to do is to use the standard index generation program contained in *customer patch* 1 (for the final release 2nd edition) from now on. In this case, the old stock remains unaffected and the new documents receive all additional secondary indices. However, in this case the old stock does not have these indices.

Therefore, having received *customer patch* 1, you should consider providing the existing archive at first with the new indices by carrying out an index setup run. For this purpose, you can use program /PBS/CFIFLDR9 (see next section).

4.1.11 Later construction of the multi-purpose Index from 4.0B

Preconditions for the later construction of the new index in an old stock

A PBS archive add on CFI(F) which can be read is available under SAP R/3 release 4.0B (or higher).

You can also provide data migrated from R/2 or archives constructed under release 3.x (now available in 4.0B or higher) with the new index at a later date, if the PBS archive add on CFI(F) was constructed correctly.

Preparations

At first, make sure that a **data backup** of the PBS archive add on CFI(F) has been carried out. This is necessary because the program cannot start again in case of a later construction of the new indices if this run is terminated.

Import the enclosed transport request (here *customer patch* 1 to the final release 2nd edition or higher) with unconditional mode U26.

Realization

If you want to provide the existing archive at a later date with the new indices, you must not carry out an additional indexing run (with the new version of /PBS/CFIFLDR3) before the run of the index setup program. The index setup program can only provide old stocks completely with the new index. In case of merged stocks, partly containing the new index, the new multipurpose indices would all be deleted and the new multi-purpose indices would be created from the document information of all documents (no matter when they were added to the PBS archive and no matter with which index generation program version they were set up).

However, if you do without the new indices when dealing with the old stock and only construct the new documents with the new indices, you can continue as usual with the runs of the new /PBS/CFIFLDR3 and ignore the next paragraphs of this chapter. From now on, the new version constructs the new indices for all new documents.

We recommend: If possible, please test the index construction at first in a test system by using a copy of the existing PBS archive!

First step: Before merging new archive data with the new version of the index generation program to the existing PBS archive, it is *necessary* to construct the missing indices later on (see above). Therefore, the first step is to create a variant for the index setup program /PBS/CFIFLDR9, starting this program in the background.

If you do not start the program in the background but in the online mode, a window is opened. Please only confirm if a small PBS archive add on CFI(F) is provided with the new index for test purposes. Normally, the index construction – especially of large data quantities – should be carried out in the background.

Please consider extremely long runtimes! In case of large stocks of about 10 million documents and more you should plan a complete weekend.

If you have been successful, at the end of the run a statistic is displayed which you can compare with the statistic of the last indexing run in the PBS standard – should such statistic still be available.

Second step: By using archive tool /PBS/CFI_SCAN you have now a technical view to the documents, the indices up to now and the new multi-purpose index.

Third step: If in the FI part of the archive tool all index types can be displayed correctly, you can continue with the construction of the archive. Use, as usual, index generation program /PBS/CFIFLDR3 which now also constructs the additional index. At the end, please always update the administration table with /PBS/CFIFFILE!

Fourth step: To test the accesses to the new indices, you can use all reports which the logical database /PBS/BRF uses – e.g. the report /PBS/RFBUEB00 which can also be started via transaction /PBS/FB03 → list.

Special case: The PBS archive was allocated to a standard path and one or several additional paths within the long-term concept:

In this case you can also proceed as mentioned above. If you need the new index for the complete old stock, you have to carry out the index setup run (/PBS/CFIFLDR9) in each additional path except for the standard path. This has to be done one after another (and never parallel). The program uses the administration table of the standard path also for the additional paths. Therefore, you cannot access the standard path during the index construction in the additional path. At the end of an index setup run in an additional path you can activate this path again via the menu (*long-term archive – activate additional archive paths*; transaction /PBS/CFI_Y81). You also have to activate again the administration table of the standard path (via transaction /PBS/CFI_Y09 or report /PBS/CFIFFILE), so that the documents from the current standard path can be displayed again.

4.2. Arching Object MM_MATBEL

The construction of the PBS archive add on for goods receipt and goods issue documents is analogue to the construction for the financial accounting documents (chapter 4). Please start on the CFI main *menu (*Diagram 12*): ⇨ Archive ⇨ Materials Management ⇨ Load Documents*.

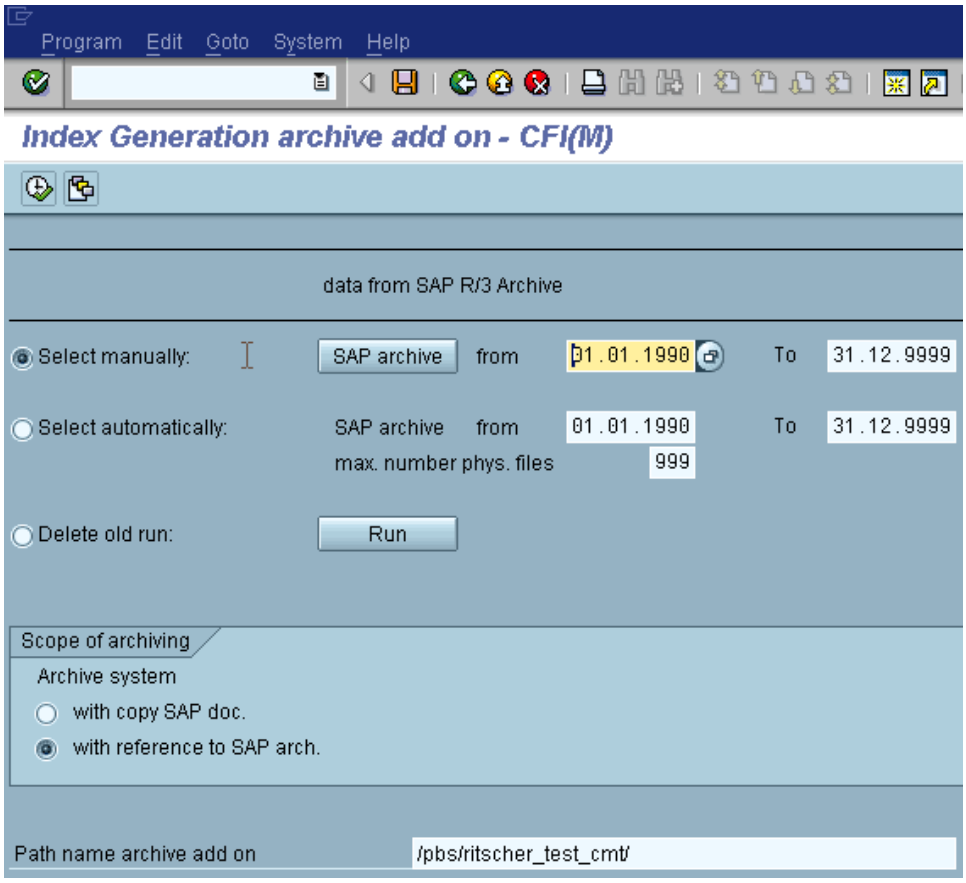


Diagram 23: Selection screen index generation program for archived material movements

The selection of the SAP archives of the archiving object MM_MATBEL and the migration object MBLA can be carried out manually or automatically.

In case of a manual selection, if you have pressed the button "SAP archive" a list of the SAP archives is offered for selection by marking with a cross. Only SAP archives created after the date indicated are displayed. We recommend to process during each run of the indexing report only **one** SAP archive file.

In case of an automatic selection, all SAP archives younger than the indicated date are transferred into the PBS archive add on. In addition, it is possible to limit the “Max. number of physical files”. This is necessary if not all selected files can be processed in one run. The program processes the number of files that you have specified in one run and then generates as many runs as required until all files have been processed.

4.2.1 Archive storage

This parameter indicates the file path in which the PBS archive add on is generated. Please keep in mind that the path name has not more than 54 digits and ends with a slash '/' (UNIX) respectively a backslash '\' (Windows NT). **It is important that this path is defined in the system.** This path cannot be defined explicitly by the index generation program. For the PBS archive add on for GR/GI documents you have to use an own archive path and not the one for the accounting documents.

4.2.2 Scope of the archive

At first, you have to select the *PBS archive system*: In which format are the archived documents to be kept in the file system?

◉ with copy SAP document

○ with reference to SAP archive

The variant "with copy SAP documents" copies the archived documents from the sequential archive file and stores them in the PBS format in the PBS archive path. The variant "with reference to SAP archive", however, only stores the complete index information in the PBS format, using the SAP archive file only if the document must be read.

Please see section 4.1.3.2 regarding the advantages and disadvantages of both solutions!

4.2.3 Batch Job

You should create as well a variant for this index generation program (3.x: **ZZCMLDR3**; 4.x: **/PBS/CFIMLDR3**) and plan this job as a background job as described in the FI_DOCUMNT part (Diagram 16).

4.2.4 New Multi-Purpose Index from Release 4.0B

With *customer patch* 5 *first edition* another secondary index is available for the material number index, accelerating considerably the retrieval via the fields posting date, plant, transaction type and batch number if the material number has not been predefined. In the course of this new feature, some additional display transactions are supplied.

The new index can be created either only for those documents which are added during a new indexing run or they can be constructed again for the complete archive stock.

In the first case, the only thing the user has to do is to use the standard index generation program contained in *customer patch* 5 *first edition*. In this case, the old stock remains unaffected and the new documents receive all additional secondary indices. If you have chosen this variant, the old stock, however, can never be provided with the new indices at a later date.

Therefore, having received *customer patch* 5 *first edition*, you should consider providing the existing archive at first with the new indices by carrying out an index setup run. For this purpose, you can use program /PBS/CFIMLDR9.

4.2.5 Later Construction of the Multi-Purpose Index from 4.0B

Preconditions for the later construction of the new index in an old stock

A PBS archive add on CFI(M) which can be read is available under SAP R/3 release 4.0B (or higher).

You can also provide data migrated from R/2 or archives constructed under release 3.x (now available in 4.0B or higher) with the new index at a later date, if the PBS archive add on CFI(M) was constructed correctly.

Preparations

At first, make sure that a **data backup** of the PBS archive add on CFI(M) has been carried out. This is necessary because the program cannot start again in case of a later construction of the new indices if this run is terminated.

Import the enclosed transport request (here *customer patch* 5 *first edition* or higher) with unconditional mode U26.

Realization

If you want to provide the existing archive at a later date with the new indices, you must not carry out an additional indexing run (with the new version of /PBS/CFIMLDR3) before the run of the index setup program. The index setup program can only handle old stocks correctly but it is not able to deal with merged stocks partly containing the new index.

However, if you do without the new indices when dealing with the old stock and only construct the new documents with the new indices, you can continue as usual with the runs of the new /PBS/CFIMLDR3 and ignore the next paragraphs of this chapter. From now on, the new version constructs the new indices for all new documents. But in this case you are in now way allowed to start the index setup program again, finally agreeing to do without the new indices in the old stock!

We recommend: If possible, please test the index construction at first in a test system by using a copy of the existing PBS archive!

First step: Before merging new archive data with the new version of the index generation program to the existing PBS archive, it is *necessary* to construct the missing indices later on (see above). Therefore, the first step is to create a variant for index setup program /PBS/CFIMLDR9, starting this program in the background.

If you do not start the program in the background but in the online mode, a window is opened: Please only confirm if a small PBS archive add on CFI(M) is provided with the new index for test purposes. Normally, the index construction – especially of large data quantities – should be carried out in the batch.

Please consider extremely long runtimes! In case of large stocks of about 10 million documents and more you should plan a complete weekend. This is especially the case if the old stock was not constructed with option "Copy SAP document" but with "reference to SAP archive".

If you have been successful, at the end of the run a statistic is displayed which you can compare with the statistic of the last indexing run in the PBS standard – should such statistic still be available.

Second step: By using archive tool /PBS/CFI_SCAN you have now a technical view to the documents, the indices up to now and the new multi-purpose index.

Third step: If in the MM part of the archive tool all index types can be displayed correctly, you can continue with the construction of the archive. Use, as usual, index generation program /PBS/CFIMLDR3 which now also constructs the additional index. At the end, please always update the administration table with /PBS/CFIMFILE!

Fourth step: To test the accesses to the new indices, please select "Material" under "Account Display" in the menu of CFI. Then you get to the submenu with the different material displays.

4.2.6 Update of Administration Table

In order to access the archive via online transactions it is necessary to define the current directory tree of the PBS archive add on in the database (table /PBS/CFIFFILE (4.x) respectively ZZFFILE (3.x)).

The report which updates this table *can* be started after each merge run if you want to access the PBS archive add on after each run. However, the run *needs* to be carried out only once which is after the processing of the *last* archive file. You can access the report if you select in the screen as displayed in Diagram 12 ⇨ *Archive* ⇨ *Materials Management* ⇨ ***Activate Archive***.

If not enough TABLESPACE was reserved for this table and if the directory tree needs more space than having been reserved due to the large number of merge runs a cancellation may occur during the update on the table.

Please keep in mind that the program should run in the background processing.

Important:

To certain previous versions of the index generation program (status **prior to** 20.5.1997) the archive format of the current version is not compatible without a conversion. I.e. a PBS archive add on CFI(M), constructed with one of the old reports ZZCMLADE or ZZCMLDFI, has to be converted **before** a merge run, in order to be compatible to the current indexing technique. A conversion program is being prepared.

4.2.7 Long-term archiving MM documents (SAP Release 4.6C)

Identical to the solution for financial accounting documents (see chapter 4.1.9) the functionality is now also available for material documents. The functions can be selected via the CFI main menu. Since there are no content variations from the solution for the financial accounting documents, we refer to chapter 4.1.9 for further information.

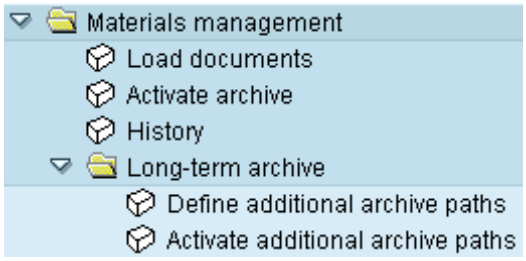


Diagram 24: Administration long-term archive MM documents

5. Index Generation with ADK Technique

From SAP release Enterprise CFI patch 9 (correction related to the field BSIK-SAMNR) and higher releases, it is no longer possible to store the generated indices directly in a directory in Unicode systems. In analogy to other PBS archive add ons the data indexing is executed with the function modules of the SAP Archive Development Kits (SAP ADK). The archiving objects /PBS/CFIF and /PBS/CFIM respectively were created for this purpose. It is possible to evaluate archive indices of the PBS archive add on CFI that have already been set up from lower releases. However, for Unicode systems it is only possible if the indices are available in a sorted sequence. This can be checked using the report /PBS/CFI_SETUP_CHECK, as long as you have also activated the decompressibility option in the selection. Usually, PBS archive add ons that are set up using ASCII code can be used with Unicode systems. PBS archive add ons that have been set up using EBCDIC code can definitely not be used in Unicode systems. In this case a complete reconstruction is necessary.

Administration and archive data indexing were bundled in the PBS Administration Board. You can call it directly with transaction /PBS/CFI_Y81N for financial accounting documents or /PBS/CFI_Y86N for material documents. You can call the Administration Board via the CFI menu ⇨ Archive ⇨ Indexing and administration.

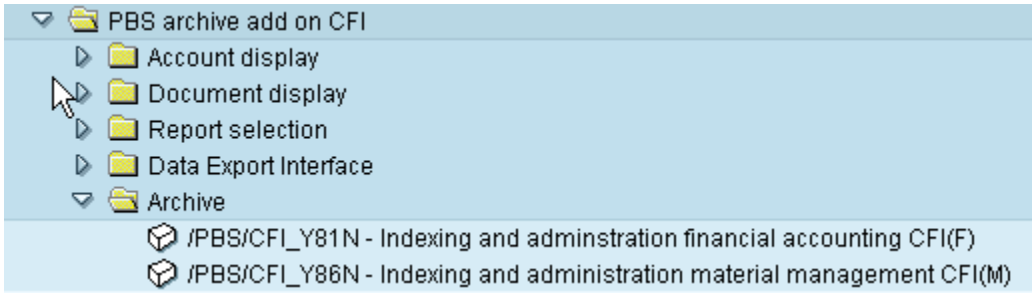


Diagram 25: Navigation Administration Board

5.1.1 Administration Board

The PBS Administration Board is the central administration instrument of the indices that have been generated using the ADK technique, and that have been stored in so-called archiving runs (index areas).

All further descriptions refer to both archiving objects FI_DOCUMNT and MM_MATBEL supported by the PBS archive add on CFI.

The following diagram shows the initial screen of the Administration Board.

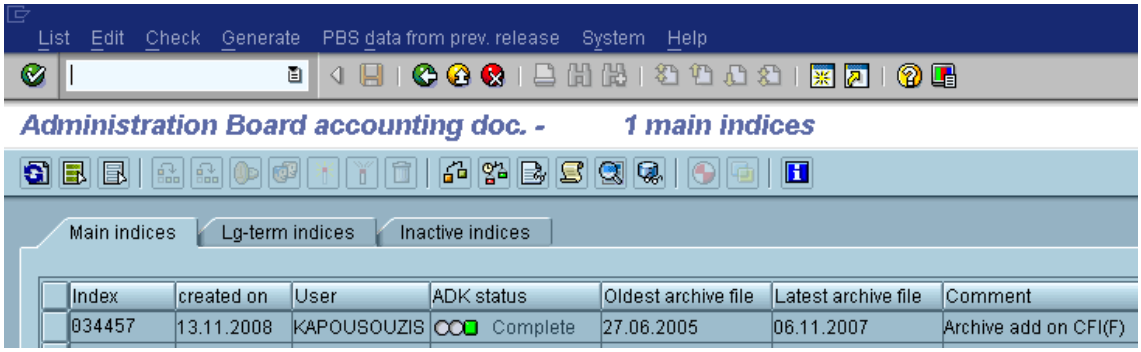


Diagram 26: Administration Board CFI(F)

Description of the individual icons:

You can use this function to shift an index area from the main index into the long-term index or vice versa. The index area is available within the main index where it can be further merged and consolidated. The index area is not automatically made available as a long-term index for further processing for index generation. Furthermore, access here can be restricted. This is in accordance with the previous PBS long-term archive.

By converting a main index into a merge index, it is ensured that this index area is no longer subject to the automatic merging of the index generation.

It is possible to restrict access rights for the long-term index. Here you can define and maintain the user groups.

By activating an index area the indices are made available to the user. Only deactivated index areas can be activated.

Deactivating an index area means that the indices are no longer available to users.

Deletion of an index area results in all dependent table contents and the physical files being deleted.

You can use the validation to perform a check for completeness and consistency of the index generation. This check can only be performed for the indices that were set up using the ADK technique.

By performing a check of an index area you can determine whether the index area is completely readable and whether it was generated correctly.

You can use the index area information to see which SAP archive files were indexed, and some statistical values such as the smallest and largest value of each index per company code.

The log of the run for an index area provides information about the number of processed indices, about the runtime and the selection criteria.

By using the program /PBS/CFI_SCAN it is possible to select an index area and display its content.

You can use this button to call the program /PBS/CFIFU001_ADK. This enables you to test access to the archive index. This program can serve as a template for your customer-specific modifications.

The index generation function enables you to index ADK files from the archiving object FI_DOCUMNT. The indices are also stored in ADK files. The archiving object for this is /PBS/CFIF.

Several index areas can be grouped together using the consolidation function. This improves runtimes when accessing the indices. At the end of a year, it makes sense to consolidate the existing main index areas and then shift them into the long-term index.

5.1.2 Index Generation

The index generation function has been enhanced by the switch to storage of the indices in ADK files. The most important functional enhancement is parallel indexing as well as the possibility to consolidate several index areas. This makes it possible to process several archive files simultaneously and to minimize the number of index areas. The individual parameters are described in more detail in the following section.

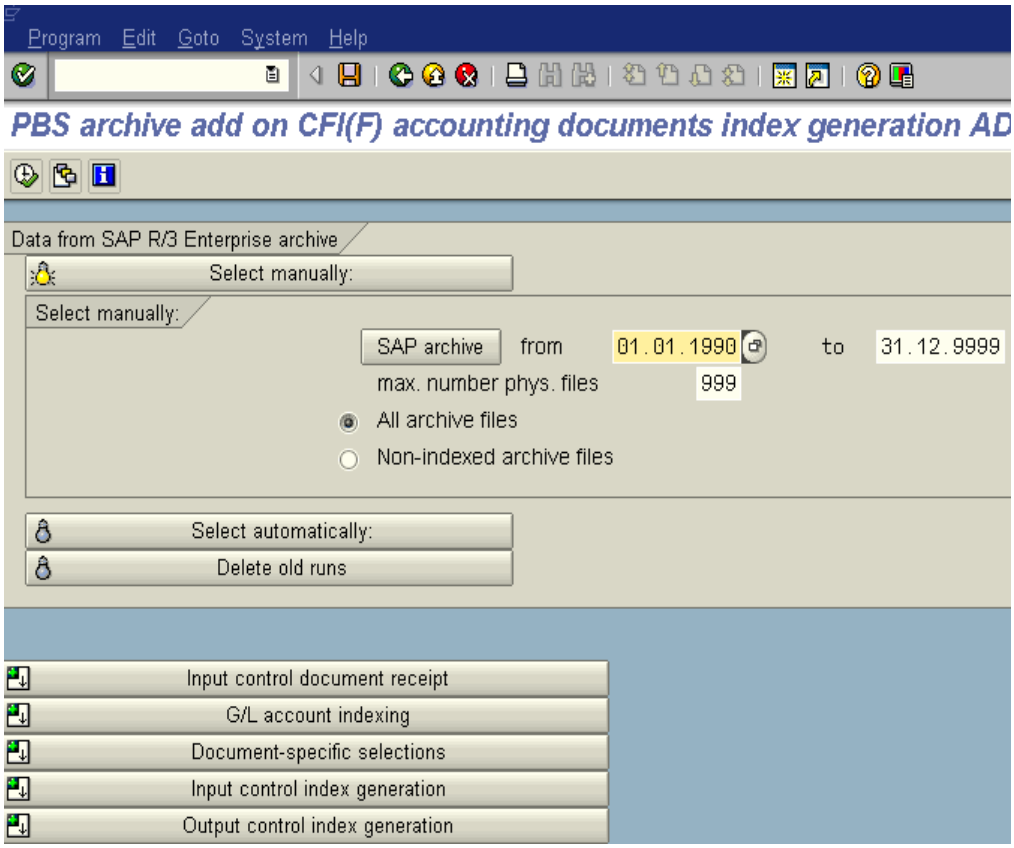
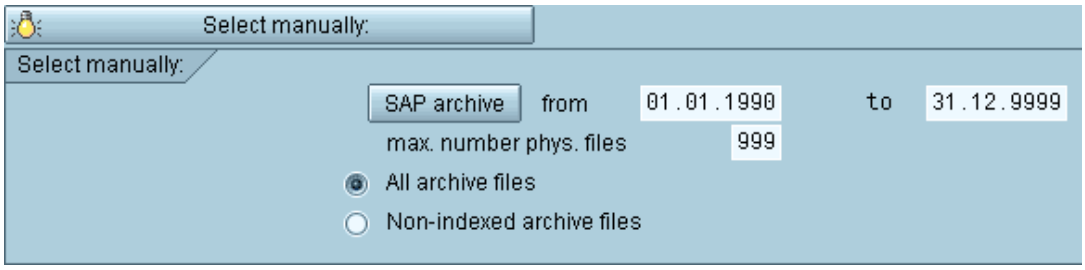
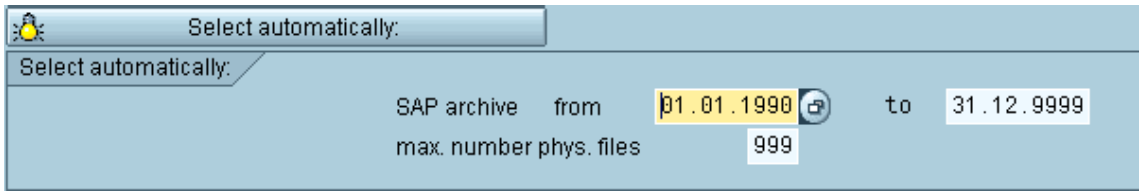


Diagram 27: Selection screen Index Generation CFI(F)



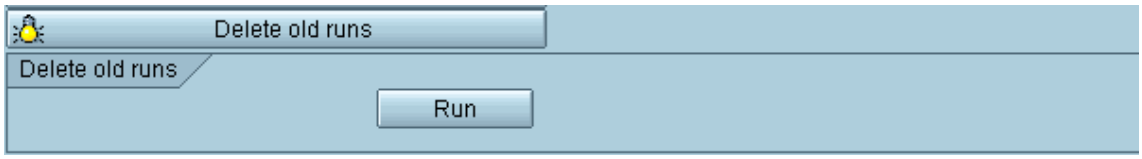
Select Manually

In the case of **Select manually**, you can select the FI_DOCUMNT archive files yourself via a dialog window. The selection list can be limited on the one hand by a date interval (archive file creation day) and also by non-indexed archive files. When selecting the option **'Non-indexed archive files'** it should be noted that only archive files that were indexed using the ADK technique can be checked. The parameter **'Max. number of phys. files'** can be used to limit the number of archive files per index generation procedure. You only need to set a limitation if your sort capacities in the SAP system are not sufficient. For example, when selecting seven archive files and specifying a maximum of two files to be processed, four index generation procedures will take place.



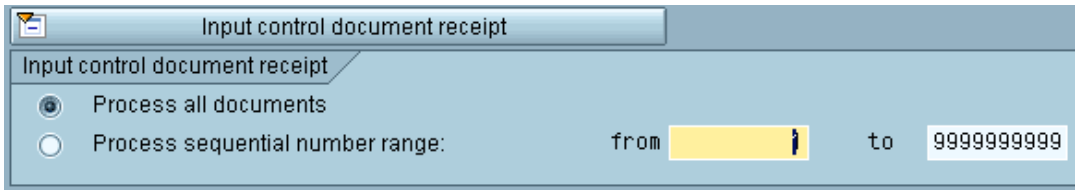
Select Automatically

In the case of **Select automatically**, all archive files that were created within the specified date interval and that have not yet been indexed using the ADK technique are processed. The parameter **'Max. number of phys. files'** has the same functionality as described above for the manual selection.



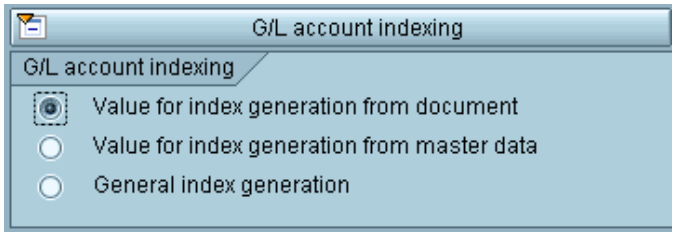
Delete old runs

This function can be used to delete indices within an index area. After selecting the pushbutton 'Run' a list of the indexed FI_DOCUMNT archive files is displayed. The list contains the indexed archive files of the last main index to be created. All generated indices for an archive file can be deleted.



Input Control Document Receipt

You can use this function to further limit the required sort area by the number of documents when manually selecting an archive file. You can name the first and the last document of an archive file for a run. As standard, all documents are to be processed. If an archive file is to be built up using sequential number intervals, it should be noted that the intervals must be specified without overlaps (1 to 200000, 200001 to 400000, 400001 to 600000, and so on). Otherwise, there is the danger that individual documents are indexed twice in the PBS index area. No automatic check takes place in this case.

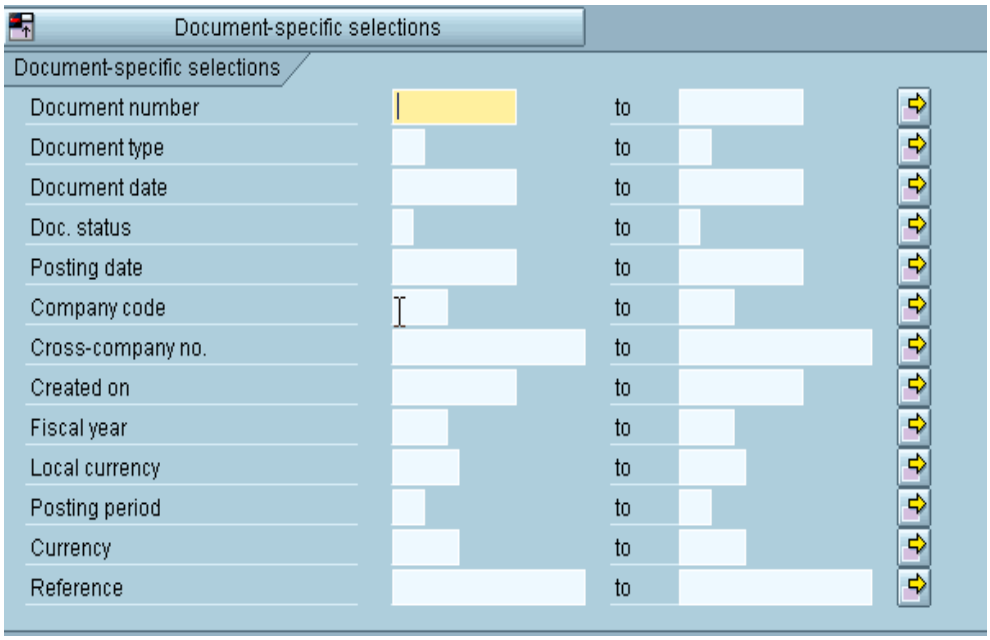


In the case of *general ledger indices* (only for archiving object FI_DOCUMNT) you can choose between three creation criteria:

If the parameter '**Value from document**' is active, the field 'Resident general ledger account (BSEG-XHRES)' or 'Line item display possible via account (BSEG-XKRES)', respectively, defines whether an entry is created in the archive index table for general ledger line item display.

If the parameter '**Value from master**' is active, the index creation is done using the value from the account control for the general ledger account master. This results in an index entry also being created for resident managed reconciliation accounts.

If the parameter '**General index generation**' was selected, an entry is created for all normal general ledger items in the archive index table. If this involves items of a reconciliation account for the customer or the vendor, an index entry is only created for non-sales related postings (sales-related indicator = SPACE). The parameter '**General index generation**' must also be selected if you want to create general ledger account indices for postings to the account types A (assets) and M (material).

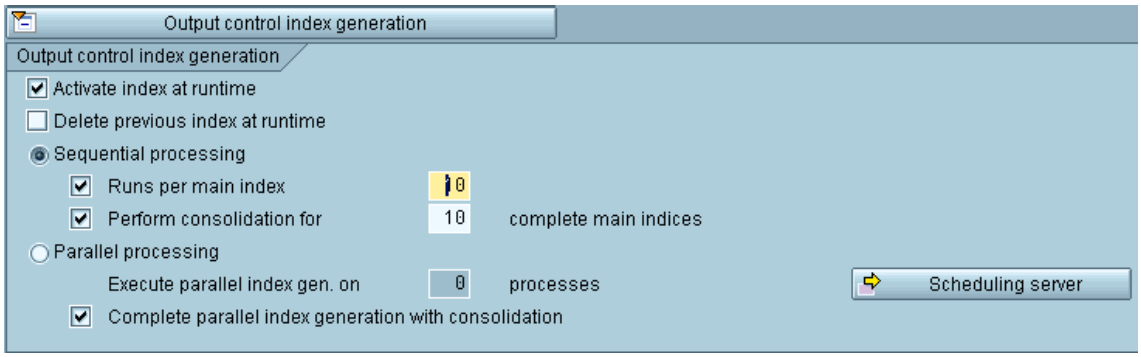


Document-specific Selections

Under the document-specific selections it is possible to perform delimitations at document level. These parameters should only be used in exceptional cases. Reconciliation is no longer possible from a business point of view.

Input Control Index Generation

When merging index areas, it is possible to select between the last main index and a manually selected index area. As standard, the current main index is used. In certain cases, for example, a deletion run in a long-term index area, it is possible to select an alternative index.



Output Control Index Generation

In this block, all parameters that concern the newly created index area are summarized. By selecting the check box **'Activate index at runtime'** the generated index area is immediately made available to the users for accessing. If the index area is not activated, it is stored as a deactivated index area and can then be activated via the Administration Board. If several index generations are to take place over the number of archive files, this can only be done by means of an index activation.

After merging an index area, the read index area is no longer required and can be deleted straight after the index generation has been completed. To do this, the parameter **'Delete previous index at runtime'** should be selected. By deactivating the parameter, the index area is deactivated and can be deleted manually in the Administration Board. This has the advantage that the old index area can be retained longer and can be used as an intermediate status in the event of an error occurring.

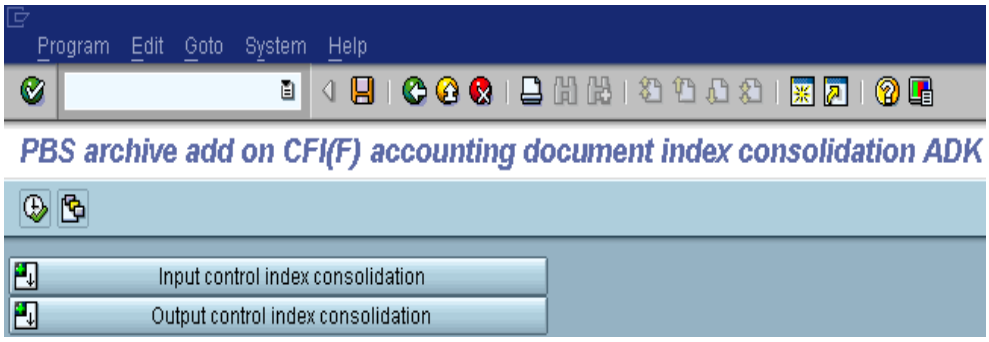
When processing the individual index generations it is possible to choose between two variants – sequential and parallel processing.

In the case of **sequential processing** the entry is merged with the newest main index. This procedure can be repeated endlessly but has the disadvantage that the runtimes can increase significantly. To keep this to a minimum, the number of merge runs can be limited to a certain value. When this value (**Runs per main index**) is reached, a further main index is created and processed further until the run limit is reached again. In the long-term, this has the result that the runtimes for index generation remain constant but the number of main index areas increases. A larger number of index areas that are available to users however increases the runtimes during evaluations, particularly when accessing a single document. This can be resolved by performing a consolidation when reaching a certain number of main index areas. In this case a consolidation program is started, which combines the available main index areas into a main index area.

With **parallel processing** it is possible to do without merge runs completely and to split up the individual index generations between several processes and servers.

Here it is also possible to perform a subsequent consolidation in order to reduce runtimes during accesses. This variant is only sensible if you have to perform a larger number of index generations.

5.1.3 Consolidation



It is possible to combine several index areas into one index using the button  (Consolidation) in the Administration Board. This results in a better overview and shortens access times when accessing the archive.

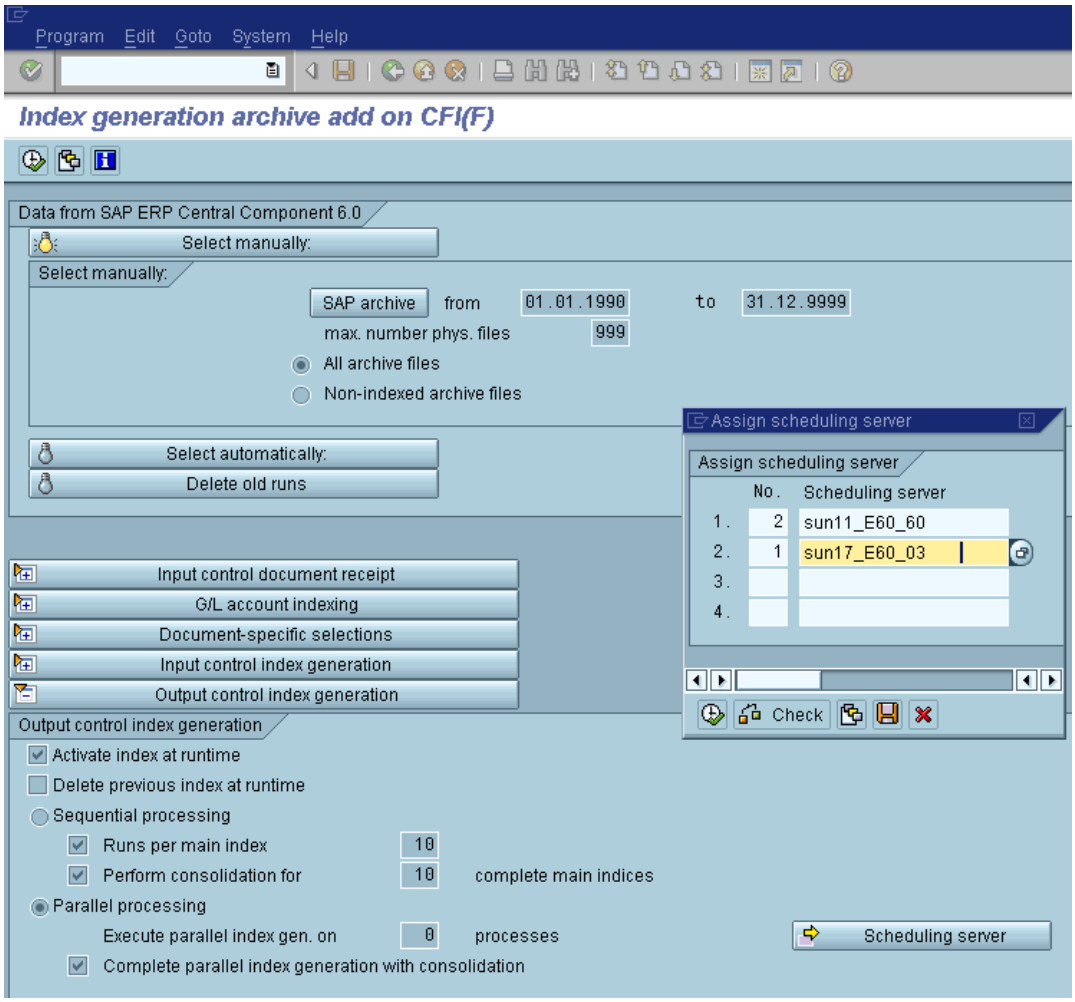
When making an entry, the index areas can either be selected manually or all main index areas are used. The program must process at least two and a maximum of 90 index areas.

The created index area can be made available to users with the parameter **'Activate index at runtime'**. The entry areas can be deleted after creation of the index area. A test run can be used to check the result without making changes.

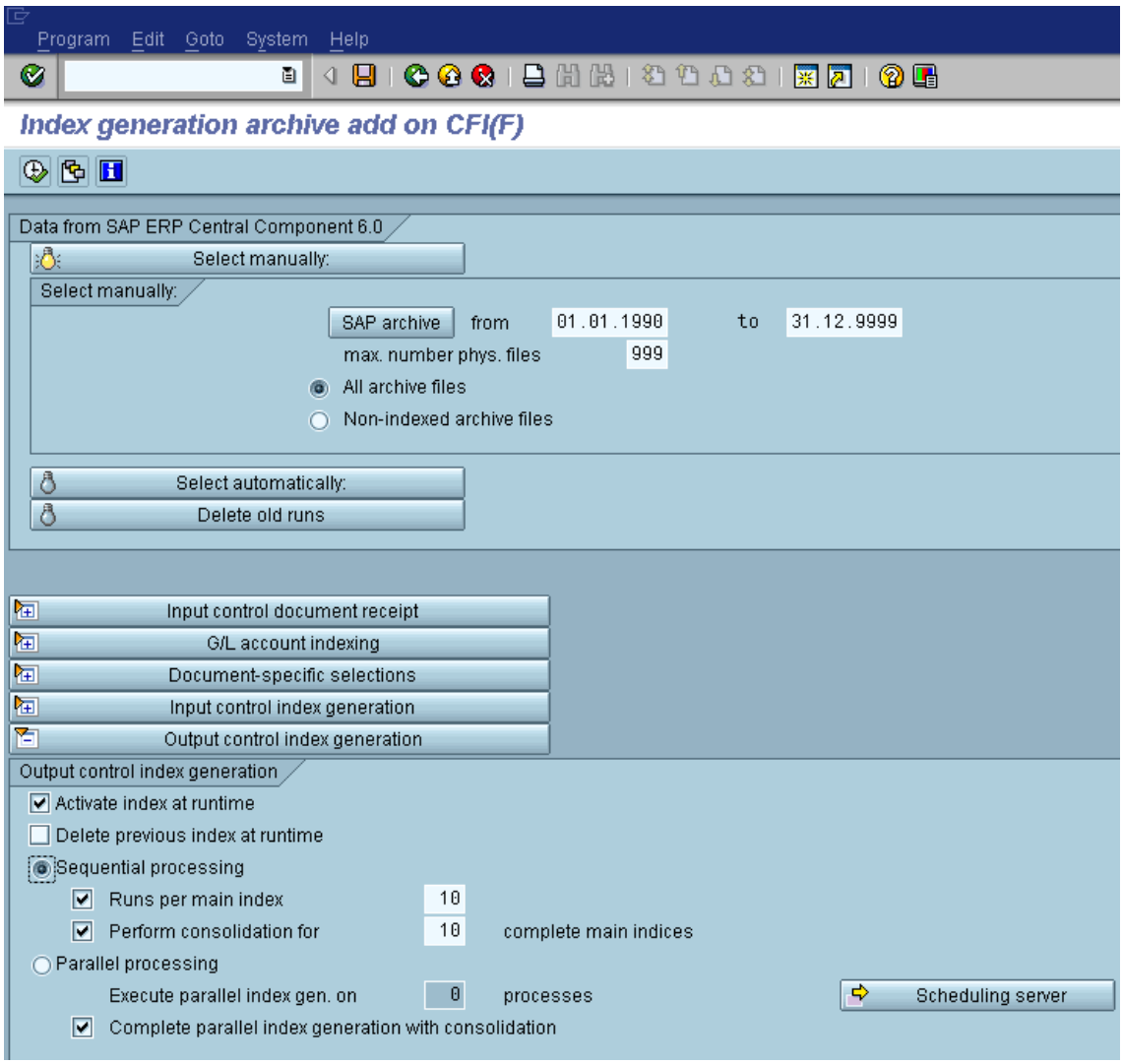
5.1.4 Index Generation Examples

This section provides you with a number of examples to enable you to perform the index generation as quickly and as easily as possible.

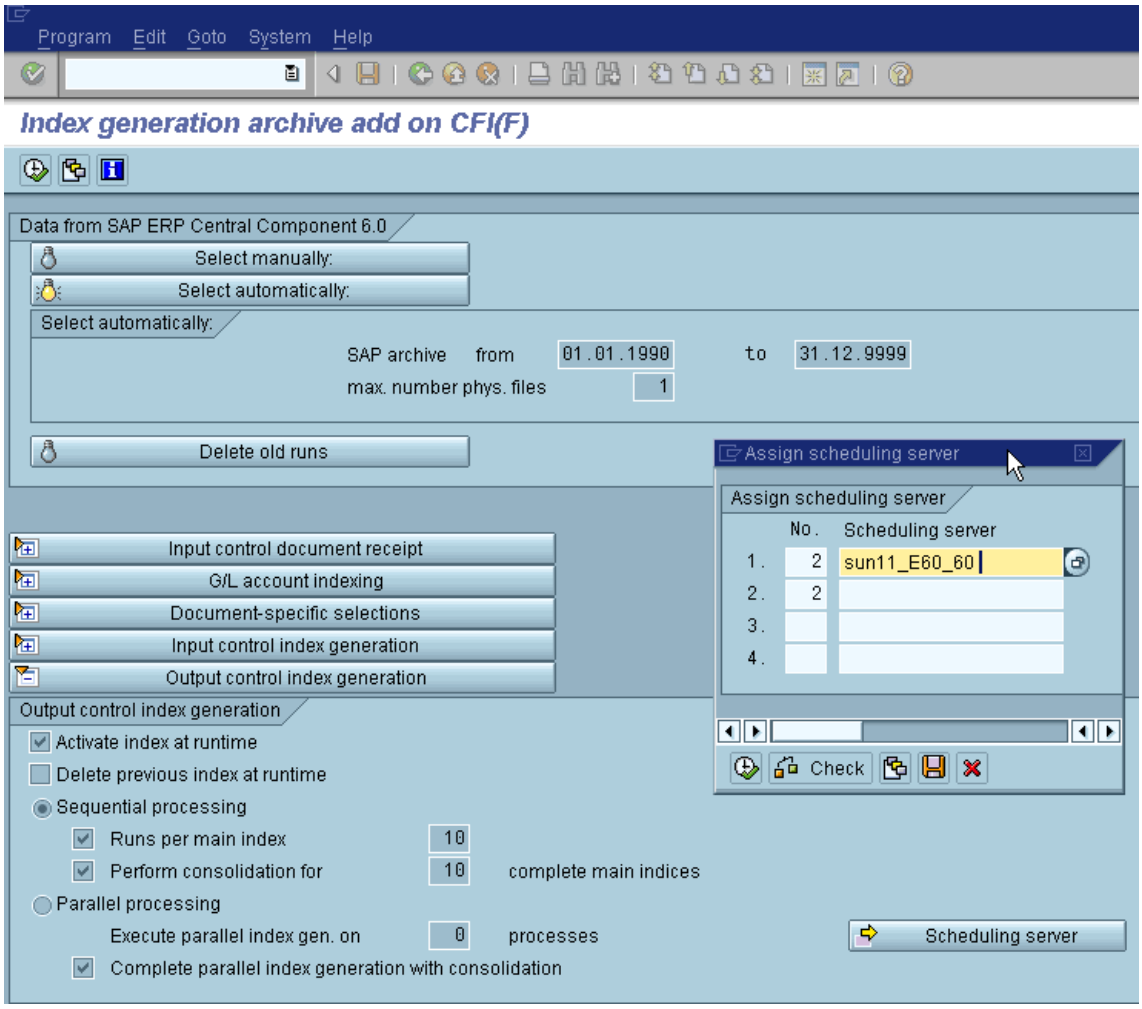
1. Example: Completely new creation. When performing the data selection, you should limit this to one archive year (all archive files that were created during one year). The maximum number of physical files should be set as high as possible so that they are able to be processed during one run (Extract/Sort Limitation). You should choose parallel processing with subsequent consolidation for the index generation output control. You can select the server and the number of processes using the button Scheduling server. After the index generation has been completed, shift the created index area into the long-term index. Repeat this step until all the archive years (up to the current archive year) have been processed.



2. Example: Periodic archiving with subsequent index generation 1 to 3 archive files are created per archiving run. You should perform the archive file selection automatically and set the 'to' date so large that you can then also use the same variant in the future. Sequential processing should be used for the output control with the parameter for the runs per main index set to 10 and the parameter for consolidation set to 10 complete main index areas. After completion of an archive year, a consolidation should be performed as long as you have several main index areas and you shift the index into the long-term index.

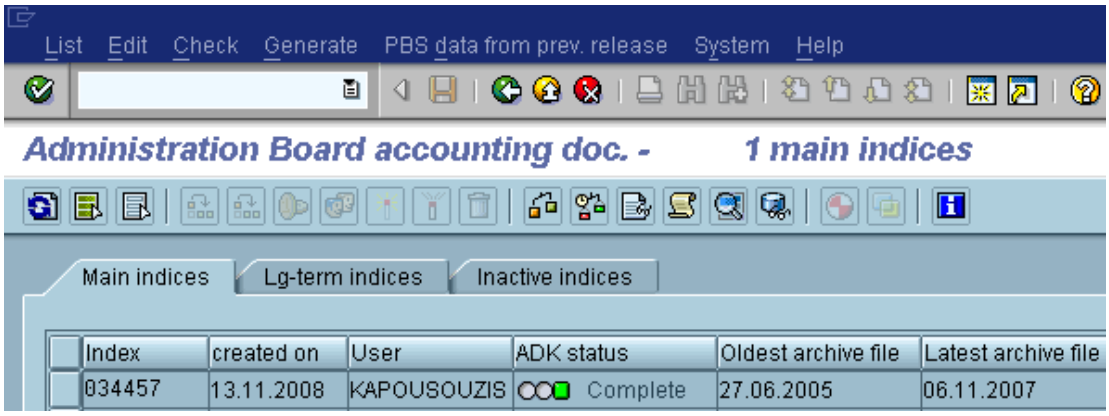


3. Example: Normal archiving with subsequent index generation More than three archive files are created. You should perform the archive file selection automatically and set the ‘to’ date so large that you can then also use the same variant in the future. Parallel processing should be used for the output control with subsequent consolidation. After completion of a business year, the main index area should be shifted into the long-term index.



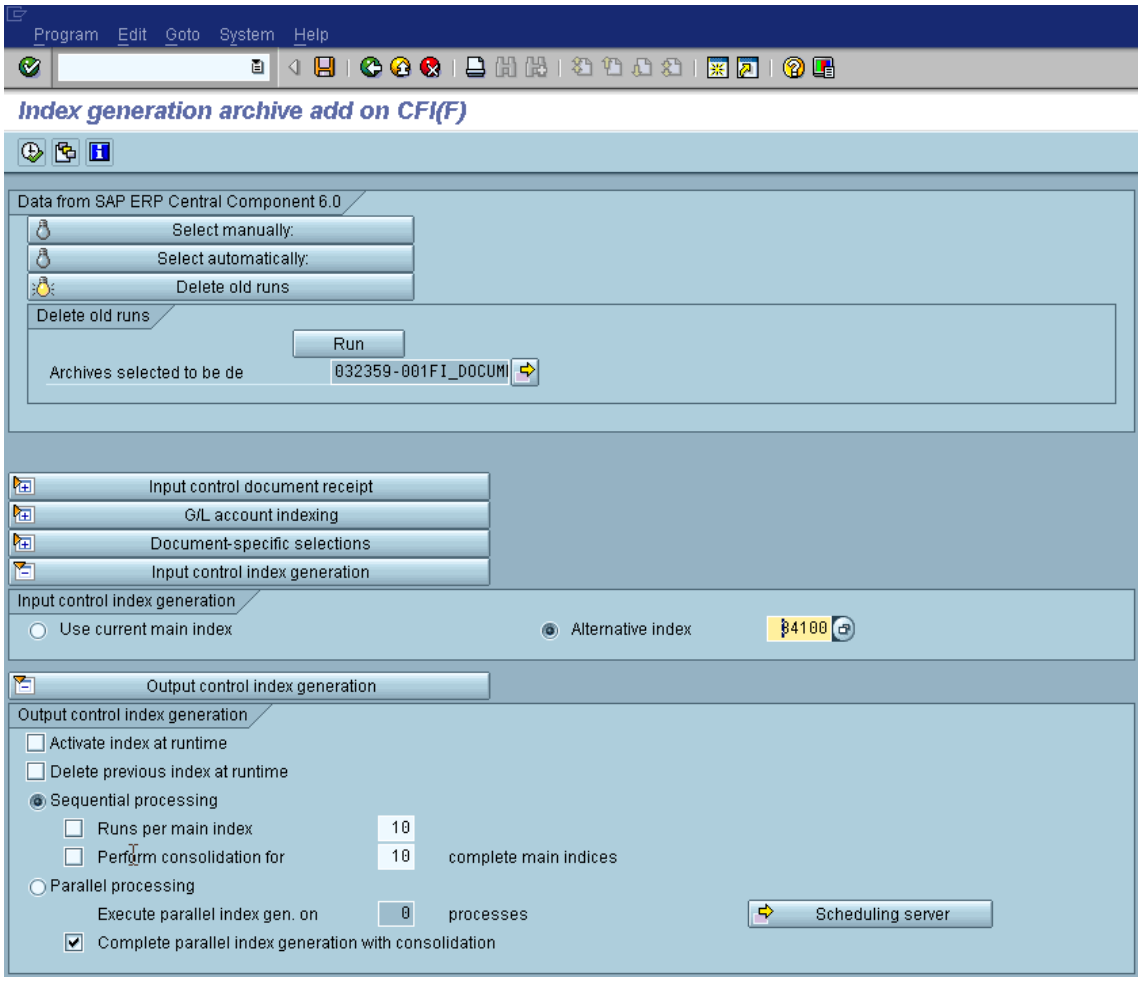
4. Example: Switch from previous index generation in directories to index generation with ADK technique. When doing this it should be ensured that there are no overlaps when performing the archive file selection. This means that when entering a date in the field ‘SAP archive from’ this should be a date that is one day later than the last archive file to be processed using the ADK technique. You can display the indexed archive files using the transactions /PBS/CFI_Y06 for Financial Accounting or /PBS/CFI_Y16 for Materials Management respectively.

5. Example: Shifting a main index area into a long-term index. After completion of an archive year you should shift the main index area into the long-term index. You can do this by selecting the index area and pressing the respective icon.



6. Example: Creating, extending, and changing a long-term index. When doing this, all main indices have to be temporarily shifted into the long-term index. The long-term index that is to be modified is then shifted into the main index. This step is obsolete if you want to generate a new long-term index. An archive year can then be generated as described in Example 1. After the generation has been completed, the generated index area has to be shifted into the long-term index and the temporarily stored long-term indices have to be shifted back into the main index area.

7. Example: Deletion of a run from an index area. During deletion of a run from an index area, first check from which index area a run should be deleted. If it is not the latest main index, an alternative index has to be entered under 'Input control index generation' and should be activated via the radio button. Now runs for deletion can be selected under 'Delete old runs'. For a deletion run it is only possible to start a sequential processing without any limitation of runs or consolidation. During this procedure an activation cannot be made. It should be made manually straight afterwards.

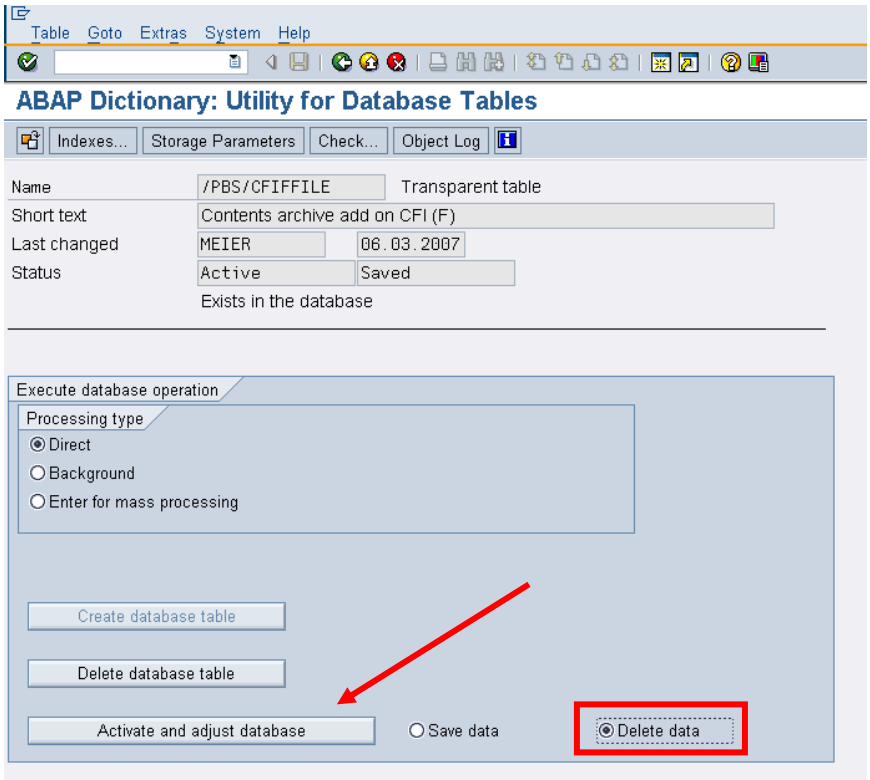

Program Edit Goto System Help
Index generation archive add on CFI(F)
Data from SAP ERP Central Component 6.0
Select manually:
Select automatically:
Delete old runs
Delete old runs
Run
Archives selected to be de
032359-001FI_DOCUM
Input control document receipt
G/L account indexing
Document-specific selections
Input control index generation
Input control index generation
Use current main index
Alternative index
84100
Output control index generation
Output control index generation
Activate index at runtime
Delete previous index at runtime
Sequential processing
Runs per main index
10
Perform consolidation for
10
complete main indices
Parallel processing
Execute parallel index gen. on
0
processes
Scheduling server
Complete parallel index generation with consolidation

5.1.5 PBS Index Data from previous SAP Releases

After a conversion to ADK technique, PBS indexes that were created in directories can still be used. Thus it is **not** necessary to rebuild existing PBS index data. Different scenarios after a system switch are explained below.

a) Old index data from previous releases should not be used any more

A prerequisite for this alternative is that all required PBS indexes are rebuilt in the new release using the method already described in this chapter. Since the old administrative information of the PBS indexes that were created in the earlier release still exists and is no longer valid, problems can occur during read access to the PBS indexes even though the new indexes were created without problems. The best way of deleting this old administrative information from the database tables is to use the SAP database utility (transaction SE14). With this utility you can initialize the tables completely by executing the option "Activate and adjust database" and choosing "Delete data".



This should be executed for the following tables for the accounting document indexes: /PBS/CFIFFILE, /PBS/CFIFFILE_OT and /PBS/CFI_PATH.

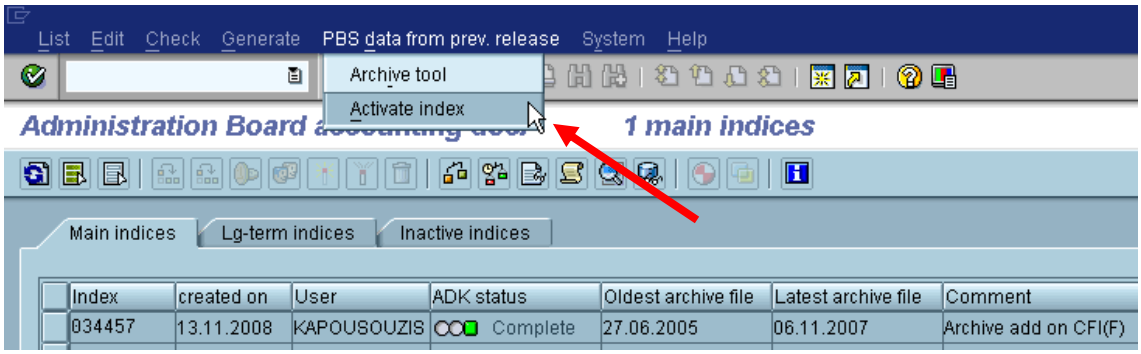
The tables for the material documents are: /PBS/CFIMFILE, /PBS/CFIMFILE_OT and /PBS/CFIMPATH.

b) <u>Old index data should be still used and the storage location remains the same.</u>

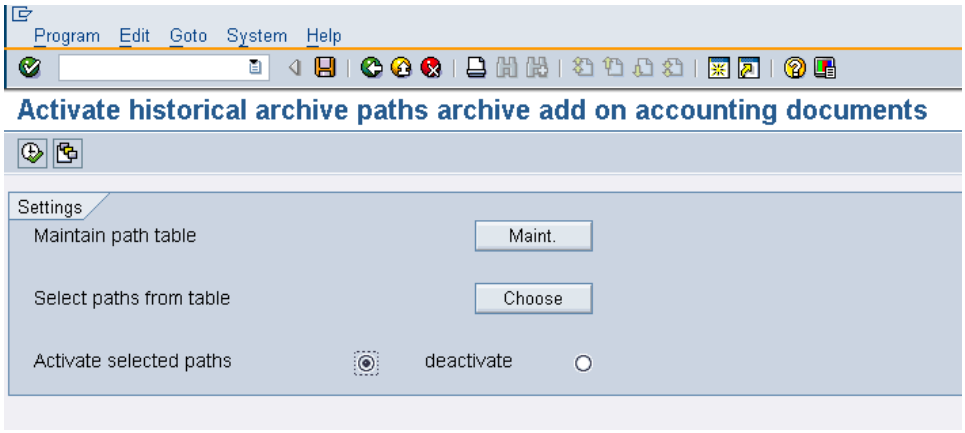
In this case, access to the old archive data should be possible via the PBS index without any further maintenance. If the file directory in which the index files are located on the server has not been changed, the PBS administrative information is still valid and can also be evaluated in the new release.

However, if any error messages occur when the documents are read, we recommend the following procedure to reactivate the existing paths:

1. Call the Administration Board of the indexes for accounting/material documents (transaction /PBS/CFI_Y81N; /PBS/CFI_Y86N). Choose "PBS data from prev. release" and "Activate index" from the menu.



2. First click on "Choose" in the next screen.



3. The system displays a list of "old" paths in which the PBS indexes are stored. The path with the number 0 is the old main path. Since this path cannot be reactivated as a main path yet, it must first be deactivated. To do this, select this path and run the program using the option "deactivate".

4. You must then enter this former main path name in the path list under "Maint.". Any number that has not already been assigned can be chosen as a path number.

5. All existing paths must be reactivated in the last step. First use the option "Choose" and select all existing entries in the displayed list. Then start the program using the option "activate".

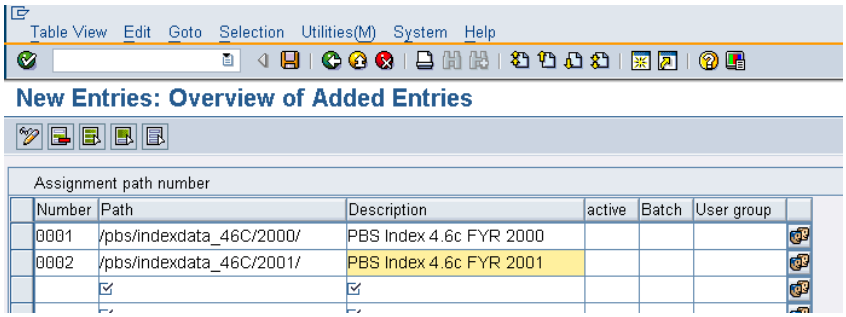
c) <u>Old index data should be used but the storage location of the index data has changed.</u>

The PBS index data from the previous release is available and still should be used, but the directory in which the data is located on the server is not the same as the directory used during original index activation.

In this case the index data can also still be used, but the administrative information must be recreated on the database. To do this, first delete the old administrative entries and then maintain and activate the existing paths. Perform the steps below:

1. Execute the steps that are described under a) to delete all the no longer valid administrative information.

2. Then call the Administration Board of the accounting/material document indexes (transaction /PBS/CFI_Y81N; /PBS/CFI_Y86N). Choose "PBS data from prev. release" and "Activate index" from the menu. Under "Maint." you must first implement all the paths in which the PBS indexes are located.



Ensure that the paths entered here can be accessed from the SAP system. To do this, use SAP transaction AL11 ("Display SAP Directories").

After you have entered all the paths, you must activate them. To do this, first select all existing entries using the option "Choose". Then run the program using the option "activate".

6. Test Tools (up to SAP Release 4.6C)

A utility is available to manage and check the PBS archive add on CFI, which can be started as described in Diagram 28 via ⇨ *Archive* ⇨ ***Archive Tool***.

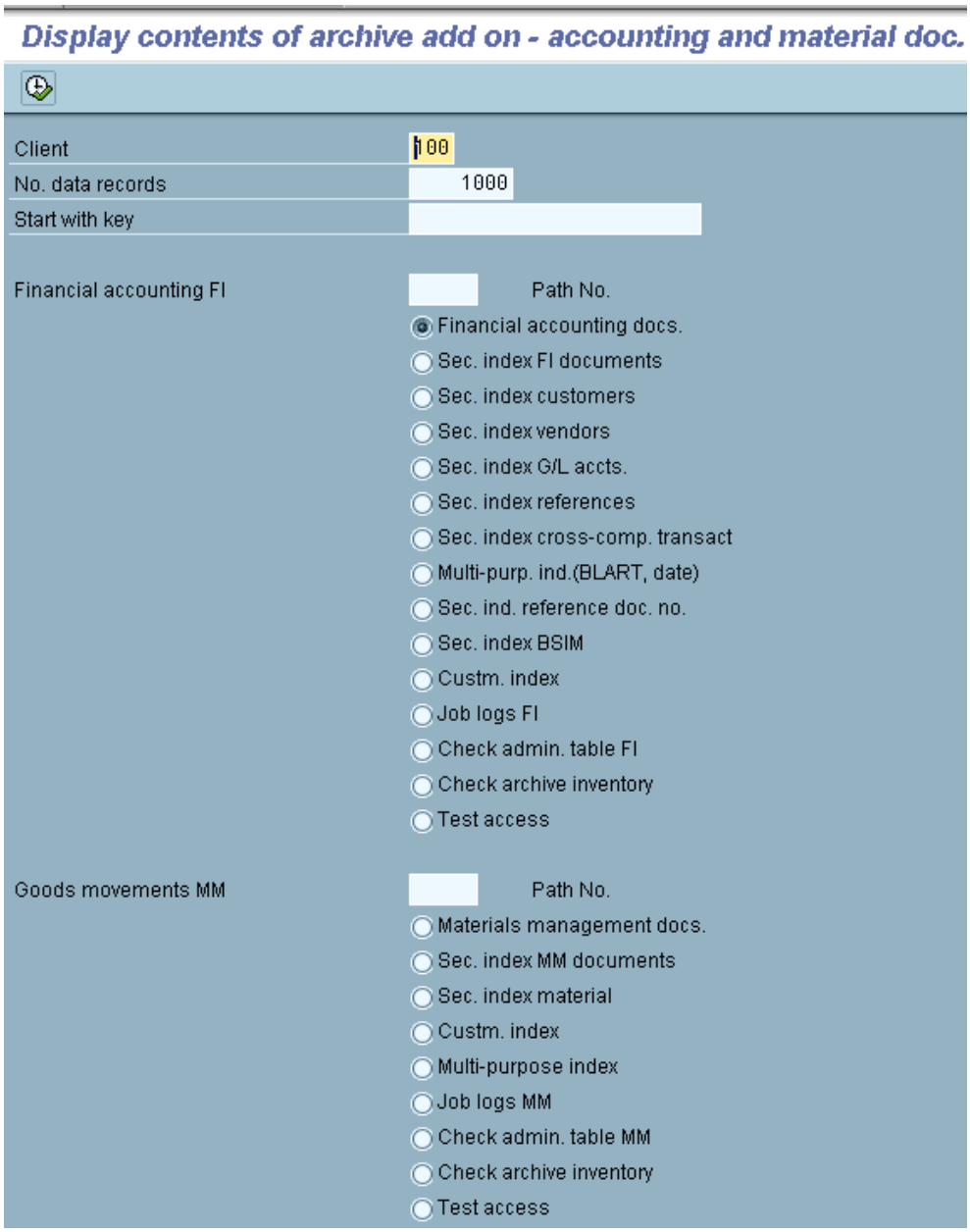


Diagram 28: Delimitations of the archive tool

You can use this program to display documents respectively secondary indices directly from the PBS archive add on CFI. In the basic list the physical indices are displayed. Via function button 'Choose' you can display the entries per index.

If you select *Job logs FI*, at first, the runs of the index generation program which have been carried out already are displayed in a list. Only the indexing runs from the current archive path are displayed. The current archive path is the path indicated during the last run of the administration table updates. Via double-click, you can select from this list the run for which the log is to be displayed.

When selecting the radio button *Check admin. table* the basic information regarding the location of the archive is provided and you can see if the administration table on database is available in its latest version (i.e. if the administration table was loaded newly after the last indexing run).

If you select "Check archive inventory", a new screen is opened: the "Archive check program" that checks the archive on file system level. During the checking procedure all files are read. In case the checking procedure is carried out with parameter “Check if cluster can be decompressed”, all tables will be decompressed additionally.

We recommend to carry out a checking of the archive before data backup by checking of decompression.

7. R/3 System Settings

7.1. Hard Disk Space

The PBS archive add on for Accounting Documents is constructed in file systems independent from database (see chapter 4.1.2). The system administrator's task here is to reserve free storage capacities for the archive construction. For the reserved disk space a file path has to be defined, which can be used by the PBS archive programs. In addition a restriction of the write/read authorization on this file path exclusively for the supplied PBS programs would be useful.

The disk space capacities that have to be made available depend on the number of documents that should be kept in the archive. If the archive is constructed in reference technique, you should calculate a file size of about 30 % of a processed ADK file. However, you can calculate a capacity of about 800 bytes per document in the copy technique (including all secondary indices).

7.2. Paging Area

A relatively large paging area is required while the indexing run is carried out. By means of a test run you can estimate how large this area should be in your SAP system:

Display: transaction RZ11 - parameter name "rdisp/PG_MAXFS"

	in 8K blocks	in MB
Maximum value (SAP)	131,072	1,048
Default value (SAP)	2,048	16
PBS value (sun45, 3.1H)	24,576	196

To estimate the required area an indexing run with 10,000 documents should be carried out. The secondary index statistics of the index generation program shows the number of archived indices. With these numbers you can estimate how large the *paging area* for indexing of a specific number of documents should be. Vice versa, you can, of course, calculate how many documents can be indexed as a maximum into one archive in case of a given *paging space*.

Table for test run with 10,000 documents (example calculation IDES):

10,000	Document indices	104 bytes each	ca. 1.0 MB
4,000	Customer indices	1000 bytes each	4.0 MB
2,500	Vendor indices	1000 bytes each	2.5 MB
13,000	G/L account indices	600 bytes each	7.8 MB
		Total (MB):	15.3 MB
	Total (MB) multiplied by 125:	Total in 8K blocks	1913 blocks at 8K

The values you get can be entered in the first column of the table below. Multiplying by the values of the third column and summing up in the last column, you receive the required *paging area* for a run with 10,000 documents. The requirement for runs with a higher number of documents can be easily extrapolated.

You can see from this calculation that in this example for a number of documents ten times higher (100,000) nearly 20,000 blocks at 8K are needed as *paging area*. For each document an average of 1.5 KB *paging space* is occupied (an 8K block should be sufficient for 5 average documents).

Table for test run with 10,000 documents (own values):

10.000	Document indices	104 bytes each	ca. 1.0 MB
	Customer indices	1000 bytes each	
	Vendor indices	1000 bytes each	
	G/L account indices	600 bytes each	
		Total (MB):	
	Total (MB) multiplied by 125:	Total in 8K blocks	

If the run is cancelled with "*Extract no more paging*" although you have carefully estimated the required space, you have to check if another job with a high requirement of *Paging* has run at the same time. If necessary, the *paging area* should be increased to the highest value possible and the SAP system be started again.

7.3. Authorization Concept (from 4.6B)

The parameters of all PBS transactions for which a corresponding SAP original transaction exists are set in the way that an authorization check with the original transaction description is done during the runtime.

To realize this process, the authorization for the general PBS transaction namespace '/PBS/*' should be assigned in the user profile at least.

For all critical programs which change the PBS archive stock the authorization for the object S_ARCHIVE, activity = 01 is required in the user master record. The authorization normally must be activated for the archive administrator. End users additionally require the S_ARCHIVE and S_DATASET authorization for an archive access in order to access to the PBS index data respectively the original SAP archive data by reading (activity 33).

Via the transaction code it is possible to divide the functions of the PBS archive add on CFI into 3 categories:

1. Functions which correspond to the SAP standard. These can be accessed via the original transaction code if they are completed by the PBS namespace (e.g. /PBS/FB03 accounting document, /PBS/MB51 material documents for material etc.). These are normally all transactions starting with **/PBS/F*** or **/PBS/M*.**

2. Functions which complete the SAP standard and have a character of the end user. These programs are particularly the evaluation and extract programs. They can be accessed via the transaction code area **/PBS/CFI_F*** (e.g. /PBS/CFI_FR25 invoice numbers which are assigned twice, /PBS/CFI_FR50 gaps in the document number assignment).

3. Functions which are necessary for the administration of the PBS archive add on CFI. They can be accessed via the transaction code area **/PBS/CFI_Y*** (e.g. /PBS/CFI_Y02 index archive, /PBS/CFI_Y09 activate archive.

   By assigning individual function group areas it is possible to deliberately control individual users respectively user groups.

8. Check List Archive Construction

		Please tick: ☑
SAP Archiving with SARA:		
Techn. Customizing:	Archive size approx. 100 MB	☐
	Data objects approx. 120,000	☐
	Deletion prog.: Start automat.	☐
	Subsequent run: Start automat.	☐
	Deactivate archive info system	☐
User Customizing:	Set all runtimes to 1:	
	OBR7: account types	☐
	No account type forgotten?	☐
	OBR8: document types	☐
	No document type forgotten?	☐
	OMB9: plants, trans. types	☐
	No plant /trans. types forgotten?	☐
Archiving Job:	Archiving quantity:	
	Delim. via Fisc. year/Post. period?	☐
	Test run **not** marked?	☐
	Detail log **not** marked.?	☐
Construction PBS archive add on CFI:		
	File system: target path for PBS archive created? (with administrator rights!)	☐
	Sufficient space in target path (see chapter 5)?	☐
	Paging area increased if necessary (see chapter 7)?	☐
	SAP archive file available? (Check via SARA - Management)	☐
	Variant for index generation program created? (Start only in background!)	☐
	After index generation run: Update to administration table?	☐

9. Migration from R/2 to R/3

9.1. SAP Migration Tool

SAP AG provides a migration tool which does not only allow to migrate resident data; in case of some modules also archived R/2 documents are migrated into the R/3 system. This tool consists of two parts:

The R/2 part: used to create a sequential transport file from the R/2 documents which is transferred into the R/3 system.

The R/3 part: data conversions and reallocation of keys (which can be very company-specific) are carried out in the R/3 part of the SAP migration tool. All necessary entries can be defined with the central transaction DMIG.

From version V45 (please do not confuse this version with the R/3 release 4.5!) the SAP migration tool contains the following migration objects relevant for the PBS archive add on CFI:

SAP migration object	R/3 archiving object FI_DOCUMNT	R/3 archiving object MM_MATBEL
R/2 residence	BELG	MBEL
R/2 SAP archive	BELA	MBLA

9.1.1 Migration Objects

As - with regard to data conversions and key conversions - there is practically no difference between an R/2 document from the residence and an archive document, the migration objects BELG and BELA on the one hand and MBEL and MBLA on the other hand have been defined in a way that the same adjustments to conversion and key conversion variants are used respectively. If you, for example, have carried out under DMIG the Customizing for the migration object BELG, these definitions are also valid for the migration object BELA.

9.1.2 The Way into PBS archive add on CFI

The migrated documents of the objects BELG and MBEL from the R/2 residence are transferred into the R/3 database. Like documents which have been posted under R/3, they will be archived some day (transaction SARA, chapter 3.1). The corresponding archive file can now be indexed into the PBS archive add on CFI (see chapters 4.1 and 4.2).

The migrated documents of the objects BELA and MBLA from the R/2 archive are transferred directly to an R/3 archive file (in the same format like the documents archived under R/3) and therefore can be integrated as well into the PBS archive add on CFI. All migrated R/2 documents (either from the residence or from the archive tape) can thus be displayed as comfortably and quickly under R/3 as a document from the R/3 database. In a line item list regarding an account, for example, you can display with the PBS archive add on CFI at the same time R/3 database items, R/3 archive items and migrated R/2 archive items.

9.1.3 Reconciliation

If you want to reconcile after the migration and the construction of the PBS archive add on the monthly debits and credits with the items, please use report /PBS/SAPFM070 (ZZCFABMI) instead of report /PBS/SAPF070 (ZZCFABST).