Data Retention Tool (DART) (CA-GTF-DRT)

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SAP ™

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Icons

Icon	Meaning
⚠	Caution
🗨	Example
💡	Note
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Inhalt

Data Retention Tool (DART) (CA-GTF-DRT)

Introduction to the Data Retention Tool (DART)

Purpose

The Data Retention Tool (DART) was designed to aid R/3 users in meeting legal data retention and reporting requirements. DART allows you to periodically extract and retain data from active R/3 applications, as well as from data that has been archived previously with the R/3 Archive Development Kit (ADK). DART extracts the data into sequential files and provides tools for viewing the retained data in various ways.

The design of DART is based on the interpretation of Rev. Proc. 98-25 by the ASUG Tax Interest Group and SAP. This team determined what data a typical company may need in an IRS audit. Every taxpayer must decide what additional data may be needed in an audit, and must configure DART accordingly. SAP cannot give any guarantee that DART as is will be sufficient for compliance with Rev. Proc. 98-25.

Implementation Considerations

As the volume of data in your R/3 applications grows, you may need to archive some of the data to make room for new data in the live R/3 database. You can do so with the R/3 Archive Development Kit.

However, you may be required by law, by customers, or by management to retain data you no longer wish to keep in your system. You may need to provide this data to the Internal Revenue Service in response to an information document request (IDR) during an audit. DART helps you comply to these data retention requirements if properly implemented.

There are two aspects to consider when implementing DART:

1. The *basic technical installation and configuration* process can be completed in a matter of days. Sufficient disk space has to be provided, and a solution for long-term file storage must be decided. DART should also be integrated into a company's general archiving strategy.

2. The *evaluation of your company's tax data retention needs* requires the majority of implementation time and planning. In this phase, the tax department must be involved to determine if additional data should be added via the provided user exits.

Integration

DART can be preconfigured to extract data from many R/3 components.

To extract data that has been previously archived with the R/3 Archive Development Kit (ADK), DART uses the ADK interface.

Data Retention and Archive Strategy

If you need to retain data that you archive on a regular basis, it is easier to first retain the necessary data with DART, and then archive the appropriate data with ADK. This way you avoid the need to retrieve data from the archive before extracting data to be retained.

Features

DART provides the following tools and features:

Introduction to the Data Retention Tool (DART)

Tool	Function
Data Extraction [Seite 17]	Extract data from a live R/3 database, and store it in an extract in a text format.
Archive Retrieval [Seite 23]	Retrieve data that has been archived previously with the R/3 Archive Development Kit into DART specific storage.
Data Merge [Seite 30]	Merge the data from two extracts, which have been created by the DART extraction tool.
Data Rebuild [Seite 32]	Rebuild the extract with the same data, but with any new configuration parameters that were defined since the data was extracted.
Data Extract Browser [Seite 34]	View the data in the extract.
View Query [Seite 37]	Define and use views of the data in a DART extract. Views group the data in different ways. You can use customized views, for example, to provide the IRS with just enough data to satisfy the request in a particular information document request (IDR).
Checksums [Seite 49]	Verify the integrity of the extract data files.
Control totals [Seite 45]	Verify that the data in the extract files is complete, or that it did not change.
FI control totals verification [Seite 47]	Compare Financial Accounting (FI) data in an extract with the data in the database to verify that the data had not changed since an extraction.
File size worksheet [Seite 72]	Estimate the size of a data extract, and the time it takes to create an extract. Estimate memory and temporary sort space requirements.

When extracting data, DART combines the following types of data:

- **Transaction data**

   This is data from various documents in the business process. For example, you can retain revenue amounts as well as related sales data.

- **Related master data**

   This is data that explains, for example, codes used in the transactions you retain, such as those involving sales organization, region, material sold, and issuing plant.

The following diagram illustrates the interaction between the major utilities of DART.
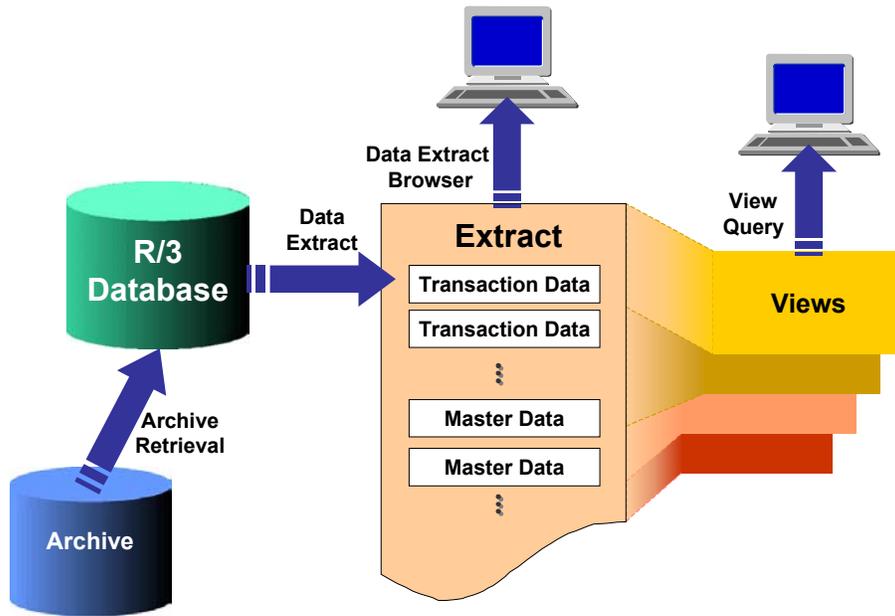
Accessing DART

Procedure

From the main R/3 menu choose:

Tools→Administration

Administration→Data Retention Tool

Data Segments

Definition

DART extracts are organized in segments. A data segment stores a collection of fields from R/3 tables. A data segment may hold master data, or data from an application document. A segment is a collection of all the records of the same type. A segment may contain data from a single R/3 database table, or it may combine related data from multiple tables.

The following diagram illustrates the arrangement of segments in the data extract.

Data Extract

Transaction Data Segments:

FI Document: Document Header

FI Document: Line Item

MM Document: Document Header

MM Document: Line Item

•
•
•

Master Data Segments:

G/L Acct

Materials

•
•
•
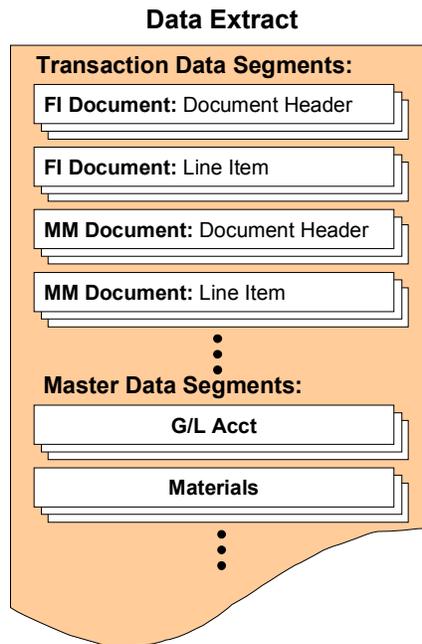
Use

- The set of segments that are defined in DART determines which data can be extracted with DART, meaning that you can only extract and retain data for segments that are defined in DART.

  DART supplies a large set of predefined segments. These include multiple segments for many of the major R/3 application areas.

  The technical names of all SAP-provided data segments start with TXW_. For example, one of the segments, namely TXW_MM_POH, contains Purchase Order document header data. Another segment, TXW_MM_POP, contains Purchase Order line item data.

  If you wish to configure DART to extract data from additional tables or fields, that is, from tables or fields not included in the SAP-provided set of segments, then you need to add segments or expand the existing segments. You may need to create a customer

Data Segments

enhancement to handle this data. See the topic of adding segments and fields through customer enhancements [Seite 102].

- DART uses data segments to organize the data it extracts in the sequential files it creates. DART separates transaction data segments from master data segments. Within those, segments are organized by application area.

Integration

A data segment in DART must be based on an existing structure in the ABAP Data Dictionary. The data segment in DART uses the same name as the structure in the Data Dictionary, and it also contains the same fields as the structure.

A data segment may contain a mixture of fields from multiple R/3 tables.

The following illustration shows how the fields in a DART segment correspond to a structure in the Data Dictionary, which, in turn, corresponds to fields in tables in the database
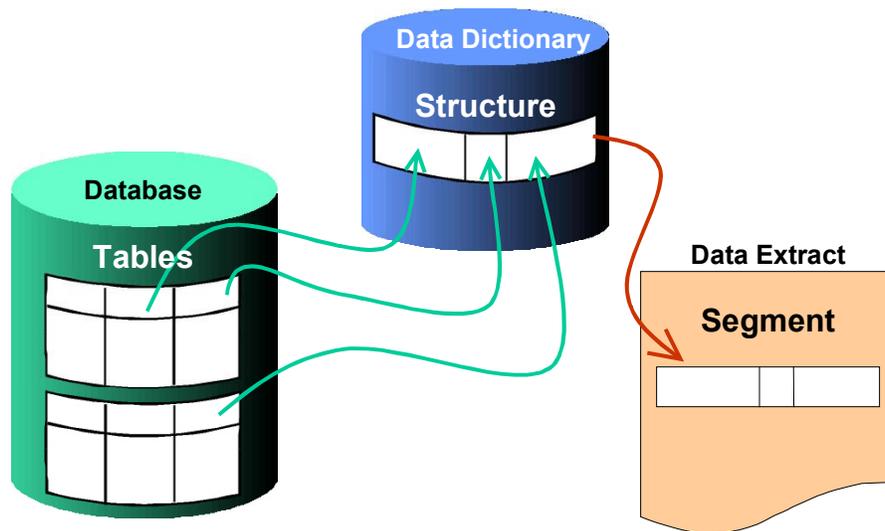
For the SAP-provided data segments, the corresponding Data Dictionary structures have already been defined. They use the same name as their corresponding data segment.

You must create the necessary Data Dictionary structures for every segment you create, as part of the process of adding new segments or adding fields to existing segments [Seite 102].

Structure

A segment definition contains the fields to be extracted and the tables from which to extract these fields.

A segment definition also specifies other attributes of the segment, such as indexes on one or more of its fields.

Defining **indexes** on fields in a segment can enhance the performance of data extract views [Seite 14].

The SAP-provided data segments have predefined index fields to enhance the performance of the SAP-provided data views. You may add or change the index fields on these predefined data segments in the same way that you can define indexes for data segments you create.

You may designate one of the fields in a segment as the **key figure field** for control totals [Seite 45]. DART then adds all the values in such a field for the whole segment by company code and by period if available. You can use these sums to verify the integrity of the data in an extract.

DART provides a predefined control totals key figure for the FI documents line item segment: it adds all the amounts in the local currency amount field for this segment. DART also provides a report to compare the sums of this key figure in the extract file with the current amount in the database. You can use this report, for example, to see if any FI documents have been posted since the data has been extracted. This can help you verify the integrity of the data in the extracted file, because for a certain period, after it has been closed, there should not be any postings that have not been retained in the extract file.

You may also designate one of the fields in a segment as the **grouping field** for control totals [Seite 45]. DART calculates separate control totals for each possible grouping field value. For example, for the FI document line item segment, the grouping field is the *Debit/Credit indicator* field. That means that when calculating control data sums for the segment, the system calculates a separate sum for debit and credit values respectively.

See Also

Customer Enhancements: Adding Segments and Fields [Seite 102], Creating a New Segment and Defining Its Attributes [Seite 108], Changing the Attributes of an SAP-Provided Segment [Seite 85], Listing Segment Information [Seite 40], Control Totals [Seite 45], Data File Views [Seite 14]

Data Extract Views

Definition

A data extract view is a definition of a report that combines data from one or more segments [Seite 11] in an extract. It may include a combination of master data and transaction data segments, as shown in the following illustration:
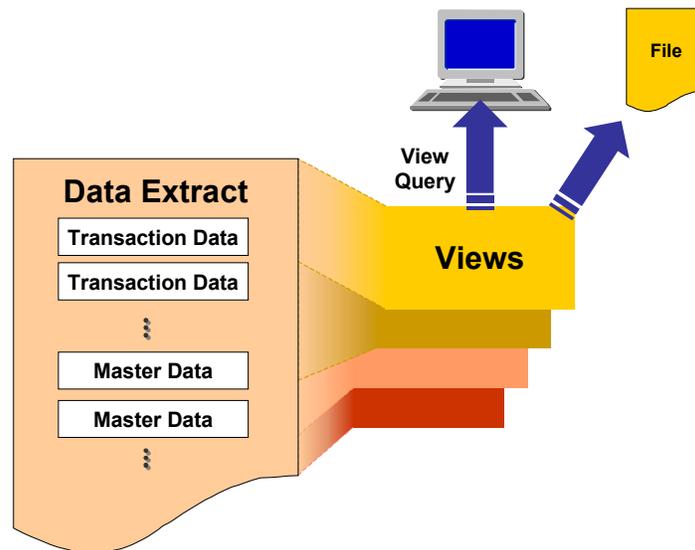
Use

Views allow you to:

- Create reports on a subset of the data in one or several data extracts.

- Combine data from related segments, (for example, combining the header and the line items of the same document) or combine with related master data attributes.

- Display the data subset on the screen, or save it into a text file (The resulting text file contains columns of data delimited by tabs or semicolons.)

Structure

The definition of a view contains:

- Fields to be included in the view report

- Segments containing those fields

- Join conditions [Seite 88] to use when combining data from more than one segment

- Additional selection conditions for filtering the data

A view definition does not actually store any data. The data is only stored in the data extract. The view merely specifies the fields and the join conditions that are used to combine the data when the user executes the view report.

See Also

File View Configuration [Seite 87], Defining a View [Seite 91]

User Functions

Data Extraction

Use

The data extraction utility extracts data from the R/3 applications you specify, and creates sequential files containing transaction and master data from these applications, as shown in the following illustration:
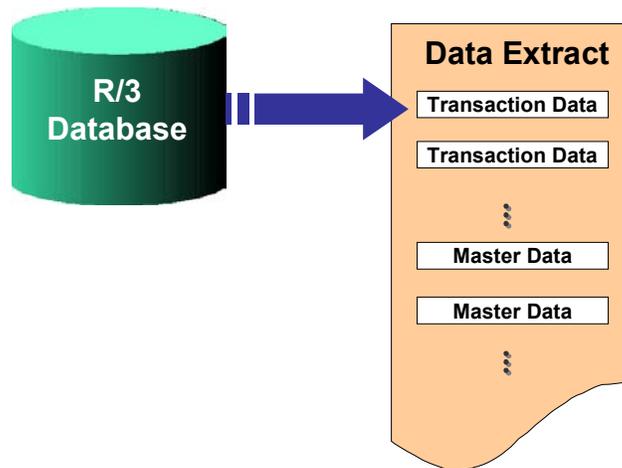
DART's default settings allow you to select data for extraction from many R/3 components. DART uses Financial Accounting (FI) documents as its starting point, allowing you to extract data from the following related documents:

- Controlling (CO) documents that are affected by the extracted FI documents
- Source documents from the Material Management (MM), and Sales and Distribution (SD) components

You can also extract data from Asset Accounting (FI-AA) documents for a certain year, period, company code, and depreciation area.

When configuring DART, you can specify additional source tables and fields [Seite 102] from which data can be extracted when using DART.

Integration

To extract data that has been archived with the R/3 Archive Development Kit (ADK), you must first retrieve the data from archive [Seite 27].

Once you extract the data, you can use the DART Extract Browser [Seite 34] utility to view the sequential file.

Data Extraction

The following illustration shows the relationship between the Archive Retrieval, Data Extract, and Extract Browser utilities:
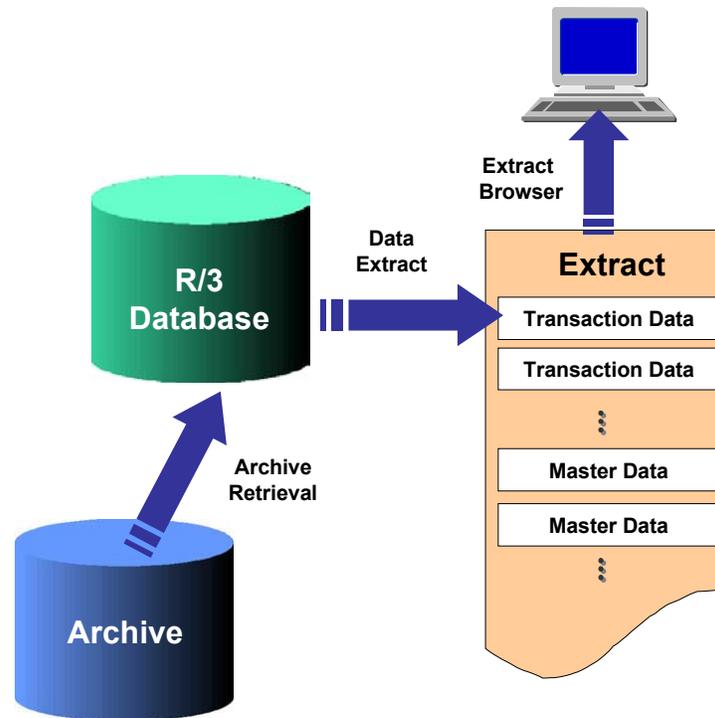
Although the sequential files containing the extracted data are in a text format, they are not meant for direct reading with a text editor or a spreadsheet program. We recommend that you use the Extract Browser tool to view data in the extract.

Another way to view the data is by creating views, and then viewing data on the screen or saving it into a file. Views have the following advantages:

- They limit the amount of data that is displayed.

- They combine related data, such as data that belongs to a particular FI document.

- The text file resulting from saving a view is in a format more suitable for reading directly, or importing into other applications.

Features

The data extraction utility:

- Converts numeric fields [Seite 104] to characters

- Can compress data when creating the sequential file by ignoring trailing blanks (blanks at the end of the data in a field) in the source data

- Can include checksums [Seite 49] for each of the segments included in the extract
  These checksums allow you to verify the integrity of the sequential file.

- Can include control totals [Seite 45] for data extracted from FI or other applications
  These control total values allow you to verify that the correct data had been extracted, or that data had not changed in the database since an extraction.

Extracting Data

Prerequisites

You must have the appropriate authorization [Seite 58] to extract data.

If you wish to extract data that has been archived, you must first retrieve the archived data [Seite 23].

Procedure

1. From the DART menu, choose *Utilities→Extract data*.

2. Enter data as required. Depending on the configuration, the *Extract data* screen may include all or some of the following field groups:

Field/Group	Action
General	Enter company code, fiscal year, and posting period.
Transaction data	Set the indicator for every application area from which you wish to extract data.
	If Asset Management (AM) is included in the list of applications you can extract, and you set its indicator, then also enter the desired *Depreciation area* in the *Asset document (AM)* group.
Include data retrieved from archive	Set this indicator if you wish to include data you have previously retrieved from archive.
Master data	Specify whether to include all master data in the extraction, or only include master data referenced in the transaction data you are extracting. Note that this option only applies to some - but not all - master data types. The option to include only transaction-relevant data applies, for example, to material master data, because there may be a large number of materials defined in the database. Using this option you can limit the amount of material master records that are extracted. However, for some master data, such as G/L accounts, this option is ignored, and DART extracts all of the records from the database. Optionally, you can extract data for specific segments rather than for all segments by choosing the *Select individual master data segments* button.
Other data	Specify whether to include custom data sources, that is data sources that have been added through customer enhancements. To choose your individual customer defined segments, select the *Display more* icon.

Data file: File name, Directory set, Description, and Note	Enter a file name and the name of the directory set you wish to use for the resulting data extract files. Also, enter a text describing the data or the file.
	Choose the *Note* icon to attach a note to the data extract, in which you can describe the extract in more detail than is possible in the *Description* field.
Compress data	Specify whether to compress the data in the resulting file. The system compresses the data by ignoring trailing blanks that exist in the source data.
Calculate checksums	Set this indicator to request the system to calculate a checksum [Seite 49].

3.   Choose *Execute*.

Result

The system extracts data into one or more sequential files. If the data extracted exceeds that which can fit into the maximum file size specified in configuration, then the system creates several sequential files. It displays information on the resulting sequential file(s), and statistical information on the segments in it.

Deleting Data Extracts

Deleting the data extracts created by the Data Extraction utility [Seite 17] deletes the retained data.

Prerequisites

You must have the appropriate authorization [Seite 58] to delete data extracts.

Procedure

1. From the main DART menu, choose *Utilities→Delete data extract*.

2. Select the name of the data extract to delete from the list, and choose *Enter*.

3. Confirm the deletion at the message box.

Result

Since the name of the data extract (the name you specify in the deletion screen) may represent one or more physical files, the system displays the names and paths of all the physical files that were deleted.

Also, in the extract log [Seite 41], a deleted extract appears in a different shade on the report. The date and time it was deleted, as well as the name of the user who deleted the extract is listed in the report. You can also delete from the extract log.

Archive Retrieval

Purpose

The Archive Retrieval utility lets you retrieve data that has already been archived from the database with the R/3 Archive Development Kit (ADK). Once you retrieve data from the archive, you can extract and retain the data [Seite 20] with the data extraction utility, as in the following illustration:
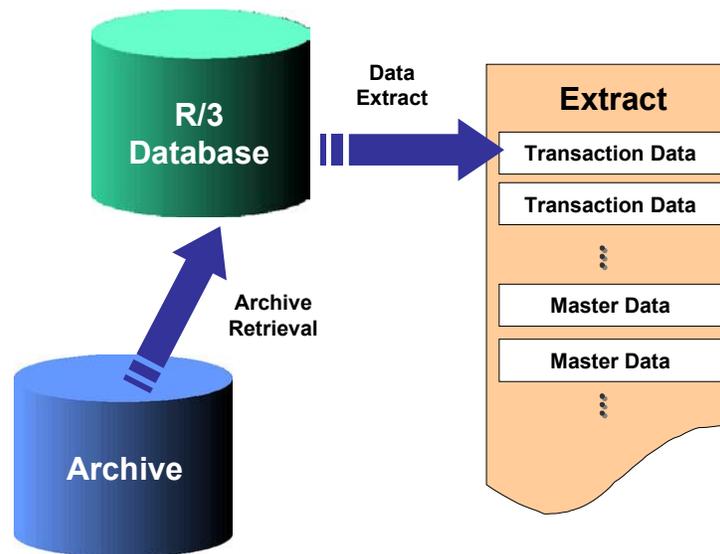
Prerequisites

- The data in the archive must have been archived with the R/3 Archive Development Kit (ADK).

- You must have the appropriate authorization [Seite 58] to retrieve data from the archive.

- Archive retrieval must be activated when configuring DART. Activate archive retrieval by enabling the Include data retrieved from archives indicator [Seite 62] on the *Display settings for data extraction* screen. To invoke this screen choose *Configuration→Data extracts→Transaction data* from the main DART screen.

Process Flow

1. Retrieve archived data [Seite 27].

   The system uses ADK archive objects to locate the requested data. The system then retrieves the data from the archive and loads it into special, temporary retrieval tables.
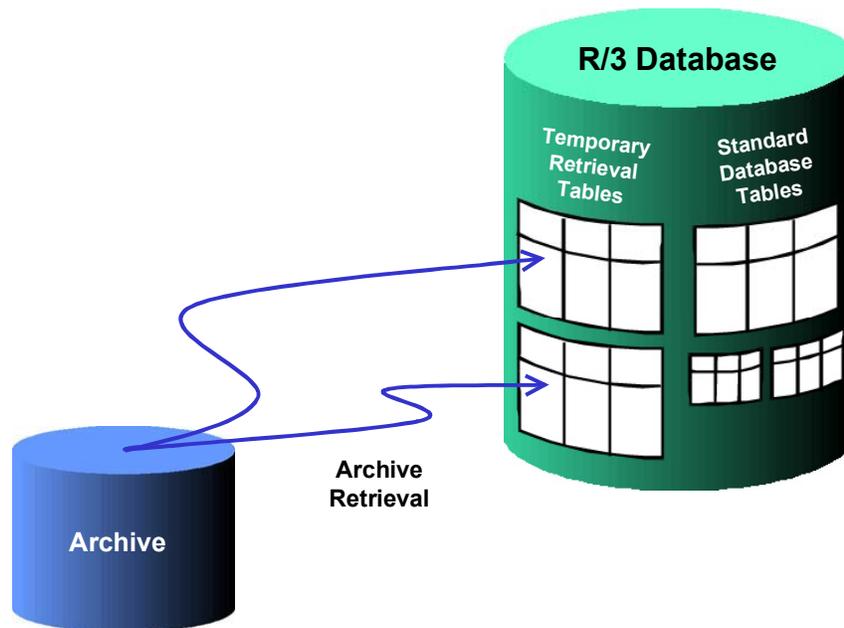
2. Extract the desired data [Seite 20].

   To include the data that had been retrieved from the archive (from the temporary retrieval tables) in the extract, set the *Include data retrieved from archives* indicator on the *Extract Data* screen.

3. You can clear the special retrieval tables [Seite 29].

   You can do this once you have finished extracting the data you need. This deletes the data from the temporary retrieval tables.

Merging Retrieval Data Sets

You can use the retrieval tables to collect and merge data you retrieve from the archive at different times using different selection criteria. for example, you can retrieve sales data for a certain company code and period, and then retrieve delivery data for the same company code, but for a different period. If you leave the data in the retrieval tables intact after the first retrieval, then the system merges the two data sets, eliminating any redundant data.

If you use the retrieval tables to merge retrieved archive data, then remember to clear the retrieval tables after you extract the data.

Data Retention and Archival Strategy

If you need to retain data that you archive on a regular basis, it is easier to first retain the necessary data with DART, and then archive the appropriate data with ADK. This way you avoid the need to retrieve data from the archive before extracting data to be retained.

Result

Retrieval Tables

The system fills the temporary retrieval tables with the relevant data.

The retrieval tables are named using the first four characters from the name of the source table (the table in which the data resided before archiving) with the prefix TXW_S_.

The following table lists the source tables for the SAP-provided segments [Seite 11] and their equivalent retrieval tables:

Source Application/Document	Source Table	Retrieval Table
FI/Finance	BKPF	TXW_S_BKPF
	BSEG	TXW_S_BSEG
	GLT0	TXW_S_GLT0
CO/Controlling	COBK	TXW_S_COBK
	COEP	TXW_S_COEP
FI/CO/Reconciliation	COFIS	TXW_S_COFI
AM/Asset	ANEK	TXW_S_ANEK
	ANEP	TXW_S_ANEP
	ANEA	TXW_S_ANEA
MM/Material	MKPF	TXW_S_MKPF
	MSEG	TXW_S_MSEG
MM/Purchase orders	EKKO	TXW_S_EKKO
	EKPO	TXW_S_EKPO
SD/Billing	VBRK	TXW_S_VBRK
	VBRP	TXW_S_VBRP
SD/Sales	VBAK	TXW_S_VBAK
	VBAP	TXW_S_VBAP
SD/Delivery	LIKP	TXW_S_LIKP
	LIPS	TXW_S_LIPS

Output

After a successful execution, the program displays the following statistical information:

- Archiving objects that were used for retrieving archived data

- Archiving objects that are always ignored when retrieving data

- For each retrieval table: the number of records read from the archive and the number of records that were inserted in the retrieval table

Retrieving Archived Data

Procedure

1. In the main DART screen, choose *Utilities→Retrieve archived data*.

2. Enter data as required at the *General selections* group:

    −   Set one or more of the indicators in the *Transaction data* group, to specify which data to retrieve from the archive.

    −   If you have previously retrieved archive data, and have not cleared the archive retrieval tables from the R/3 database, then that data may still exist in the database. Any data that you retrieve now is merged with the data retrieved previously. If you wish to only include the data you are currently retrieving, set the *Clear previously retrieved data* indicator.

3. Choose *Execute*.

Result

The archived data is retrieved into special temporary retrieval tables in the R/3 database, as illustrated below:
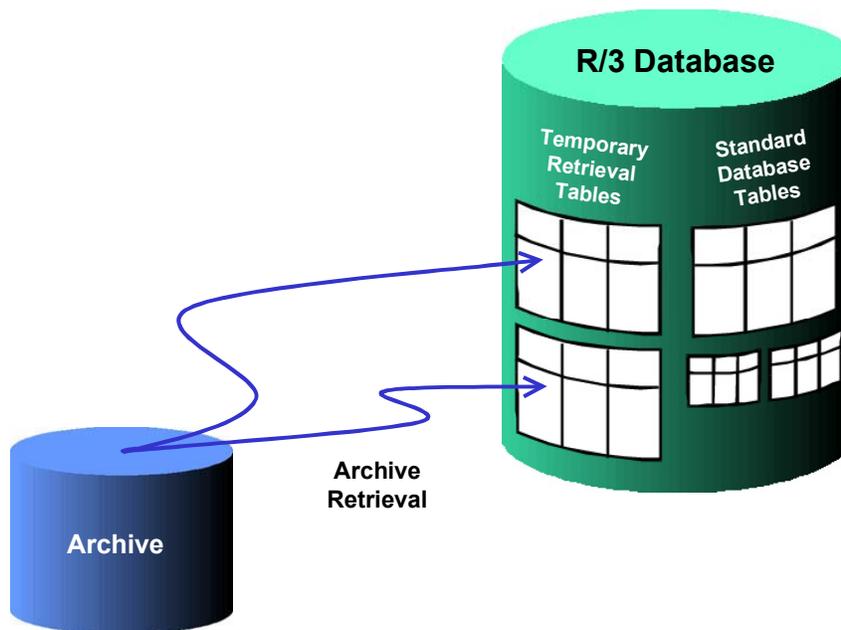
From these temporary retrieval tables, the data is available for extraction with the extract utility [Seite 17].

See Also:

Archive Retrieval [Seite 23], Clearing Retrieved Archived Data [Seite 29]

Retrieving Archived Data

Clearing Retrieved Archive Data

Use

This utility deletes the data from the temporary archive retrieval tables.

After clearing the data from the temporary archive retrieval tables, the data is no longer available for extraction.

Prerequisites

You must have the appropriate authorization [Seite 58] to clear retrieved data.

Procedure

> The data extraction utility uses the retrieval tables for extracting and retaining previously archived data. Make sure you extract the necessary data before clearing those tables.

1. In the main DART screen, choose *Utilities→Clear retrieved data*.

2. Choose *Yes* at the *Clear previous retrieved data* message box.

Result

Clearing retrieved data deletes the temporary retrieval tables created with the archive retrieval [Seite 23] utility.

See Also

Retrieving Archived Data [Seite 27]

Merging Data Extracts

Use

You can merge two data extracts created by the DART data extraction utility to combine their data. For example, if you have extracted data separately for each fiscal period, you can use the merge utility to combine data for the whole fiscal year.

You may merge two data extracts from two different systems.

Prerequisites

The data extracts you merge must have been created with the DART data extraction utility.

The two source extracts must contain data from the same fiscal year.

You must provide enough hard disk space on the application server for a temporary sort buffer for this operation. To obtain an estimate for the size of the space you need to reserve, use the File size worksheet utility [Seite 72].

Procedure

1. In the main DART screen, choose *Utilities→Merge data extracts*.

2. Enter data as described below:

Field/Group	Action
Source extract 1 and Source extract 2	Enter the source extracts and related directory sets [Seite 78]. If any one of the source extracts had been created on another system, you may have to enter its name manually. It would not be listed in the value help list.
Target extract (Data file name, Directory set)	Enter the target extract name and its directory set.
Description	Describe the target extract.
Note icon	Enter a note explaining the reasons for the rebuild in more details.
Merge source extract notes	Set this indicator if you wish to include the notes from the source extract in the merged target extract. Regardless of your selection in this field, the system includes a short description of the source extract as part of a note included in the target extract. If you enter any note for the merged extract, then the note in that extract includes three parts: you note for the source extract, the system note, and your note for the target extract.

Compress data	Set this indicator to compress the merged extract.
	You may use any setting, regardless of whether the source extract had been compressed or not.
Calculate data checksums [Seite 49]	Set this indicator to include checksums for the segments in the target extract.

3. Choose *Execute*.

Result

The system merges the data from the two extracts into a single extract. It displays information on the resulting extract(s), and statistical information on the segments in it.

The system merges data from equivalent segments from the two source extracts into one segment in the target extracts. If the merged segment contains master data, the system removes duplicate records. The system does not remove duplicate records for segments containing transaction data. The two source extracts remain intact.

Merging large extracts puts huge demands on memory or temporary sort space and is not feasible in many cases. However, merging extracts is usually not necessary. The view query tool can query multiple extracts at a time. View queries can also append to already existing files.

Rebuilding Data Extracts

Use

This utility copies an existing extract into a new extract, using the latest DART configuration definitions. This allows you to impose a new configuration on existing extracted data.

For example, if you have defined a new index on a segment, you can use this utility to apply the new index to the segment in the data extract.

Prerequisites

The data extract you copy must have been created with the DART data extraction utility.

Procedure

1. From the main DART screen, choose *Utilities→Rebuild data extracts.*

2. Enter data as described below:

Field/Group	Action
Source extract	Enter the source extract name and its directory set [Seite 78].
Other data	Set the *Extract customer-defined data sources* indicator to include data as specified by customer-defined segments [Seite 105].
Target extract(Data extract name, Directory set)	Enter the target extract name and its directory set.
Description	Describe the target extract or the reason for the rebuild.
Note icon	Enter a note explaining the reasons for the rebuild in more details.
Merge source extract notes	Set this indicator if you wish to include the notes from the source extract in the rebuilt target extract.
	Regardless of your selection in this field, the system includes a short description of the source extract as part of a note included in the target extract.
	If you enter any note for the rebuilt extract, then the note in that extract includes three parts: your note for the source extract, the system note, and your note for the target extract.
Compress data	Set this indicator to compress the rebuilt extract.
	You may use any setting regardless of whether the source extract had been compressed or not.
Calculate data checksums [Seite 49]	Set this indicator to include checksums for the segments in the target extract.

Fill customer-defined fields	Set this indicator to include data for customer-defined fields [Seite 114] that were added to the SAP-provided segments.

3. Choose *Execute*.

Result

The system copies the data from one extract to another.

The system recreates any configuration elements that have been defined since the data was extracted. For example, it recreates:

- Indices

- Checksums

- Control totals

The system may restructure the extracted data files differently as a result of the new configuration. For example, if you have specified a different maximum file size, the utility may need to reorganize the data into a different amount of physical files.

The system may also extract additional data that was not included in the original extract (and is therefore not in the source file):

- If you or someone else have added a segment to DART [Seite 105] (through customer enhancements [Seite 102]) since the data was originally extracted, and you set the *Extract customer-defined data sources* indicator, then the system extracts the data for this segment.

- If you or someone else have added a field to an SAP-provided segment [Seite 114] (through customer enhancements [Seite 102]) since the data was originally extracted, and you set the *Fill customer-defined fields* indicator, then the system extracts the data for this field.

Using the Data Extract Browser

Use

The Data Extract Browser is a report tool used to view the data extract containing the data extracted and retained by DART.
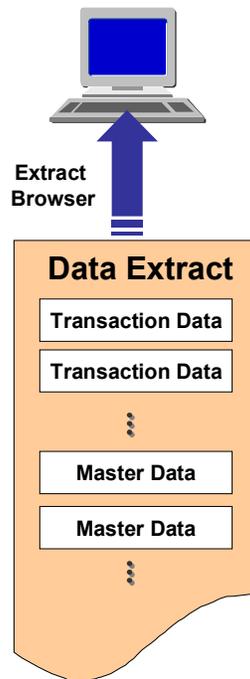
Although the data extracts containing the extracted data are in a text format, they are not intended for direct reading with a text editor or a spreadsheet program. We recommend that you use the Extract Browser tool to view data in the extract.

Prerequisites

You must have the appropriate authorization [Seite 58] to view the data extract.

Procedure

1. In the main DART screen, choose *Information system→Data extract browser*

2. Enter the name of the extract that you wish to view, and its directory set.

3. Choose *Execute*.

    The system displays a list of the segments [Seite 11] in the data extract.

4. At the list of segments you may perform one of the following tasks:

Task	Action
Display the names of the segments alongside the segment description	Choose *Show technical names.*
Display the contents of a particular segment	Click on the segment line. 1. If the *Enter query conditions* dialog appears, specify company code, period (if available), and any additional selection criteria for the index field of the segment. 2. The system displays the records that satisfy the selection criteria from the segment: • To save the contents of the segment that is displayed into a text file, choose *Export to file*. • To display all the fields of a particular record in the segment, double-click on its line. The system displays all the fields in that record, along with their values.
View the parameters used to create the data extract	*Choose Goto→Data extract info.*
Obtain statistical information (the size of each segment, its compression ratio, and the time it took to extract it)	1. Choose *Data extract info*. 2. Choose *Data segment statistics*.
Download a complete segment.	1. Set the *Export all records to file* indicator. 2. Click on the segment line. 3. If the *Enter query conditions* dialog appears, specify company code, period (if available), and any additional selection criteria for the index field of the segment. 4. Enter. The *Output options for export to file* dialog screen appears. 5. Enter the *Filename*. The *Start Time* dialog screen appears. 6. Schedule the start time 7. Save.

Using the Data Extract Browser

View an unformatted data extract.	1. Click on the *Data extract icon*.
	2. Choose *Data segment statistics.*
	3. Click on the segment line.
	4. Execute to display data extract file records. The unformatted data will appear.

Depending on your system's setup, the selection of records for the query may time out if you select a large number of records.

To prevent a time out, you can limit the amount of records that you see when you display the contents of a particular segment. Do so by entering a number at the *Maximum number of hits* field at the top of the *Data extract browser* screen. The default value is 500 records.

Using Data Extract View Query to Display Views

Use

This utility executes the report defined by the view [Seite 14], displaying data from the fields and segments [Seite 11] defined by the view.
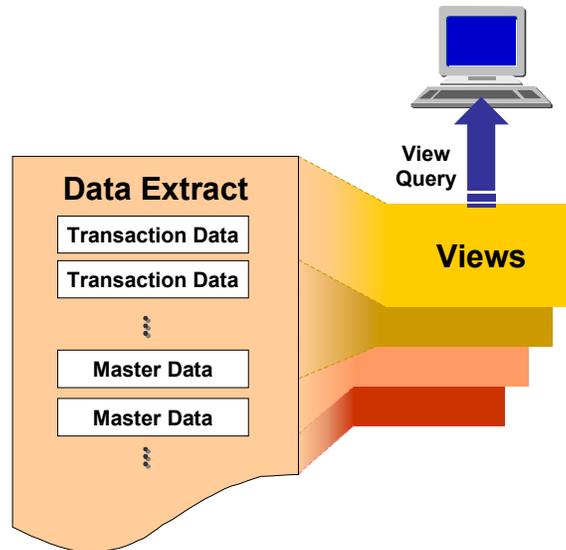
Prerequisites

You must have the appropriate authorization [Seite 58] to display data views.

Procedure

1. In the main DART screen, choose *Information system→Data extract views*. The system displays the list of available views.

2. At the *Data view queries* screen, mark the view name or description and choose *Execute report*.

3. At the *Data file view* screen, enter the following data:

At the Field/Group…	Specify…

Using Data Extract View Query to Display Views

Data extract	The details of the data extract: its file name and directory set
	This should be the data extract containing the extracted data. Note that it is possible to apply a view to any data extract that contains the data defined by the view. If you specify a data extract that does not contain the data as specified in the view, the system displays an error message.
Data view selection criteria	Selection criteria for any of the fields listed in this group
	Amount fields are also supported. Enter amounts in dollars and cents without any formatting characters (example: 10000.00). The sign of amounts is ignored. If only positive or negative amounts should be selected, add a condition for the debit/credit indicator if available. When entering ranges, add leading zeros to make the length of the lower and upper values equal (example: 0500 to 1000). The reason for this is that DART stores numbers in character fields.
Output options	Whether to display/print the resulting report, or to save it into a file
	If you choose *Export to file*, the system saves the data, as defined by the view, into a file.
	If you choose *Export to file,* then enter the following data in the *Options for exporting to file* fields:
	• Specify the name of the file in which to save the data, and the directory set for this file. You may add a description for this file. This description only appears in the view log.
	• If you specify an existing export file name, then specify whether to overwrite or append the data in it.
	• You can also insert a header line, if you overwrite the file.
	• Specify either *semicolon separated columns* or *fixed-length columns* as your preferred format.
	If you do not choose *Export to file* option, that is, if you choose *Display/print*, then the system ignores any entries at the *Options for exporting to file* fields.

Max query buffer size	Maximum buffer size to use when creating the report
	We recommend that you use the default buffer size
	The buffer size you specify may affect the performance of executing the view report. It does not limit the amount of data that is included in the report.
	When a query is executed, the required master data segments are buffered in memory to speed up processing. If a master data segment does not fit within the maximum query buffer size, it is not buffered. Increasing the buffer size can improve performance.
Data segment access sequence	How the system accesses the segments included in the view
	If you accept the default, the system accesses the segments in the order they have been defined in the view.
	If you choose *Optimize access sequence*, the system attempts to optimize the access to the segments.
	If you wish to control the order in which the system accesses the segments [Seite 95], enter numbers next to the segment name in that field group.

5. Choose *Execute*.

Result

The system displays (or exports to a file) the data as selected by the definition of the view.

You can double-click on a line in the report to view that line as a single record on a separate screen. At the record screen you can display the originating segments and fields, by choosing *Show technical names*.

If you elect to export the view data into a file, you can view the resulting file by using the display data extract log utility [Seite 41].

Listing Segment Information

Use

This utility lists all the data segments [Seite 11] that can be extracted with DART.

SAP provides a predefined set of segments with DART. If no segments were added, then the report lists the SAP-provided segments. If you add segments to DART through customer enhancements [Seite 102], then the added segments are listed as well.

The report lists transaction data segments first, followed by master data segments. Within those, the report lists segments by application area.

For each segment, the system lists the segment fields and their description.

Procedure

1. In the main DART screen choose *Extras→List segment information*.

   The system displays the list of segments.

2. From this list, you can perform the following tasks:

Task	Action
View source table, element name, type and size of field	Choose *Show field details*
Find a specific field	*Edit→Find*
Find the next field	*Edit→Find next*
List the source tables for all of the fields in all of the segments	*Source Tables*
Export the list to a file	*Save in file*
View a description of the fields	*Edit→Field documentation*
View only the customer added fields	Choose *List customer added fields*

Displaying Log File Information

Use

This utility allows you to obtain a log of DART jobs that were executed on your system, and in which files were created. This includes:

- Data extraction [Seite 17]

- Merging data extracts [Seite 30]

- Rebuilding a data extract [Seite 32]

- Exporting view data into a file, when using the View query utility [Seite 37]

DART keeps two types of logs: one for data extracts, and the other for exported view data files.

The following table describes the types of jobs each of the logs keeps:

Log Type	Job Types
Data extract log	• Data extraction • Merging data extracts • Rebuilding a data extract
View query log	Exporting view query data into a file

Both logs list jobs regardless of whether they were executed interactively or in the background. They allow you to archive files and retrieve archived files via the ArchiveLink [Seite 64] interface.

Procedure

Displaying Data Extract Log

Displaying All Jobs

1. From the main DART screen choose *Extras→Display extract log*.

   The system lists the DART jobs executed on your system.

   - The log contains:

   - Details of each job, such as the name of the user who ran it, and the date and time it ran

   - List of the files created as a result of executing the job

   - Date and time of the deletion and name of the user who deleted the file (If the files associated with the job have been since deleted)

2. You can now perform one of the following tasks:

Task	Instructions

Displaying Log File Information

Display the details of a single job	Double-click on the file name to display the contents.
	Alternatively, you can mark the line and choose *Details.*
	Double-click the file name to display the contents.
	View the *segment statistics*.
	To display unformatted records from an extract file double-click the file name.
Look at the extract created by the job	1. Mark the job in the list.
	2. Choose *Browse extract.*
	3. Enter the directory set for the extract.
	This invokes the Data extract browser tool [Seite 34] to view the extract you have selected.
Delete the extract created by the job (You can also delete a data extract from the main DART menu [Seite 22])	Choose *Delete data extract*. This deletes the extract created by the job, and marks the extract as deleted in the log list.
Hide the lines of jobs for which the extract has been deleted	Choose *Hide deleted extracts*. The button changes to *Show deleted extracts*, allowing you to redisplay these jobs in the list.
Go to the view query log list (described below)	Choose *View query log*.
To view or change the ArchiveLink status To either import to the archive or to export from the archive	Choose *ArchiveLink on.* Click on the appropriate import or export to archive icon.
To view a legend that contains explanations of the various *Export to archive* and *Import from archive* icons	Choose *ArchiveLink legend.*

Displaying View Query Log

1. From the main DART screen choose *Extras→Display view log*.

   You can now perform one of the following tasks:

Task	Instructions

Look at the file created by the job, which contains the view data you have exported	1. Mark the job in the list.
	2. Choose *Display file*.
	3. Enter the directory set of the exported view file.
	4. Enter the maximum number of records to display in the *Max no. of hits* field.
	5. Enter an offset number, if you wish to view the data starting from some point in the middle of the view data. You specify this as a byte number. For example, if the exported view file size is 4K (4,000 bytes), you can look at the second half of the file by specifying 2,000 as the offset.
	This displays the actual contents of the exported file.
	You may also view the exported view data file with a spreadsheet program or with a text editor.
Look at the original data extract file on which the view is based	1. Choose *Browse extract*.
	2. Enter the *directory set* of the saved view file.
	This invokes the Data extract browser query tool [Seite 34] to view the source extract file.
Delete the exported view data file created by the job	Choose *Delete view file*.
Hide the lines of jobs for which the exported view data file has been deleted	Choose *Hide deleted files*.
	The button changes to *Show deleted files*, allowing you to redisplay their jobs in the list.
To view or change the ArchiveLink status To either import to the archive or to export from the archive	Choose *ArchiveLink on*. Click on the appropriate import or export to archive icon.
To view a legend that contains explanations of the various *Export to archive* and *Import from archive* icons	Choose *ArchiveLink legend*.

Displaying Log File Information

If you append data to an existing file when exporting view query data [Seite 37], the job in which you exported the data is listed as a separate entry under the entry of the original export.

When you then invoke the *Display view file* function, the default value of the offset is the location of the first appended data record. Accept the default if you wish to view the file starting at the beginning of the appended data.

Control Totals

Definition

A control total is a figure calculated by the system, adding the values in one of the fields in a segment. This field is called the **Control totals key figure field**. It must be a numeric type [Seite 104] field. For example, if the control totals key figure field is *Local Currency Amount* in an FI line item segment, then the system adds up all values in the *Local Currency Amount* field, and that is the control total.

Use

You use control totals to verify the integrity of the contents of the data that has been extracted.

You must be familiar with the data in your R/3 applications to use the control totals figure calculated for the first extract. You compare this control total figure with a figure you calculate or estimate manually, or by using other means.

Sometimes adding all the values in a single field does not provide you with sufficient information. For example, if the control totals key figure field is an *Amount* field in a line item of a document, and it contains debit and credit amounts, then the resulting control totals figure may be zero. This is a positive indication that the credit amounts are equal to the debit amounts. However, this does not provide you with the actual sum of the debits or credits.

DART allows you to define a **grouping field** for calculating control totals. If you specify a grouping field for calculating control totals, then the system calculates a separate total for each possible value of the grouping field. If the grouping field is a field containing a debit and credit indicator, for example, then the system calculates one control total figure for all debit amounts, and one control total figure for all credit amounts. Using these you can verify that the amounts balance, and you can also compare the actual amounts to figures you estimate or calculate.

Example

The following example shows the use of the key figure and grouping fields in control totals.

Assume the following values:

Vendor	Amount
A	1,000
A	2,000
B	4,000
B	7,000

Using this example:

- If you specify *Amount* as the **key figure** field for control totals, then the control total is 14,000.

- If you specify *Vendor* as the **grouping field** for control totals, then the system creates one control total for Vendor A (3,000), and one control total for Vendor B (11,000).

Integration

While control totals help you verify the integrity of the data extracted based on its contents, checksums [Seite 49] help you verify the integrity of the file containing the data extract.

See Also:

Verifying FI Control Totals [Seite 47]

Verifying FI Control Totals

Use

DART allows you to define control totals [Seite 45] for various segments [Seite 11] as a tool for verifying the integrity of the extracted data.

The FI document line item segment (TXW_FI_POS), which is an SAP-provided segment, is defined with control total fields. The *Local currency amount* field (DMBTR) is defined as the control total key figure for the segment, and the *Debit/credit indicator* field (SHKZG) is defined as the grouping field.

If a data extract includes FI document data, then the system calculates control totals for the TXW_FI_POS segment. It sums up all the values in the *Local currency amount* field for each of the *Debit/credit indicator* field values. The result is a control total sum for all debit amounts in all the FI document line items that were extracted, and a control total sum for all credit amounts.

If your system was open for posting to the FI document since the data have been extracted, then the extracted data may be outdated in that it does not contain all the data that should be retained for the period.

You can use the FI control total values to check that no additional postings occurred since the data had been extracted. This utility provides you with a report comparing the data in the database with the control totals of the extracted data.

Prerequisites

The extracted file must include data for the FI document line item segment, meaning that the user that extracted the data must have selected the FI document for the extraction.

If you include data retrieved from an archive in the comparison, then make sure that the temporary archive retrieval tables have not been cleared since the data was extracted to the file you are comparing it with.

Procedure

1. Choose *Extras→Verify FI control totals*.

2. Enter the following data:

Field/Group	Action
Selection criteria	Enter the company code and period for which to perform the check.
Include data retrieved from archive	If the data when originally extracted contained data from an archive, then you can set this indicator to have the comparison include the data retrieved from that archive. The system considers the data in the temporary archive retrieval tables as the data retrieved from the archive. If you wish to compare data retrieved from an archive with the data in an extract file, then make sure that the archive retrieval tables are not cleared between the time of the extract and the comparison.

Verifying FI Control Totals

Extract	Enter the name of the extract file whose data you wish to compare with the database and its directory set.

3. Choose *Execute*.

Result

The system produces a report comparing the total amount of credits and the total amount of debits between the *Local currency* field in the database and the same field in the data extract file. It also compares the number of debit and credit records in the database and the extract file.

Checksums

Definition

A checksum is a number calculated by the system for each of the segments [Seite 11] in the extracted sequential file. The system calculates the checksum when writing the data into the extract file.

Use

You can use checksums to verify the integrity of the sequential file [Seite 50] containing a data extract. Verifying checksums of an extract file ensures that the file has not been corrupted or that it has not been changed manually by someone since the data was extracted.

Integration

While checksums help you verify the integrity of the file containing the data extract, Control total [Seite 45] figures help you verify the integrity of the data extracted based on its contents.

Verifying Checksums

Use

You verify checksums [Seite 49] to verify the integrity of the sequential files containing a data extract.

You should verify the checksums for an extract file whenever you move or copy the file between different media.

Verifying checksums is especially important if you copy the file to a media on which it will be stored for long periods. After copying the sequential file to the storage media, you should copy it back to your system, and then verify the checksums for that copied file. If the checksums result in an error, you can re-extract the data before it is placed in the long-term storage.

You can also use checksums to verify the integrity of any extract that you suspect has been tampered with.

Prerequisites

Checksum calculation must be enabled [Seite 70]: the option of calculating checksums must be available to the user, and the user must enable checksum calculation.

Procedure

Verifying Checksums of All Segments

1. From the main DART screen, choose *Extras→ Verify data checksum.*

2. At the *Verify data file checksums* screen, enter the extract file name and its directory set.

3. Choose *Program→ Execute in background*.

The system calculates and compares the checksums of all the segments in the extract file. It then lists the segments, and places a checkmark next to every segment that passed the check, and marks every segment that has not passed the test.

If checksums were not calculated for the extract you have specified, the system displays an error message.

Verifying Checksums for a Segment

1. From the *Data extract browser* screen, click on a segment. This displays the details of the segment.

2. Choose *Test segmnt checksum*.

    If the checksum verification passes, the system displays a message confirming that the checksum is valid for the segment.

You can also obtain the same information from the *Data segments statistics* screen:

1. From the *Data extract browser* screen, choose *Data extract info*.

2. Choose *Data segment stats*.

3. Mark a segment in the list.

4. Choose *Test segmnt checksum*.

If the checksum verification passes, the system displays a message confirming that the checksum is valid for the segment.

ArchiveLink

Purpose

ArchiveLink is the R/3 interface designed to link SAP to external archiving systems. DART supports this interface. It enables DART users to export both data extract and data view files to external archive systems. You can easily store your DART files in your existing external archive system. These exported files can also be retrieved from archive by using the DART tool. Authorizations to archive and retrieve data extracts and data view files are set up during system configuration.

Once an extract has been archived, it cannot be used in queries (extract browser, view queries). If you want to query in this situation, you must first retrieve the extract from archive which will import it back into the original file system. Archived extracts are not required to be imported back to the original storage location. After retrieval, you can create a directory set for a new location if necessary.

Archiving Data Extracts

Use

ArchiveLink is the R/3 interface designed to link SAP to external archiving systems. DART supports this interface. It enables DART users to export data extracts to external archive systems. These exported files can also be retrieved easily from archive by using the DART tool. Once an extract has been archived, it cannot be used in queries. If you want to query in this situation, you must first retrieve the extract from archive.

Procedure

Archiving Data Extracts

1. From the main DART screen choose *Extras → Display extract log.*

2. Choose *ArchiveLink on* . Additional export/import buttons appear to the left of each log entry.

3. Note the archiving status of the extract, as indicated by the color of the button that appears on the left side of each log entry.

4. To view the color legend and the corresponding status, choose *ArchiveLink legend.*

5. To export an extract to the archive, choose *Export*. The *Import from archive* button is displayed once an extract has been archived.

A background job is created for each file. Each job updates the extract log after completion. You can choose *Refresh* to monitor the progress. You can also double click the log entry to display additional details such as time stamp and return code. A return code value of "4000" indicates successful processing.
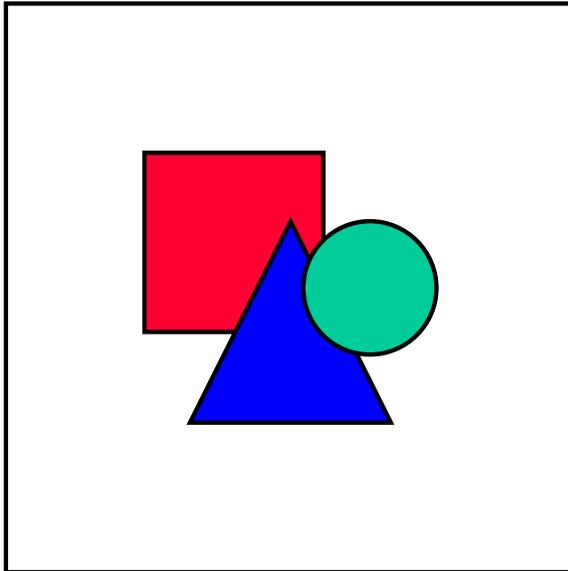
Archiving View Files

Use

ArchiveLink is the R/3 interface designed to link SAP to external archiving systems. DART supports this interface. It enables DART users to export data view files to external archive systems. These exported files can also be retrieved easily from archive by using the DART tool.

Once a view file has been archived, it cannot be viewed from the view log. If you want to examine the view file in this situation, you must first retrieve the view from archive which will import it back into the original file system.

Procedure

Archiving Data View Files

1. From the main DART screen choose *Extras → Display view log.*

2. Choose *ArchiveLink on.* Additional export/import buttons appear to the left of each log entry.

3. Note the archiving status of the view, as indicated by the color of the button that appears on the left side of each view entry.

4. To view the color legend and the corresponding status, choose *ArchiveLink legend*

5. To export a view to the archive, choose *Export*. The *Import from archive* button is displayed once a view has been archived.
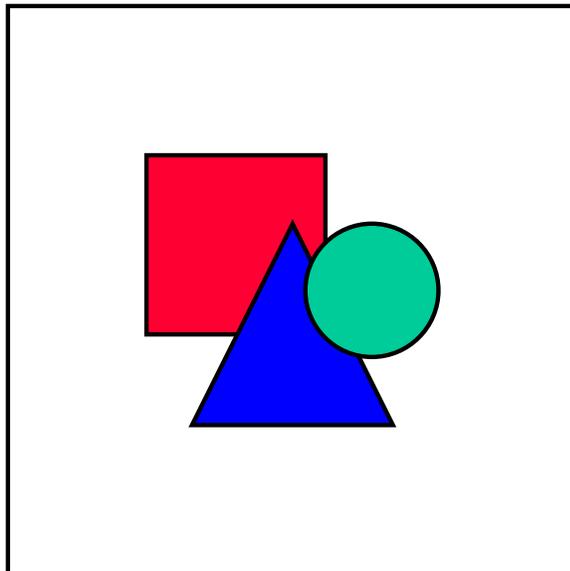
A background job is created for each file. Each job updates the view log after completion. You can choose *Refresh* to monitor the progress. You can also double click the view entry to display the details such as time stamp and return code. A return code value of "4000" indicates successful processing.

Creating DART Background Jobs

Use

This utility provides a convenient way to execute one of the DART utilities as a background job.

Prerequisite

A variant must exist for any DART utility or report that you wish to run in the background.

To create a variant for a DART utility or report:

1. Execute the DART utility that you wish to run as a background job, interactively.

2. Enter the necessary parameters at the screen for that utility. For example, if you are creating a variant for the extract utility, enter the various parameters of the *Extract data* screen, including the name of the extract file and the directory set.

3. Instead of executing the utility, choose *Save as variant*.

4. Enter the name of the variant and all other necessary parameters at the *ABAP: Save as Variant* screen.

Procedure

To run a background job:

1. From the main DART screen, choose *Extras→Create background job*.

2. Click on the DART utility you wish to execute in the background from the list at the *Create background job* screen.

3. Enter a job name, job class, and host name at the *Define background job* screen.

4. Specify the start date and time and the frequency for the job at the *Start Time* screen.

5. Define the program name and variant for every step included in the background job: Mark the step line, choose *Steps*, and then enter the necessary data at the *Step list* screen. Make sure you enter the name of the variant you have created for this step. Save the data you entered at this screen.

6. Choose *Save* at the *Define background job* screen.

Result

The system creates a background job to be executed according to your specifications.

The background job executes one of the DART utilities, for example data extraction. As a result of running a data extract as a background job, the system extracts data as specified by the variant you have created. Note that since the variant for a data extract specifies the name of the file into which to extract the data, if you run this job more than once, the system overwrites the contents of the extract file each time you run the job.

Configuration

Purpose

The Data Retention Tool (DART) allows users to extract data from an R/3 database. The resulting extracted data is stored in one or more physical files.

To allow users to extract and retain data with DART you must specify which data can be extracted with DART, and also specify the physical arrangement of extracted data files.

You may elect to perform other optional configurations to specify other parameters of the extract files.

Required DART Configuration Tasks

To allow users to extract and retain data with DART you must:

• Specify which data can be extracted with DART [Seite 62]

• Define at least one directory set [Seite 78] to be used for storing the extract data files

• Define a file path syntax [Seite 82] for every platform on which you use DART

As an aid to defining the physical parameters of the data extract files, for example, deciding how many data volumes [Seite 76] you should create, you can use the File Size Worksheet [Seite 72] utility.

Optional DART Configuration

In addition, you may also:

• Specify various global settings for data extracts [Seite 66], such as the maximum file size, or whether the extract is compressed, or whether it includes checksum [Seite 49] calculations

• Change the attributes of an existing data segment [Seite 85]
Note that adding new segments to DART is done through customer enhancements.

• Add definitions of views on data extracts, or change the definition of SAP-provided views [Seite 91]

• Increase or decrease the maximum memory allocation [Seite 68] on the application server for building data segment indexes

• Change package size [Seite 71]. By default the extraction utility selects data from the database in packages of 100 records at a time. You can increase or decrease this number. In some cases a smaller value should be chosen in order to reduce memory consumption.

• Choose the ArchiveLink configuration [Seite 64] to configure the *specified Archive, Link table and Retention period*

Use the links from the above lists to go to the topic describing the details of the configuration.

Adding Data Sources for an Extraction with Customer Enhancements

If you wish to allow the user to extract data that is not defined in the SAP-provided segments, you may need to either add fields into the existing segments, or to add new segments.

Adding a non-numeric field to an SAP-provided segment (if that field is from a source table that is already used in the segment) involves only a configuration of the segment.

However, all other additions of data sources to DART involve writing and activating customer enhancements.

See the discussion of customer enhancements [Seite 102] for the details of this process.

Setting Authorizations

Use

You must authorize users to work with the various functions of DART.

Prerequisites

If you are using authorizations groups, you must first set them up.

Procedure

Use the R/3 authorization maintenance tool to set up authorization for DART.

Use the *Non-application-specific Authorization Objects* class.

DART authorization objects are listed starting with "Data retention tool: "

You can define authorizations for DART tasks by using the following objects:

Authorization Object	Technical Name	Fields	Values
Data extract configuration [Seite 60]	F_TXW_TFCF	Activity	02 = Change
Data extract	F_TXW_TF	Activity	01 = Create [Seite 20]
			03 = Display [Seite 34]
			06 = Delete [Seite 22]
		Company code	(Company code values)
Data view configuration [Seite 87]	F_TXW_TVCF	Activity	02 = Change
			03 = Display
Data views [Seite 14]	F_TXW_TV	Activity	03 = Display [Seite 37]
			61 = Export
		Authorization group	(Authorization group values)
		Company code	(Company code values)
Retrieve data from archive [Seite 27], Clear retrieved data [Seite 29]	F_TXW_RA	Company code	(Company code values)

Data Extract Configuration

Purpose

To allow users to extract data with DART you must specify:

- The data sources from which a user can extract data (the type of documents that can be extracted)

- The arrangement of the resulting physical data extract files in directories

You may specify additional parameters for the extracted files, such as their maximum file size.

Process Flow

Data extract configuration is divided into several screens. The following table summarizes the configuration tasks that you need to perform, and describes which screen to use.

Task	Data Extract Configuration Screen/Tool
Define which data can be extracted with DART [Seite 62].	*Data extraction* tab: *Transaction data* *Master data* *Other data*
Specify the maximum size of any physical file [Seite 66] created to hold data extracts. This may depend on your operating system or on your hardware. This task is optional, as you may elect to use the default file size.	*Data extraction* tab: *Technical settings* tab
You may define other global parameters [Seite 66] of the extract data files, such as whether they can be compressed or not.	*Data extraction* tab: *Technical settings* tab
Estimate the size of data extracts [Seite 72] performed on your application server. Determine what is the largest data extract that may be created on your server. Also estimate run times and memory requirements.	*File size worksheet* utility

Define the physical arrangement of extract files in directories.	*File directories* tab
Given the maximum size of any single data extract file and the estimates for the total size of data extracts on your application server, determine how many data files you need to accommodate.	
Define directory sets to hold any potential data file created for a data extract. In a directory set, you define directory location for every data file volume (physical file) created by the extract.	
You may define one or more directory sets. Define at least one directory set to hold the largest amount of data.	
For more details on how to plan the physical arrangement of the extract files, see the topic File Directories Configuration [Seite 75]. For more details on how to use directory sets [Seite 78] to define the location of data file volumes [Seite 76], see these two topics.	
Define how the full path names of data extract files are constructed on each of the operating systems of the various application servers.	File path syntax [Seite 82] tab

Accessing the File Configuration Screens

1. From the main DART menu choose *Configuration→Data extracts*.
   The *Display settings for data extraction* screen appears first in display mode.

2. Choose *Display<-> Change* to place the screen in change mode.

3. Enter data into the *Data extraction* tab, specifying the data the user can select for extraction [Seite 62], or other global parameters of the extract file [Seite 66].

4. Specify the physical arrangement of the extract files by defining directory sets and file path assignment. You do so through the following two screens, which are available from the *Change settings for data extraction* screen:

To Go To the Screen…	Choose…
File directories (for defining directory sets [Seite 80])	*File directories*
File path syntax [Seite 82]	*File path syntax*

Specifying Which Data Can Be Extracted

Use

The set of data segments [Seite 11] that are included in DART defines which data can be extracted with DART. These segments can be part of the SAP-provided set of segments, or they can be segments that you or someone else has added to DART through customer enhancements [Seite 105].

However, by default, none of the segments are actually available to the user for extraction until you enable them.

To allow DART users to extract data for a certain document type, you must enable that document type for data extraction. This enables the group of segments comprising the document to be extracted.

To enable extraction of data of customer-defined segments [Seite 113], you must also enable the *Extract customer-defined data sources* indicator.

You enable the various options for data extraction through the tabs on the *Change settings for data extraction* screen.

Procedure

1. From the main DART menu, choose *Configuration→Data extracts*.
   The *Display settings for data extraction* screen appears in display mode.

2. Choose *Display<-> Change* to place the screen in change mode.
   The *Transaction data*, *Master data*, and *Other data* tabs together specify which data the user can include in an extraction. The following table describes how to configure these parameters:

Field Group	Configuring

Transaction data	Set the indicator for every transaction data source you wish to make available to the user. For example, if you set the indicator for *Material documents (MM)*, then the *Extract data* screen displays a *Material documents (MM)* indicator, allowing the user to include MM transaction data in the extraction. The indicator is displayed to the user as set by default.
	Similarly, setting the *Include data retrieved from archives* indicator allows the user to include data from archive in the extracted data.
	Your specifications in this configuration screen may also result in additional fields displayed to the user on the *Extract data* screen. For example, if you set the *Asset documents (AM)* indicator, then the *Extract data* screen also displays *Depreciation area* data entry fields.
	Also in this group, set the *Include data retrieved from archive* indicator, if you wish to allow data that had been retrieved from archives [Seite 23] to be extracted.
	Similarly you can set the indicator for *Statistical CO document items*, if you wish to extract CO document items for statistical cost objects.
	Select *Billing document pricing conditions,* if billing document pricing conditions should be extracted with billing documents.
Master data	Flag the *Standard cost center hierarchies*, to include standard cost center hierarchies for selected controlling areas to be extracted.These can only be viewed with the *Data extract browser*.
	Likewise if you set the indicator for *Standard profit center hierarchies* you can extract profit center hierarchies for selected controlling areas that can only be viewed with the *Data extract browser*.
	Setting the *Joint Venture Accounting master data* indicator enables the user to select master data from the Joint Venture Accounting application in the *Change Settings for Data Extraction* screen. This field is displayed to the user as set by default.
Other data	Setting the *Extract customer-defined data sources* indicator includes this field in the *Extract data* screen. It is displayed to the user as set by default. Setting this indicator allows the user to extract the data as defined by the segments that you or someone else have added to DART.

Configuring ArchiveLink

Use

ArchiveLink is R/3's interface to external archiving systems (e.g., optical storage systems). DART supports this interface which enables you to archive data extract and data view files. These files can be easily exported to and from archive when the system is properly configured.

To configure the link, you must access the *ArchiveLink* configuration screen, assign an archive ID that identifies your optical archive and assign attributes to data extract files and data view files.

The definition of the archive ID in the *ArchiveLink* configuration determines where the files that are to be archived have to be stored or where the files will be stored when retrieved from the archive. When you archive data extracts or view files, you are prompted to enter a directory set. You are required to enter a directory set that matches the file location as defined in the archive ID.

On the maintenance screen, you will be required to enter an "*X* " in the status field (to activate the link), an archive ID, a link table (table that stores links to the archived files), and a retention period in which the link table entries can be deleted. By default, one inactive link without attributes is created the first time the maintenance screen is called. To create a new link, you can copy the default object type and document type and enter the remaining attributes.

After configuring the link, user authorizations must be set up to grant selected users permission to archive and retrieve files from archive.

	Data extract file	**Data view file**
Authorization	F_TXW_TF	F_TXW_TV
Activity	24 = Archive 25 = Retrieve from archive	

Procedure

Configuring the *ArchiveLink* interface for Data Extracts and Data Views

1. From the main DART menu, choose *Configuration → Data extracts*.
   The *Display settings for data extraction screen* will appear.

2. Choose the *ArchiveLink* c*onfiguration* tab.

3. Choose *Configuration* on either the *Data extract* or *Data view* section of the screen. This invokes the *Links for external storage system: Overview* screen.

4. Choose the *Display-change* icon to enter the change mode.

5. Choose *New entries.*

6. Enter *BUS4010* in the *Obj.type* field and *DART_EXTR* in the *Doc. type* field for data extract links or *BUS4011* and *DART_VIEW* for data view links (or copy an existing line to copy the default object and document type)*.*

7. Enter an "*X*" in the status field to activate the link. All other values indicate an inactive status.

8. Use the value help to select values for the *Archive* ID (identifies your external archive), and the *Link table* (name of the table that stores the links to the archived files).

9. Enter the number of months after which link table entries can be deleted in the *Retention period* field. You will usually enter a 0, to indicate an unlimited retention period.

10. Choose *Save*.

Configuring Other Global Data File Parameters

Use

The *Display settings for data extraction* screen allows you to specify various global parameters for the extracted files, such as maximum file size.

Procedure

1. From the main DART menu, choose
   Configuration→Data extracts→Data extraction→Technical settings.
   The *Display settings for data extraction* screen appears first in display mode.

2. Choose *Display<-> Change* to place the screen in change mode.

3. Enter data into the *Technical settings* screen as described below.

Field	Description
Maximum file size (MB)	This field specifies the maximum size of the file created by the Extraction utility. Size is specified in Megabytes. If the amount of extracted data is too large to fit into the file, the system creates multiple physical files for the extracted data. If you intend to store the resulting files directly on a CD-ROM, specify maximum file size of no more than 600 MB. Also, consider the limit set by your operating system for file size in a single directory.
Maximum memory allocation for index (MB)	Increase or decrease the maximum memory allocation [Seite 68] on the application server for building data segment indexes.
Package size for data collection	Change package size [Seite 71]. By default the extraction utility selects data from the database in packages of 100 records at a time. You can increase or decrease this number. In some cases a smaller value should be chosen in order to reduce memory consumption.
Require ISO 9660 compliant file names	ISO 9660 is a standard for CD-ROM file systems. Most CD-ROM readers are able to read CD-ROM disks written using this standard. If you set this indicator, the system only accepts file names that follow the ISO 9660 standard. In most cases, there is no need to set this indicator.

Enable test run with limited data volume	If you set this indicator, then the *Extract data* screen displays the *Maximum number of documents* field, allowing the user to run a test extract with a limited amount of records.
	Running a test extraction is useful for creating a base case for estimating the size, run time, and other parameters [Seite 72] of extractions on your application server.
Compress data	If you set this indicator, the *Compress data* indicator appears as set by default when the user invokes the *Extract data* screen. The user can then turn this indicator off or on.
	If data compression is on, then the resulting extract files are smaller, but execution time increases.
Calculate data checksums [Seite 49]	If you set this indicator, the *Calculate data checksums* indicator appears as set by default when the user invokes the *Extract data* screen. The user can then turn this indicator off or on. See the topic Enabling Checksum Calculations [Seite 70].
	If *Calculate data checksums* is on, the system calculates checksum numbers for each of the segments that are extracted. You can use these checksums later to verify the integrity of the data extract file [Seite 50].

Setting the Maximum Memory Allocation

Use

The maximum memory allocation parameter is used to set a limit on the amount of memory that will be allocated by DART on the application server to build data segment indexes. During record extraction for a particular data segment, index records are built and stored until the segment is completed. Then the index records are sorted and added to the segment in the extract. Index records are initially kept in memory. When index records are sorted in memory, the system may require auxiliary disk space to temporarily store sorting information. Even if enough memory to store the index is available, sorting the temporary index data requires a much larger amount of temporary disk space than the size of the index itself.

For this reason, a DART configuration parameter exists that limits the amount of index data that is kept in memory. You are required to enter the upper limit of how much memory can be allocated to the application server in megabytes (only if the default of 50 MB is not enough). If this limit is exceeded, index data will be stored in the auxiliary database table TXW_INDEX. When the index data is complete, it will be read from this table and extracted. Then the table is cleared. This limits memory consumption and also offloads the sorting process to the database, obviating the need for sort space on the application server.

Experience shows that using the TXW_INDEX table can add approximately 30% to execution time. Performance is best if only application server memory is used. It becomes important to know the extent of index memory DART will need. You can use the file size worksheet [Seite 72] to estimate the size of the temporary index memory and temporary disk sort space that will be required.

To avoid the use of the temporary index table TXW_INDEX, set the maximum index memory allocation (extract configuration) to a value larger than the required temporary index memory. The temporary sort space is only used if the temporary index memory is below the limit set in the extract configuration. For example, if the file size worksheet estimates that 46 MB of index memory is required and the extract configuration specifies a limit of 50 MB for index memory allocation; this means that the extraction run will only use application server memory, and the database table TXW_INDEX will not be used to temporarily store index data. The temporary sort files will be located in the directory that is assigned in the system profile of each application server.

Only one job at a time can use the TXW_INDEX table. If more jobs run in parallel, all but one are automatically using application server memory. If you need to run DART extraction jobs in parallel, you should allocate them to separate application servers and make sure enough memory is available.

Procedure

Setting the Maximum Memory Allocation

1. From the main DART screen choose *Configuration → Data extract*

2. Enter the *Maximum memory allocation for index(MB)* on the *Technical Settings* tab.

3. Choose *Save*.

Enabling Checksum Calculation

Use

This feature requests calculation of <u>checksum values [Seite 49]</u> for the segments in an extract file.

Procedure

Enabling Checksum Calculation

1. From the main DART menu, choose *Configuration→Data extracts*.

2. At the *Display settings for data extraction* screen, choose *Display<-> Change* to place the screen in change mode.

3. Within the *Data extraction* tab, set the *Calculate data checksums* indicator on the *Technical settings* tab.

4. Choose *Save*.

Activating Checksum Calculation for an Extract

1. Choose *Utilities→Extract data* to go to the data extract screen.

2. Enter all necessary parameters for creating an extract.

3. Make sure you set the *Calculate data checksums* indicator.

Changing Package Size

Use

In a typical system, the 100 record package size default setting provides good performance and should not be changed. However, in some cases a smaller value should be chosen in order to reduce memory consumption. Choosing a value significantly greater than 100 will usually not improve performance.

Procedure

Changing Package Size

11. From the main DART menu, choose *Configuration → Data extracts*.
    The *Display settings for data extraction screen* will appear.

12. Choose the *Display<->change* icon to enter the change mode.

13. On the *Technical settings* tab, enter the desired value in the *Package size for data selection* field.

14. Choose *Save*.

File Size Estimates with the File Size Worksheet

Purpose

To plan for system resources required for data extracts on your application server, the File Size Worksheet utility helps you estimate some important key figures:

- The size of the resulting extract file, both compressed and uncompressed

- The size of temporary sort files, that is, work files used by the system for sorting the extracted data

  The sort directory is defined per application server. If you are looking at the estimates for the sort file size, then perform the estimates on the application server on which your users will extract data.

- The size of sort memory (maximum memory allocation [Seite 68]) required to hold index records during extraction until the segment is complete.

- Run time of the extraction

Process Flow

To estimate the effect of compression on the size of the extract file, and to calculate the run time of data extracts more accurately, the system uses a log from previous runs of data extraction.

1. If there is no history of data extraction on your system, the system makes certain assumptions, which may result in less accurate estimates. To increase the accuracy of the estimates, you can provide the system with a "base case" [Seite 73], by running a subset of an extraction before using the estimate utility.

2. After creating an extract base case, or if someone has already performed an extract on your system, you can use this utility to obtain the estimates for a data extract [Seite 74].

Creating a Base Case for Estimates

Use

You can run a small data extract to provide the system with base data for estimating the effect of compression on the size of the extract file, and for estimating the time it would take to run a complete extraction.

Procedure

1. Enable extractions of a small subset of data: from the main DART menu, choose *Configuration*→*Data extracts*. Set the *Enable test run with limited data volume* indicator.

2. Run a data extract with a limited number of documents: from the main DART menu, choose *Utilities*→*Extract data*. Enter a small amount at the *Maximum number of documents* field. Enter all other parameters of the data extract and execute the extraction.

Result

The system uses the log of the extraction execution as a base for future estimates. You may wish to discard the resulting extract, as it serves no other purpose.

Estimating File Size and Related Parameters

Prerequisites

If there is no history of data extraction on your system, provide the system with a base case [Seite 73] for its estimates by running a subset of an extraction before using the estimate utility.

Procedure

1. From the main DART menu, choose *Configuration→File size worksheet.*

2. Enter your estimates for the number of records that exist for those segments that make up the bulk of the extract (usually the transaction data segments). Segments that hold relatively few records can be ignored here.

3. Choose *Refresh data*, or choose *Enter*.

Result

The system calculates and displays an estimate for:

- The extract file size in Megabytes, if compressed

- The extract file size in Megabytes, if uncompressed

   Using the above two figures you can see the effect of compression on the size of the extract file. You can then decide whether you wish to use compression with data extracts.

- The time it takes to run the data extract in hours and minutes.

   This estimate is for creating a compressed file.

- The required disk space for temporary files created by the extract utility while sorting

   The system also displays the name of the current application server, and the directory defined as the sort directory. You or the system administrator can define the sort directory through the system profile parameter DIR_SORTTMP.

   Using the estimate for the size of the sort files, make sure that this temporary sort directory can accommodate the necessary sort files.

   The sort space is only used if sorting takes place in memory, which only happens if the index size does not exceed the maximum index memory allocation.

See Also

Maximum Memory Allocation [Seite 68]

File Directories Configuration

Purpose

When extracting data, the user specifies a single "logical" name for the extracted data. The user also specifies the directory set [Seite 78] in which to store the extracted file(s).

The operating system or the hardware of your application server may place limitations on file size. If you limit the size of the extracted files when configuring DART [Seite 66], because of platform limitations or for other reasons, then the system may create multiple physical files for the data it extracts.

When configuring DART, you must specify how the physical files containing the extracted data are assigned into directories. You do so through the creation of directory sets and the definition of file path syntax.

Process

1. As part of the configuration, you create at least one directory set [Seite 78] for DART users to store the extract data files. You may create multiple directory sets for different uses.

   A directory set defines a set of one or more directories in which the extract data files are stored.

   You need to decide how many directories are needed in a directory set. This depends on how many files may be created for data extracts on your application server.

   You can use the File Size Worksheet [Seite 72] utility to estimate the potential size of data extracts on your application server.

   The potential size of a data extract combined with your specification of the maximum size of data extract files determines how many files can be potentially created for a data extract. You must specify the directory location of each of these files. You specify a location for each of the physical files, by assigning data volumes [Seite 76] to directory paths. You do so in the definition of directory sets.

2. As part of the configuration, you must also specify file path syntax [Seite 82], for constructing the full path and file name for all the files that may be created for a certain extract.

3. When extracting data [Seite 20], the user specifies a single logical file name for the extraction and the directory set to use for that file or files.

4. Depending on the actual size of the extracted data and the size limitation for extract data files as defined in the global data file configuration [Seite 66], the system determines how many physical files to create. The system assigns the different files to the different locations based on the volume list in the directory set definition. It uses the syntax for constructing file and path names based on the file syntax definition.

Data File Volumes

Definition

When extracting data, the system may create one or more sequential files to store the extracted data. If you specify a maximum file size smaller than the size that can accommodate the extracted data, then the system creates multiple physical files.

The physical files created for an extraction can be stored in the same directory, or they can be stored in different directories. A file volume defines the location of a single physical file.

Structure

If the data extracted fits into a single physical file, then the system creates a single sequential file and assigns it to a single volume. This volume is considered Volume 0 (zero). For example, if the user specifies DATA1998.TXT as the file name for the extract, the system creates DATA1998.TXT and assigns it to volume 0.

If the data extracted is too large to fit into a single sequential file, then the system creates several physical sequential files. The system assigns these files to volumes in the following manner: the first file created for the extract is assigned to Volume 0, the second file is assigned to Volume 1, and so on.

The following table reiterates the assignment of files to volumes:

Volume ID	Identifies the…
0 (zero)	First file created by the extract
1	Second file created by the extract
2	Next file created by the extract
…	…

Directory File

The system also creates a directory file containing the list of all the files that belong to the extract. This file is created even when only one sequential file is created for the extract.

The directory file resides in the same directory as Volume 0. Its name is the same as the name of Volume 0, with the suffix _DR.

⚠️

Do not delete the directory file at the operating system level. If you wish to delete the files of an extract, do so from the DART utility for deleting an extract [Seite 22].

Physical File Names of the Volumes

Starting with the second volume, the data extract files names are a combination of the file name specified by the user and a three-character suffix indicating the volume number. The format of the suffix is: _## where ## is the volume number. For example, the suffix for Volume 1 is _01.

The following table shows an example of the physical files names resulting from an extract for which the user specified DATA1998.TXT as the file name:

Volume ID	Identifies the File…

0 (zero)	DATA1998.TXT
1	DATA1998.TXT_01
2	DATA1998.TXT_02
…	…
(Directory file)	DATA1998.TXT_DR

Exception to File Naming: ISO 9660 Compliant File Names

If you require ISO 9660 compliant file names (for storing files on a CD-ROM), then the physical file name is limited to eight characters for the file name and three characters for an extension (called "file type" in some operating systems).

The eight characters limit includes the three characters needed for the DART volume ID (for example, _02). This leaves only five characters for the user-specified portion of the file name.

For example, if the user specifies DATA1.TXT for file name, then the actual file names are as follows:

Volume ID	Identifies the File…
0 (zero)	DATA1.TXT
1	DATA1_01.TXT
2	DATA1_02.TXT
…	…
(Directory file)	DATA1_DR.TXT

ISO 9660 compliant file naming also requires the name to be all uppercase characters.

Use

You must define at least one volume: Volume 0 to accommodate a single sequential file.

You must define enough volumes to accommodate the largest possible data extract. The maximum file size you set (through the *Display settings for data extraction* screen) determines how many physical files are created for any given data extract size. The smaller the maximum size is, the more files are created for a given data extract.

Integration

You configure file volumes and assign the volumes to a directory set [Seite 78] at the same time.

You configure data volumes and directory sets through Data file configuration [Seite 60].

Directory Sets

Definition

A directory set is a group of one or more directories used for storing all the sequential files created for a single data extract. A directory set definition lists the possible data volumes [Seite 76] for a data extract and maps those data volumes to physical directories, as in the following table:

Volume ID	Directory
0 (zero)	The physical directory in which to store the first file (volume) created by the extract
1	The physical directory in which to store the next file (volume) created by the extract
…	…

Use

When extracting data, the user must specify a file name and a directory set in which to place the extracted data.

When configuring DART, you must create at least one directory set to allow data extractions. In it, you must associate at least one data volume with at least one physical directory.

If you define only one directory set, then all data extracts will go into that directory set. This may result in different data extracts sharing the same directory or directories. This arrangement may be adequate if you move the extracted files to another media on a regular basis. You treat the directory set as a temporary holding place for extracted data from which users archive for long-term storage. DART users can therefore reuse the same directory set for different data extracts over time.

If several DART users will be extracting data at the same time, and you wish to provide them with separate areas to work with, then you should create several directory sets.

Structure

You define a directory set assigning each of the possible data volumes to a physical directory. You must specify enough directories to accommodate the largest amount of volumes that will ever be created by DART users. As discussed in the data volumes [Seite 76] topic, each volume corresponds to a single physical data extract file. There can be multiple physical files for a single data extract.

When assigning a data volume to a physical directory, you must specify the name of an existing physical directory using the appropriate syntax for path names on the operating system of your application server.

The following table shows an example of such an assignment on a Windows NT system:

VolumeID	Directory
0	\\public\mydir\mysubdir\

The following table shows an example of such an assignment on a UNIX system:

VolumeID	Directory
0	/mydir/mysubdir/

Note that if you use the default file path syntax, the directory name in both operating systems must contain the ending slash (whether backslash or forward slash.) If you omit the ending slash, the system ignores the name of the last subdirectory, in effect using the directory above it to store the files. In the above examples, the system will use *mydir*, rather than *mysubdir* to store the files, if you omit the slash or backslash after *mysubdir*.

You can divide the volumes (which represent the data extract files) among one or more physical directories. You may, for example, specify that all of the volumes are stored in the same directory. You do so by entering the same directory name for all the possible volumes. Alternatively, you may specify that several of the volumes are stored in a single directory, or you may specify that every volume is stored in its own separate directory.

One of the factors affecting how you divide the volumes among the physical directories is the maximum file size you specify in the Display settings for data extraction [Seite 66] screen. For example, if the directory size is limited to 2 Gigabyte on your operating system, and you specify a maximum file size of 1 Gigabyte, then make sure that no more than two volumes are stored in each physical directory.

The following table illustrates how you would assign volumes to directory sets in the above scenario (The example uses the Windows NT syntax.):.

VolumeID	Directory
0	\\public\mydir\mysubdir1\
1	\\public\mydir\mysubdir1\
2	\\public\mydir\mysubdir2\
3	\\public\mydir\mysubdir2\
…	…

If you determine that all data extracts created by the user will fit into a single file, then, at a minimum, you must define one volume and assign it to one physical directory.

See Also

See the file path syntax [Seite 82] topic for a discussion of how the full path name is constructed.

Configuring Directory Sets

Use

By defining a directory set you specify the arrangement of the physical files that belong to a single extract. You list the directories in which to store the various physical files created for an extract.

Prerequisites

Create all the directories you intend to include in the directory set. Create these on the application server using its operating system tools for creating directories.

Procedure

See the directory set [Seite 78] and the data volume [Seite 76] topics for a discussion of how many volumes you need to create and how to arrange the physical files using these volumes.

1. From the main DART menu choose *Configuration→Data extracts*.
    The *Display settings for data extraction* screen appears in display mode.

2. Choose *Display<-> Change* to place the screen in change mode. (You can do so also after going into the next screen.)

3. Choose the *File directories* tab for specifying directory sets.

4. Choose *Create directory set*.

5. Enter a name and a description for the directory set, and choose *Enter*.

6. At the *Directory set* screen, enter the list of directories to include in the directory set. Enter the directories in the order of the volumes they are associated with: enter the directory specification for Volume 0 first, then for Volume 1, and so on.

    You do not need to enter a number at the volume ID column: the system automatically assigns a volume ID to each of the directory paths you specify.

    To insert an entry into the list, mark the entry and choose *Insert line*.

    To delete an entry from the list, mark the entry and choose *Delete line*.

    Enter the full path of the directory name in the Directory column.

    > End the directory name with a forward slash or backslash as appropriate for the operating system of the application server.

7. Each time you add an entry to the directory set, the *Total data capacity (MB)* field changes to reflect the potential capacity of the directory set. This potential capacity is calculated by multiplying the maximum file size by the number of data extract files that you are assigning to directories. It does not take into account any physical or other size limitation of the directory or directories into which you are assigning the various files.

    Use the total capacity figure to check that you are defining enough volumes to accommodate the data extracts that you expect on your application server. Compare the total capacity number with the estimates for data extract size you have obtained with the File Size Worksheet [Seite 72].

8. Choose *Enter* to see the assignment of volume ID to the directories you have specified.

9. Choose *Save* to save the definition of the directory set.

10. Let DART users know which directory set they should use for data extracts.

You can change the definition of an existing directory set in the same manner.

From the *File directories* screen you can go to the File path syntax [Seite 82] to define the syntax for constructing the complete file specification for data extract files.

Configuring File Path Syntax

Use

A file path syntax defines how the complete file specification of the extracted data file is constructed. It defines the full, platform-independent file specification (file name and directory name) to use for the extracted data files.

You must make sure that there is a file path syntax for every type of platform (operating system) on which you run application servers. There need not be a file path syntax for every actual platform, but for every platform in the same syntax group. A syntax group is a group of operating systems for which the syntax for file path specification is the same. A syntax group is defined by the system (For example, UNIX defines a syntax group of all the variations of the UNIX operating systems.) That means that if two platforms are part of the same syntax group, you can define the file path syntax for only one of them.

DART comes with the file path syntax already defined for UNIX and Windows NT platforms. You should go into the *File path syntax* screen and verify these definitions if you use these platforms. You can also change the default specifications for these platforms.

If you use DART on other platforms, you must create file path definitions for those platforms. Most R/3 systems are operated in a homogeneous environment and only one syntax group is required to be maintained.

Procedure

1. In the main DART screen choose *Configuration→Data extracts.*
   The *Display settings for data extraction* screen appears in display mode.

2. Choose *Display<-> Change* to go into change mode. (You can do so also after going into the next screen.)

3. Choose *File path syntax*.

4. Review the existing file path syntax definitions.

5. To create an additional file path syntax definition, enter data into a new row on the screen as described below:

Field	Enter
Syntax group	The name of the platform or group of platforms for which you are defining the file path syntax

Physical file path	The syntax for creating a complete file and path specification for that platform
	Specify the syntax using a combination of reserved words and strings as listed in the Field Help for this field.
	The definition must include the file name, by using the reserved word <FILENAME>. The reserved word <FILENAME> represents the logical file name specified by the user, possibly with a volume number suffix.
	The definition can include other reserved words, such as <SYSID>, or actual text strings.
	To specify the directory path portion of the file specification, the external parameter <PARAM_1> must be included. <PARAM_1> represents the values of the directory path name as defined in the directory set screen [Seite 80]. It may be different for every file volume [Seite 76].

DART requires additional checks and parameters. Therefore, do not maintain the DART *File path syntax* directly with the *FILE* transaction.

Example

For example, the default definition for the UNIX syntax group is <PARAM_1><FILENAME>. It means that the full path name for a data extract file on a UNIX platform is the directory path string (as defined in the directory set screen [Seite 80]) followed by the physical file name of the relevant file volume [Seite 76].

See Also

From the *File path syntax* screen you can go to the File directories screen [Seite 80] to define directory sets for the different data volumes.

Data Segment Configuration

Use

- The set of data segments [Seite 11] that are provided with DART defines which data can be extracted with DART.

  The *Configure data segments* screen allows you to change attributes of the SAP-provided segments [Seite 85], such as their indexes.

- If you need to expand the data that can be extracted with DART, you may need to add fields to the existing segments, or you may need to add new segments.

  Adding new segments to DART involves creating and activating customer enhancements (see the customer enhancements [Seite 102] topic.)

  As part of the process of adding segments to DART, you add a new segment definition [Seite 108] through the *Configure data segments* screen.

Changing the Attributes of a Predefined Segment

Use

The predefined set of segments has predefined attributes, such as the fields for which indexes are defined. If you wish to change the indexes, or if you wish to change the fields used for control totals in a predefined segment, then you need to change segment attributes.

Note that you can only change a few of the attributes of a predefined data segment. However, you may change all of the attributes of a customer-defined segment, that is, a segment that you or someone else has added to DART. See the topic discussing the creation of new data segments [Seite 108].
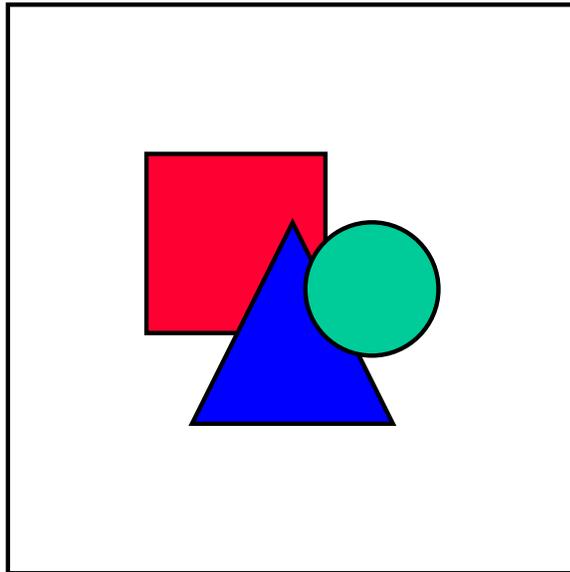
Changes only affect newly created extracts. Use the rebuild tool [Seite 32] to apply new configuration to existing extracts.

Procedure

1. From the main DART menu, choose *Configuration→Data segments*.
   The *Configure data segments* screen lists existing segments.

2. Mark the segment in the list of existing segments.

3. Choose *Change segment*.

4. You can only change the following attributes for a predefined data segment:

   - *Segment data*, *Application*

   - *Index fields* (see the topic Improving the Performance of Views [Seite 95] for a discussion of which indexes to define)

   - Control totals [Seite 45], *Key figure*

   - Control totals [Seite 45], *Grouping field*

Changing the Attributes of a Predefined Segment

The screen is similar to that of creating a new segment and defining its attributes [Seite 108]. See the description of the fields in that topic.

5. Choose *Continue* at the *Data segment attributes* screen.

6. Choose *Save* at the *Configure data segments* screen.

See Also

Customer Enhancements: Adding Segments and Fields [Seite 102]

Data Extract View Configuration

Purpose

Revenue Procedure 98-25 outlines the IRS's retention requirements for financial records. However, not all the information found in your financial records may be relevant for a particular audit. You may need to provide specific data to IRS auditors in response to an Information Document Request (IDR).

DART enables you to select and group data from your financial records into views. Views combine selected fields from multiple segments [Seite 11] in an extract. Views can be designed to meet particular IDRs. With views you can query multiple extracts at a time. Your results can be saved or appended to a file in either column delimited or fix column width file format.

SAP provides predefined data file views [Seite 14] that are based on specifications developed by ASUG's Tax User Group. However, you may wish to create customized views of the data you have retained; especially if you have used customer enhancements [Seite 102] (user exits) to define additional fields and data sources in your extracts.

Process Flow

1. From the main DART menu choose *Configuration→Define data extract views*.

2. Enter the name of the view you wish to create or work with at *Data view definition: Initial screen*.

3. You can then:

   - Create a new view definition [Seite 91]

   - Change the definition of an existing view [Seite 91]

   - Delete the definition of a view [Seite 100]

   - Copy views from a source client [Seite 101]

   - Include the view definition in a transport request

   - Execute the view query, which invokes the data file view query utility [Seite 37]

   - List or print the definition of the view

Join Conditions

Definition

In a relational database system, a **join** is a combination of data records from two or more tables. In a similar fashion, in DART, a join refers to combining data records from two or more segments in an extract.

Use

You combine data from different segments when you wish to look at data from fields that reside in those segments. In DART you define join conditions when you create the definition of a view [Seite 91].

For example, header data for an FI document is in the TXW_FI_HD segment, and the line item data is in the TXW_FI_POS segment. To obtain the complete data of an FI document, you need to combine (or join) the two segments in a view.

A join condition specifies the condition for combining the data from a record in the first segment with the data from a related record in the second segment. It compares the data in a field in the first segment with the data in a parallel field in the second segment.

The following diagram shows an example of a join condition, which specifies that the values in the company code (BUKRS) field in the TXW_FI_HD and the TXW_FI_POS segments should be equal:

TXW_FI_HD Segment　　　　　　　TXW_FI_POS Segment

		BUKRS				BUKRS
		CO23				CO23

=
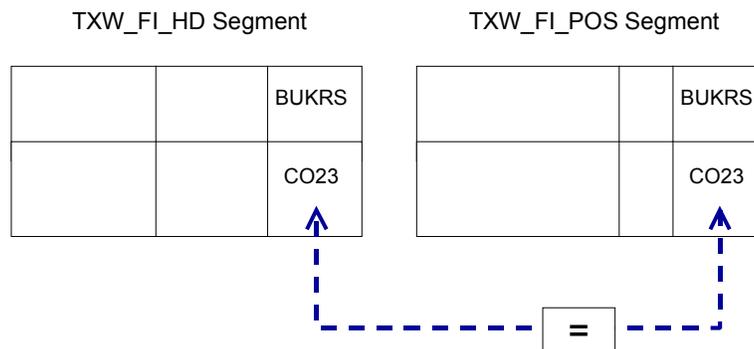
You must specify join conditions in the definition of a DART view if the view combines data from more than one segment. You must specify at least one join condition for every pair of segments whose data you are including in the view. You may have to specify multiple join conditions for any such pair of segments.

The role of the join condition is to ensure that only relevant data records from the two segments are combined.

For example, combining data from an FI header and line item segments only makes sense, if the data records contain data of the same posting period, document number, and company code. Join conditions allow you to specify that. In the example of an FI document, you specify at least the following three join conditions:

- The value in the field BELNR (document number) in the TXW_FI_HD segment must be equal to the value in the BELNR field in the TXW_FI_POS segment.

- The value in the field BUKRS (company code) in the TXW_FI_HD segment must be equal to the value in the BUKRS field in the TXW_FI_POS segment.

- The value in the field MONAT (posting period) in the TXW_FI_HD segment must be equal to the value in the MONAT field in the TXW_FI_POS segment.

A join condition does not necessarily have to compare values of fields with the same name. They only have to contain common data. Usually, if not using the same name, the two fields are based on the same data element or at least on the same domain. For example, the company code field in the TXW_CO_HD segment (CO header) is called REFBK. If you wish to combine the data from TXW_FI_HD and TXW_CO_HD, you join them with a condition comparing the BUKRS and REFBK fields respectively.

Default Join Conditions for DART Segments

To help you construct views, DART comes with predefined join conditions for most of the pairs of SAP-provided segments. These are the join conditions that are the most relevant when combining data records from a pair of segments.

For example, the default join conditions for combining the data of an FI document header (TXW_FI_HD) segment with an FI document line item (TXW_FI_POS) segment, check for equal document number, company code, and posting period. Having the same document number, company code, and posting period in records from these two segments ensures that the records belong to the same FI document. These three join conditions are provided as the default join conditions when you include these two segments in a DART view.

User-Defined Join Conditions for User-defined Segments

When including a user-defined segment (a segment that you or someone else has created through customer enhancements) in a view for the first time, the system displays the join condition(s) that are relevant to link it to the other segment or segments in that view. You have the option of saving these join conditions as default join conditions. To remove default join conditions, refer to configuring data segments [Seite 84].

Inner Join (Default)

Sometimes a record in the first segment does not have a corresponding record in the second segment with which it is joined. For example, if not every FI document item, TXW_FI_POS is related to a vendor (i.e., the vendor field can be empty). When joining the vendor master TXW_VENDOR, with an inner join, the view would only include FI document items that were vendor postings (where the vendor field was filled).

An inner join condition specifies that when combining data from two segments, only the records that have a matching value in both segments are included in the resulting view report. The view report ignores any records from the first segment where there is no matching record from the

Join Conditions

second segment. In the above example, TXW_FI_POS segment records that do not have a corresponding TXW_VENDOR segment record are not included in the view.

The default for joining segments in DART is the inner join.

Outer Join

An outer join allows all records from the combined segments to appear in the view report, regardless of whether they have a matching value in both segments.

To use the FI transaction view example above, if you choose to make the join conditions outer joins, then the view includes a TXW_FI_POS segment record, even if it does not have a matching TXW_VENDOR segment record. In the view report, if no dependent vendor is found, the vendor master fields (TXW_VENDOR) will be left blank.

Defining a View

Prerequisites

The segments [Seite 11] included in a view must exist before you define the view. If you are creating a view based on customer-defined segments [Seite 102], then first create those segments.

Procedure

Changing an Existing View

1. From the main DART menu choose *Configuration→Define extract views*.

2. Enter the name of the view you wish to change.

3. Select a *Sub-object* to edit: segments, fields, or attributes.

4. Choose *Change*.

    Follow the steps from *Specifying the Segments Used in the View* section. steps from *Specifying the Segments Used in the View* section.

Creating a New View

1. From the main DART menu choose *Configuration→Data extract views*.

2. Enter a name for the view.

3. Choose *Create*.

4. The first screen for creating a view is the *Attributes* screen. In that screen, enter a description for the view, and optionally an authorization group.

5. Choose *Data segments* to go to the *Data view definition: Data segments* screen.

6. Follow the steps from *Specifying the Segments Used in the View* section.

Specifying the Segments Used in the View

7. At the *Data segments* screen, enter all the segments to include in the view.

8. When creating the view report, the system by default accesses the segment in the order they are listed on this screen. If you wish to change the access sequence [Seite 95], that is, if you wish to make the system access the segments in a different order, then you can enter a sequence number at the *Nr.* Field. To make the system access a segment first, enter a 1 next to it, to make the system access a segment second, enter a 2 next to it, and so on.

9. Choose *Enter*.

    The system fills in the description of the segments you have entered.

Specifying Join Conditions for the View

10. You can start by including the default join conditions [Seite 88] for the segments included in the view. These are the join conditions that are the most relevant when combining data records from the segments you have included in the view.

Defining a View

For example, to create a view combining the data of an FI document header with an FI document line item, you include the SAP-provided segments TXW_FI_HD and TXW_FI_POS. The default join conditions for combining these two segments are those that are based on the same document number, company code, and posting period. Together these join conditions ensure that the view shows data that belongs to the same FI document.

To include the entire list of default join conditions in the view, choose *Insert default join conditions*.

11. You may specify additional join conditions to include in the view. To do so, choose *Select join condition*.

The system lists all the possible join conditions between all the segments you have included in the view. It assumes that there can be a join condition between two segments if either the field names, the data elements, or the domains of these fields are the same in the two segments.

The system lists all the possible join conditions between every pair of segments. If you include segments A, B, and C, the system looks for all possible join conditions between A and B, A and C, and B and C.

Not all of the potential join conditions are useful or relevant to the type of data you wish to include in the view.

Select the join conditions that are relevant for the view by checking the box next to that join condition. You may decide that no additional join conditions are needed for the view.

12. If you wish to define the join conditions for the view as outer joins, then select *Outer join*. (See Join Condition [Seite 88])

Specifying Additional Selection Conditions for Filtering Records

13. You may specify additional selection conditions, to filter the data included in the view report. For example, you may wish to retrieve only documents of certain document type. To do so:

a) Enter the name of the segment for which you wish to create the selection condition. If you use the possible entries arrow, the system lists the segments you have included in the view, and you can select from those.

b) Enter the name of the field whose contents is checked by the selection condition. If you use the possible entries arrow, the system lists all the fields of the segment you have selected, and you can select from those.

c) In the *Rel.* field enter the relational operator to use for the condition. If you leave this field blank, the system uses the "equal to" relational operator.

d) Enter a value to compare to in the condition.

If you use the IN operator, then enter the name of the set to search in. You can define sets through the *Environment* menu item.

e) You may choose *Enter* to verify the values you have entered.
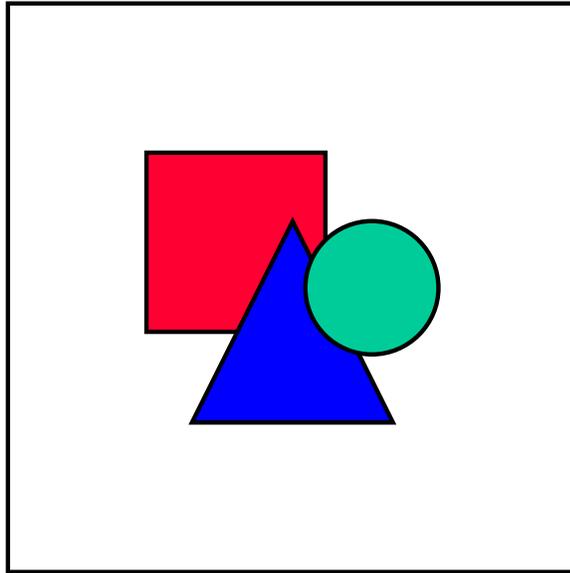
Setting conditions on amount fields is also supported. Enter amounts in dollars and cents without formatting characters, for example 10000.00. The positive or negative sign is ignored (i.e. negative numbers are treated as positive). If only positive or negative amounts should be selected, add a condition for the debit/credit indicator if available.

Specifying the Fields to Include in the View Report

14. Choose *View fields* to specify which fields to include in the view report. If the segments in the view contain a company code and a posting period, these fields are included by default in the view report. You need to list any additional fields you wish to include in the view report:

    a) At the *Segment* column, enter the name of the segment that contains the desired field. If you use the possible entries arrow, the system lists the segments you have included in the view, and you can select from those.

    b) Enter the name of the field to include in the report. If you use the possible entries arrow, the system lists the field in the segment specified on that line, and you can select from those.

    You can add multiple fields from the same segment at the same time, by choosing *Select Fields*, selecting the segment name, and then checking the box next to the fields you wish to include in the report.

    To allow the user who views the report to specify selection criteria for a field in the view when executing the report, check the *Sel. Field* box next to that field.

    To calculate and display totals for a selected field in the view report, check the *Total* box.

    In the same manner, you can include group subtotals for a field in a view by checking the *Group* box.

    To arrange the columns in the view report as seen by the user, enter numbers at the *Nr.* fields.

Defining a View

Checking and Saving the Definition of the View

15. Choose *Check* to verify the integrity of the view before saving its definition.

16. Choose *Save* to save the definition of the view.

17. If you have added join conditions to the view other than the default join conditions, then the *Save default join condition* dialog appears. Specify whether to save any join condition, which you have added to the view, as a default join condition for any other view. If you choose *Yes*, then any new view using the pair of segments combined by this join condition will include that join condition by default. You can delete such a condition from the segment configuration.

See Also

Join Conditions [Seite 88], Data Extract Views [Seite 14], Using Data Extract View Query to Display Views [Seite 37]

Improving the Performance of Views

Use

When retrieving the data for a view's report [Seite 37] the system accesses, by default, the segments [Seite 11] included in the view [Seite 14] in the order that they are listed in the view definition.

You may choose to let the system optimize access to the segments in the view when invoking the view report. You do so by choosing the *Optimize access sequence* option on the selection screen for the query.

If the performance of a certain view is slow, even when the system optimizes access to its segments, then you can try to improve its performance by specifying the access sequence to the segments yourself.

You can also improve the performance of a view by defining appropriate indexes on the segments that are included in the view.

Prerequisites

You must be familiar with the data and the segments used in the view.

Procedure

1. Determine the access sequence to the segments in the view using the rules listed below (see the section on *Rules*).

2. Define the access sequence by using one of the following methods:

    *   When defining the view, by listing the segments in the order they should be accessed, or by assigning a number next to the segments in the *Nr.* Field

    *   When executing the view, by choosing the *Use specified access sequence* option on the *Extract view* screen, and entering a number, if necessary

3. Create indexes on the fields that are used to join the segments in the view. Use the access sequence and the rules below to determine which fields to index. If no indexes are available (based on default segment order), the system will send a message when checking and saving the view definition.

4. Define the indexes in the definition of the appropriate segment [Seite 108].

Rules

Follow these rules to achieve the best performance for a given view. See the *Example* section following the rules.

Access Sequence

When ordering the segments in a view, your goal is to narrow down the number of records accessed as soon as it is possible.

*   If the view selects all the records of all of its segments, then access should be from the more general segment to the more specific segment.

Improving the Performance of Views

- If the view filters some of the records, then place the segment that results in the least amount of records first in the access sequence.

- Place a segment after another only if the second segment has a direct join to the first segment. In other words, do not place two segments together in the sequence if the system has to use another segment to find the connection between these two segments.

Indexes

You define indexes to speed the process of finding a related record from the next segment in the access sequence.

- Using the access sequence you have defined for the segments in the view, define an index on a field that joins each segment with its previous one. Starting with the second segment in the view, define an index on the field that joins the second segment with the first one. Create an index on the field in the third segment that joins the third segment with the second, and so on.

- You do not need to define an index for company code and posting period fields in any segment. The system indexes these fields automatically.

- If possible, define only one index for every pair of segments in the view. If there are several join conditions for a pair of segments, then define an index for the field that has the highest selectivity, that is, the field that contains a wider variety of values. Therefore, selecting a value from this field results in a smaller amount of records.

Example

Consider a view containing the following segments:

Segment Name	Segment Description
TXW_FI_HD	FI document header
TXW_FI_POS	FI document item
TXW_GLACC	G/L account master

The following table lists the join conditions between these three segments and the fields used for these join conditions:

Segment Name	Segment Name	Join Field
TXW_FI_HD	TXW_FI_POS	Document number (BELNR in both segments)
TXW_FI_HD	TXW_FI_POS	Company code (BUKRS in both segments)
TXW_FI_HD	TXW_FI_POS	Posting period (MONAT in both segments)
TXW_FI_POS	TXW_GLACC	G/L account (HKONT in TXW_FI_POS, SAKNR in TXW_GLACC)

Access Sequence

Using the example segments above, you do the following to improve access to the view:

- *If the view selects all the records of all of its segments, then access should be from the more general segment to the more specific segment.*

  If you define a view to display all of the FI document records, it is best to place the FI document header first, then the document item and then the G/L account. The system accesses every document header, then searches for all of its items, and then for the relevant G/L account master records.

- *If the view filters some of the records, then place the segment that results in the least amount of records first in the access sequence.*

  If the view looks at only a few G/L accounts in the above example, then the following access sequence is the best:

  1. G/L account master

  2. FI document item

  3. FI document header

  When a view defines a small set of G/L accounts to look at, then accessing the G/L account master first immediately eliminates all the irrelevant G/L account master records. From this smaller set of G/L account master records the system finds the related FI document item records, and then the related FI document header records. The system does not look at irrelevant document header or line item records. Note that only FI document items include the account number, and not the document header.

- *Place a segment after another only if the second segment has a direct join to the first segment. In other words, do not place two segments together in the sequence if the system has to use another segment to find the connection between these two segments.*

  Do **not** use the following sequence:

  1. G/L account master

  2. FI document header

  3. FI document item

  An FI document header record does not have a direct join with the G/L account master record. For the system to find the relevant FI document header record for any given G/L account master record, the system must first find the relevant FI document item record. The system has to access all of the FI document header records, and within each of them it has to scan all of their items for the relevant record. The system has to repeat this process for every G/L account master record. This may result in the worst performance possible for the view.

Indexes

- *Using the access sequence you have defined for the segments in the view, define an index on a field that joins each segment with its previous one. Starting with the second segment in the view, define an index on the field that joins the second segment with the first one. Create an index on the field in the third segment that joins the third segment with the second, and so on.*

  Take the following sequence as an example:

Improving the Performance of Views

1. G/L account master

2. FI document item

3. FI document header

Defining an index on the G/L account field (HKONT) of the FI document item segment speeds access to the relevant FI document item from a given G/L account master record.

Defining an index on the Document number field of the FI document header segment speeds access to the relevant FI document header from a given FI document item record.

Note that determining which fields to index depends on the access sequence. You need to index different fields if you define the access sequence as follows:

1. FI document header

2. FI document item

3. G/L account master

In this second sequence example you should place an index on the Document number field of the FI document item segment, and not on the parallel field in the FI document header segment as in the previous sequence. The second index should be on the G/L account field (SAKNR) of the G/L account master segment, and not on the parallel field in the FI document item segment as in the previous sequence.

- *You do not need to define an index for company code and posting period fields in any segment. The system indexes these fields automatically.*

In the FI document example, the system indexes the company code and posting period automatically. You should not specify an index for them in the segment definition.

- *If possible, define only one index for every pair of segments in the view. If there are several join conditions for a pair of segments, then define an index for the field that has the highest selectivity, that is, the field that contains a wider variety of values. Therefore, selecting a value from this field results in a smaller amount of records.*

For example, if you combine the AM Asset document header and the AM Asset document item segments in a view, the following are the default join conditions:

- Asset

- Sub-number

- Sequential number

- Company code

- Posting period

Since you do not create an index for company code and posting period, you have a choice between the Asset, Sub-number, and Sequential number fields for placing an index that will improve the performance of that view.

The Asset field contains unique asset numbers. It therefore has a higher selectivity than the two other fields, which use a smaller set of values. Indexing the Asset field will speed access to the relevant Asset document item record given a particular Asset document header record, for example.

Deleting a View

Use

This utility deletes the definition of a view [Seite 14]. You can delete a view that you have created [Seite 91] or an SAP-provided view.

Procedure

1. From the main DART menu choose *Configuration→Data extract views*.

2. Enter the name of the view you wish to delete.

3. Choose *Delete*.
   If you are deleting one of the SAP-provided views, the system displays a warning to that effect. Choose *Yes* to continue.

4. Confirm the deletion at the *Delete data view* dialog.

Result

Views collect various fields from segments in a data extract file. Views do not actually store the data. The data is only stored in the data extract segments. Therefore, deleting a view does not delete any of the data associated with it. It merely deletes the definition of a report based on this data.

Deleting a view also deletes the program associated with that view.

If you have exported the data as defined by a view into a file when using the Data Extract View Query utility [Seite 37], this file remains intact when you delete the view definition.

Copying Views from the Source Client

Use

This utility allows you to copy the definitions of views [Seite 14] from the source client into the current client. This allows you, for example, to refresh the set of SAP-provided views on your system, if some of them were copied or modified unintentionally. It also allows you to refresh any other, customer-defined views [Seite 91] from the source client.

Procedure

1. From the main DART menu, choose *Configuration→Data extract views*.

2. At the *Data view definition* screen choose *Environment→Copy views from client*.

3. At the *Copy views from source client* screen, enter the source client, and specify the view or views you wish to copy. You can use wildcards or a range when specifying view names.

4. Choose *Execute*.

Result

The system copies the views to your client and lists the views that were copied.

Customer Enhancements: Adding Segments and Fields

Purpose

The data that can be extracted by default when using DART includes certain fields from certain tables from certain R/3 application components.

The data that can be extracted by default with DART is defined by the SAP-provided set of data segments [Seite 11].

Your data retention needs may require data from additional tables or fields. You then need to either add fields to SAP-provided segments, or you may need to add new data segments.

Process Flow

The following diagram summarizes the process of adding segments and fields to DART:

Adding a Database Field as a Data Source for Extraction

Related Segment Exists?

No → Add a Segment to DART
- Add a Dictionary Structure
- Create a New DART Segment
- Program Function Exit FTXW0002
- End

Yes → Add a Field to an Existing Segment
- Extend Structure in Dictionary
- Numeric Field? — Yes → Program Function Exit FTXW0001
- No → New Source Table? — Yes → Program Function Exit FTXW0001
- No → End

Your goal is to add a field or a group of fields that are not included in the SAP-provided segments.

- If the fields are related to the data in any of the existing SAP-provided segments, then add the field(s) to the SAP-provided segment [Seite 114].

- If there is no related data in the SAP-provided segments, you can add a new segment to DART [Seite 105] and define its fields.

See the detailed procedures for performing these tasks.

Numeric Data Types

Definition

When discussing the definition of fields in DART segments, we refer to the following data types as numeric:

Data Type Name	Data Type Description
CURR	Currency
QUAN	Quantity
DEC	Decimal
FLTP	Floating point
INT1, INT2, INT4	Integer

All other data types we refer to as non-numeric.

Adding Segments to DART

Purpose

The data segments [Seite 11] provided with DART define the data that can be extracted with DART.

The provided segments contain data from certain tables from various R/3 application components, such as Financial Accounting (FI), Controlling (CO), and so on.

You may need to allow DART users to extract data from additional tables. For example, your users may need to extract and retain data from user-defined tables in the FI Special Ledgers (FI-SL) component.

To enable DART users to extract data from additional tables that are not related to the data in existing segments, you should create a new data segment.

You also need to create a customer enhancement. More specifically, you must program a function exit to read and extract the appropriate data into the DART extract file.

The function exit provided for the purpose of adding new segments to DART is FTXW0002.

Process Flow

The following diagram summarizes the process of adding segments to DART:
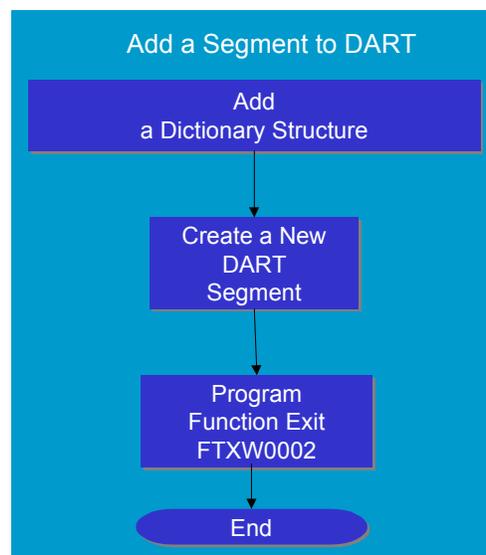
1. You must first create an ABAP Data Dictionary structure to correspond to the data segment you wish to add to DART. The Data Dictionary structure must contain all the fields you wish to include in the data segment in DART, as in the following illustration.
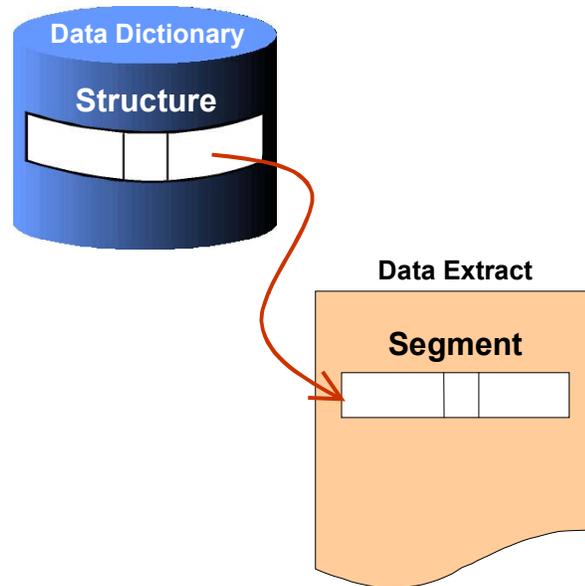
Follow these rules when creating the dictionary structure:

– Include in the structure only character-based fields. Do not use numeric data types [Seite 104]. If the field in the source table is numeric, create a corresponding field of a character type in the dictionary structure. (In the Function exit FTXW0002, you must convert any numeric data into character data.)

– When naming the dictionary structure fields, use the same name as the names of the fields in the source table. Character based fields, also use the same data element. Use the same field names even when you are including a character field to correspond to a numeric field in the source table. Numeric based fields require a new data element that includes descriptions for reporting.

2. After defining the appropriate Data Dictionary structure, you must:

– Create the new data segment [Seite 108] in DART based on the Data Dictionary structure. (You can optionally define its attributes at this point.)

– Create and activate the function exit FTXW0002 [Seite 111] to read the data from the database and extract it.

You may perform the above two tasks in any order.

The following illustration shows the role of function exit FTXW0002.
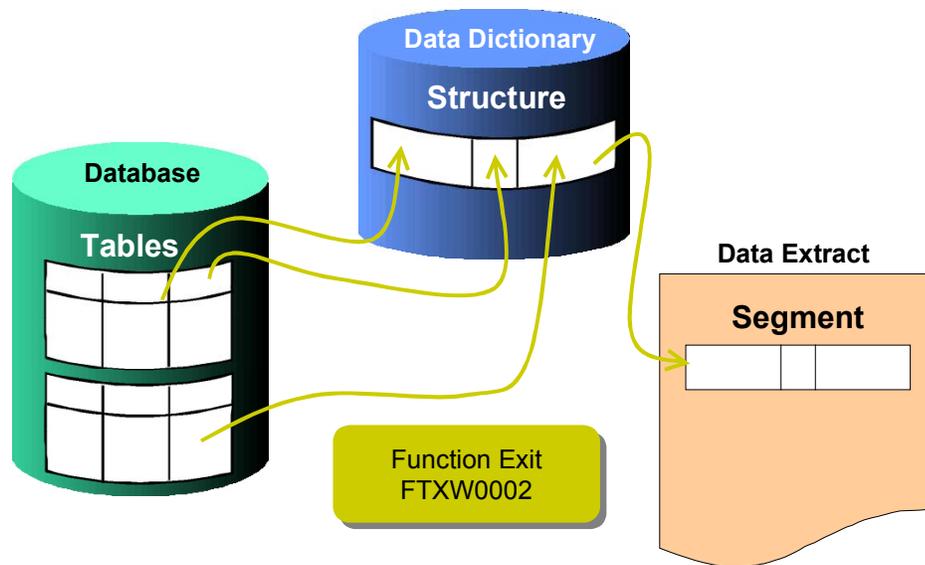
3. To allow the user to extract the data defined by the segment you have just created, enable the Extract customer-defined data sources indicator [Seite 113] on the *Data file configuration* screen.

4. The user must set the *Extract customer-defined data sources* indicator when extracting the data, to include the additional tables in the extract.

Creating a New Segment and Defining its Attributes

Use

The segments provided by SAP by default determine the type of data a DART user can extract. If the predefined set of segments do not contain the data your users need to retain, you may need to create new segments.

If the data you wish to add is related to an existing segment, you can add the desired fields into that segment [Seite 114]. However, if the data you wish to add is from an application area for which there is no DART segment, then create a new segment.

Prerequisites

An ABAP Data Dictionary structure corresponding to the data segment you wish to add to DART must exist. The Data Dictionary structure must contain all the fields you wish to include in the data segment in DART, as in the following illustration:
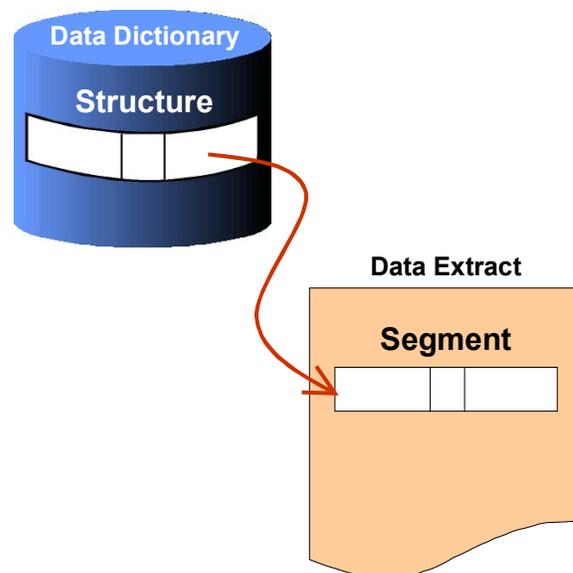
In addition, you must create and activate the FTXW002 function exit [Seite 111] to read and export the data defined by the segment.

Procedure

1. From the main DART menu, choose *Configuration→Data segments*.

   The *Configure data segment* screen lists existing segments.

2. Choose *Create segment*.

3. At the *Segment structure* field, enter the name of the Data Dictionary structure you have created for the segment.

4. In the same screen, you can optionally define the following attributes for the new data segment.

Field or Field Group	Description
Segment data	Specifies how the field is categorized in the segment list report
	If you specify the application of the segment, then the system lists the segment under the application you specify in the next time you list segments.
	Note that specifying an application does not actually tie the segment to the application area. It merely categorizes the segment in the segment list report.
Index fields	Specifies one or more fields for which the system creates indexes
	Indexes improve the performance of data views [Seite 95] that are based on this segment.
Special fields, Company code	Specifies the field in the segment that contains a company code field, if such a field exists in the segment
Special fields, Period	Specifies the field in the segment that contains a period field, if such a field exists in the segment
Control totals [Seite 45], Key figure	Designates one of the fields in the segment as the key figure for control total
	The values in this field are added to create a control total sum.
Control totals [Seite 45], Grouping field	Designates one of the fields in the segment as the grouping field for control totals
	When calculating control totals, the system groups the segments by the values in this field. It then sums the values in the *Key Figure* field (see above) for each of the group.
Source tables	Lists the source tables used in the segment
	This does not link the segment with any source table. It is merely used in the report listing segment information.

Note that for a segment you create, or for any customer-defined segment, you can define its attributes at any time. You can do so from this same screen by choosing *Change segment*.

5. Choose *Continue*.

Result

The Segment Is Added to Segment List

If you create a segment without defining any attributes for it, the system adds the segment by default to the *Customer defined transaction data, Not assigned* category.

If you define the segment as master data, then the system adds it to the *Customer defined master data, Not assigned* category.

If you define an application area for the segment, then the system lists the segment under that application within *Customer defined transaction* or *master data* accordingly.

Using Function Exit FTXW0002

Use

Function exit FTXW0002 allows you to add a new segment into DART.

You must program this function exit to read and extract the data for the segment you are adding to DART, as illustrated below.
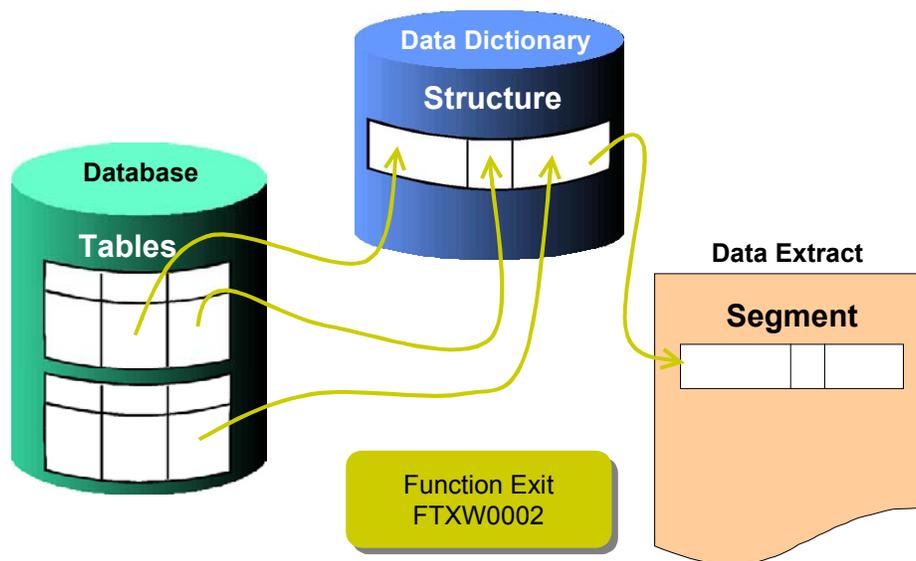
Prerequisites

An ABAP Data Dictionary structure corresponding to the data segment you wish to add to DART must exist. The Data Dictionary structure must contain all the fields you wish to include in the data segment in DART.

In addition, you must define the segment in DART [Seite 108]. You can do so in parallel to creating the function exit.

Procedure

You create and activate the function exit using R/3 Customer Enhancements (transaction CMOD).
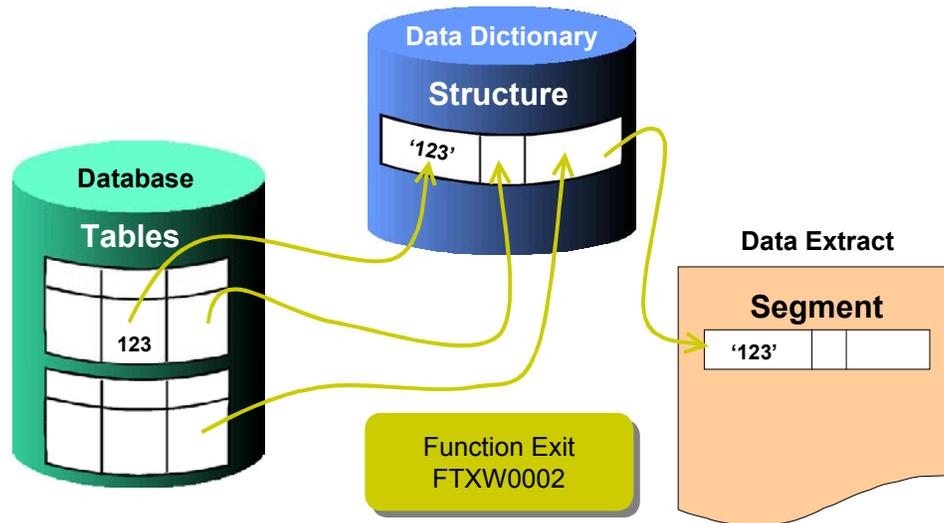
Your function exit should:

1. Read the necessary data fields from the table in the database.

2. Move them to the Data Dictionary structure one record at a time.

Using Function Exit FTXW0002

3. Export the data to the data extract.

If any of the fields in the source table is not a character field, you must also convert its data to character format.

Result

When the user extracts data with DART, if the FTXW0002 function exit is active, and if the user specifies that customer-defined data is to be extracted, then the system uses your function exit to read the data as defined by the segment, and exports it to the data extract file(s).

You must enable extraction of customer-defined data [Seite 113] to allow the user to include customer-defined segments in a data extract.

See Also

For more information on the FTXW0002 function exit, see the online Help in transaction CMOD.

Enabling Extraction of Customer-Defined Data

Use

To allow the user to extract data from the tables you have added as data sources [Seite 105], you must enable the *Extract customer-defined data sources* indicator on the *Other data* tab on the *Display settings for data extraction settings* screen.

Procedure

Enable the indicator through the *Data extracts* configuration:

1. From the main DART menu, choose *Configuration→Data extracts*.
   The *Display settings for data extraction* screen appears by default.

2. Choose *Display<->Change* to place the screen in change mode.

3. Set the *Extract customer-defined data sources* indicator on the *Other data* tab.

Result

If the user sets the *Extract customer-defined data sources* indicator when extracting data, then the system uses the FTXW002 function exit you have created to extract the data defined by the segment you have added.

Note that if the user sets the *Extract customer-defined data sources* indicator, then all of the customer-defined data segments are included in the extract. The user cannot select a subset of these segments.

See Also

Data Segments [Seite 11], Adding Fields to SAP-Provided Segments [Seite 114]

Adding Fields to an SAP-Provided Segment

Purpose

The data segments [Seite 11] provided with DART define the data that can be extracted with DART. The provided segments contain specified fields from certain tables from various R/3 application components, such as Financial Accounting (FI), Controlling (CO), and others.

You may wish to add related data from fields that are not included in those segments.

This process describes how to add fields into those predefined data segments.

Prerequisites

The data segments into which you are adding fields must exist as part of the set provided by SAP. To add fields into a customer-defined segment, that is, a segment that you or someone else has added to DART, it is easier to do so when adding the segment [Seite 105].
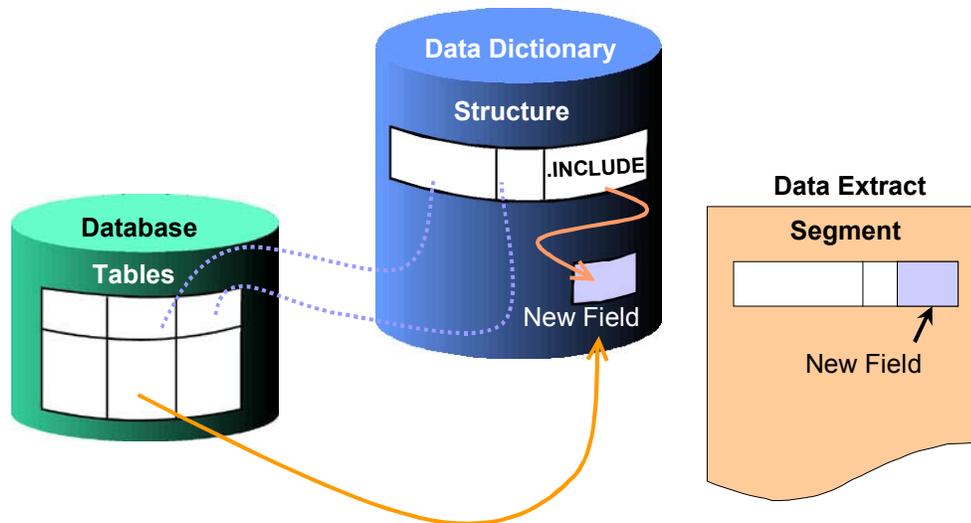
Process Flow

The following diagram summarizes the process of adding fields to a SAP-provided segment:
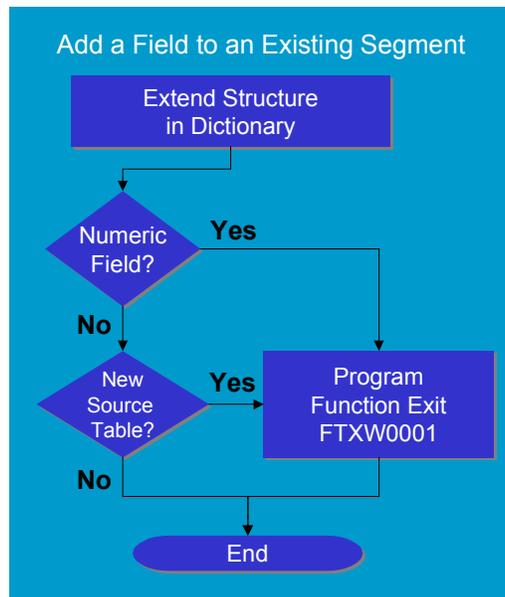
1. You first extend the Data Dictionary structure corresponding to the segment [Seite 116].

    Every data dictionary structure corresponding to the DART segments has an empty *INCLUDE* structure. The names of these *INCLUDE* structures start with *CI_*. You can add fields to such a data dictionary structure by adding fields to the *INCLUDE* structure.

2. You have finished the process of adding the fields to the DART segment, if both of the following conditions are true:

   − You are adding only non-numeric [Seite 104] fields, that is, fields that are either character or date, and so on.

   − You are adding fields from the same table or tables that are the source table(s) of the other, existing fields in the segment, and the fields have the same name as the name of the fields in those source tables.

   If any one of the above conditions does not apply, then you need to program the function exit FTXW001 [Seite 118] to handle the new fields.

Extending the Structure to Include New Fields

Use

When adding fields to one of the SAP-provided segments, you must first extend the corresponding Data Dictionary structure to include these fields.
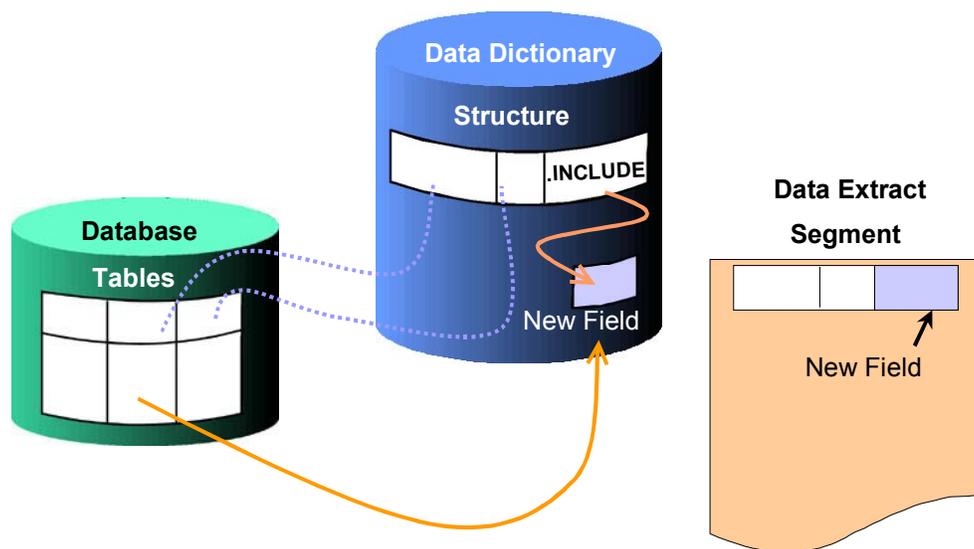
Prerequisites

If the field that you are adding is of numeric data type [Seite 104] in the source table, you will need to convert its data to non-numeric data. You do so through programming function exit FTXW0001. In addition, you must define the field as non-numeric in the data dictionary and in the DART segment. As a result, you cannot use the data element of the field in the source table as the basis for the dictionary field you are creating in this procedure, because its type is inappropriate.

You must then create a non-numeric data element to be used by the field you are adding in this case. You may define some of the attributes of this new data element to be the same as the numeric data element used by the source table (except for its name, data type, and domain).

Procedure

All the structures corresponding to the SAP-supplied segments contain an *INCLUDE* structure, starting with *CI_.* You add fields to these structures by adding them to the *INCLUDE* section of the structure, as in the following illustration:

1. Invoke the Data Dictionary.

2. Enter the name of the structure into which you wish to add a field.

3. Choose *Display*.

4. Double-click on the line which contains the *INCLUDE* structure name starting with *CI_*.

5. Choose *Yes*, at the *Create table/structure* dialog.

6. Choose *Continue* at the *Initial Screen: Editing Objects* dialog.

7. Enter a *Development class*, if prompted.

8. Enter the name of the field(s) you wish to add to the segment.

   Use the following rules for adding a field:

   − Define the field as a character-type field.

   − Use the same data element as used in the source table, if the field is non-numeric.

   − If the field is numeric [Seite 104], you must have created a new data element for it. Use this new data element when defining the new field to correspond to a numeric field in the source table.

   − Use the name of the field in the source table as the name of the field you are adding. If the field is numeric, you can use the name of the field in the source table, even though the data types of the two fields are not the same.

9. Save the changes you have made and activate the structure.

Using Function Exit FTXW0001

Use

When adding fields into an SAP-provided segment, you need to create and activate the function exit FTXW0001, if one (or both) of the following conditions is true:
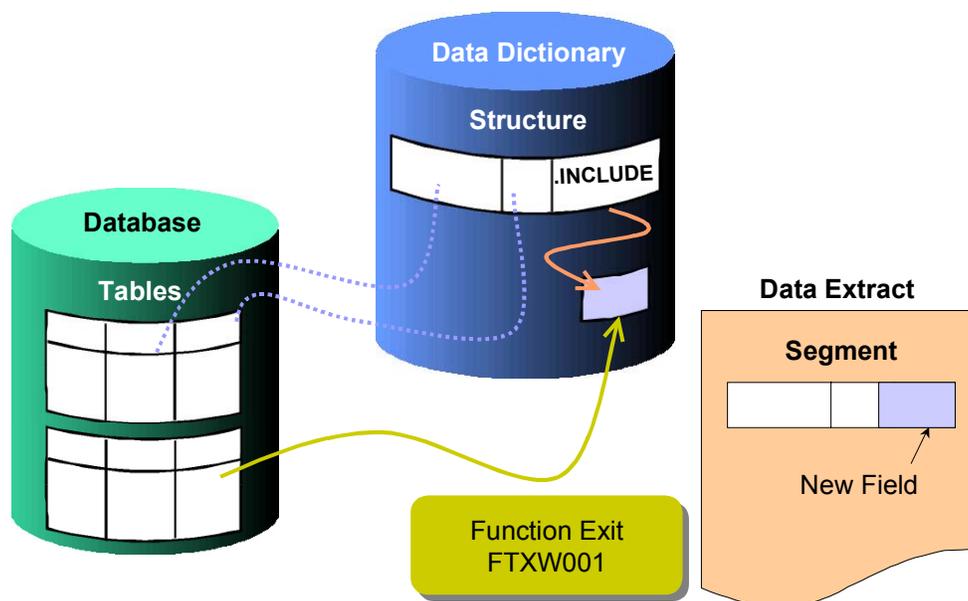
- You are adding numeric [Seite 104] fields.

- You are adding fields from a table(s) other than the source table(s) of the other existing fields in the segment

Adding Fields from Additional Tables

When extracting data defined by an SAP-provided segment, the system reads data from the source tables of the fields that were originally defined in the segment. This may include one or more source tables.

The mapping of the fields that are included in the segment to the source table(s) in the R/3 database is done through the definition of a corresponding structure in the Data Dictionary.

If you wish to add a field into an SAP-provided segment, and this field resides in another table than the ones already included in the Data Dictionary structure, then you need to use the FTXW0001 function exit to read the data from the additional table in the database, as illustrated below:

The segment configuration lists the source tables.

Adding Numeric Fields

The fields in a DART segment must all be characters. If any of the fields you are adding to an SAP-provided segment is numeric [Seite 104], then you must convert the data in that field to character by using the function exit FTXW0001, as illustrated below:
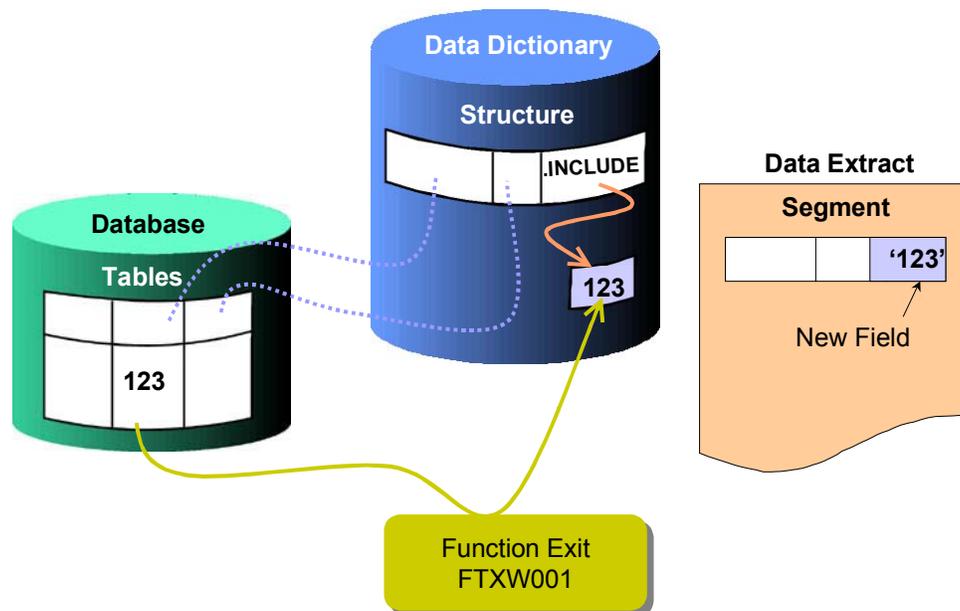
Prerequisites

The DART segment and its corresponding Data Dictionary structure must exist as part of the set provided by SAP.

Adding fields into a customer-defined segment, that is, a segment that you or someone else has added to DART, is easier to do as part of the function exit that creates the segment. (FTXW0002) [Seite 111]

You also have to first extend the Data Dictionary structure [Seite 116] to add the necessary fields.

Procedure

You create and activate the function exit using R/3 Customer Enhancement (transaction CMOD).

Your function exit must perform the following tasks:

If You are Adding…	Your Function Exit Should…
Numeric [Seite 104] field(s)	Convert the fields to character

Using Function Exit FTXW0001

Field(s) from additional tables	Read the necessary data fields from the table in the database into a program record

Result

If you create and activate the FTXW0001 function exit, then when extracting data, the system calls the function exit for every record before it exports the data into the extract file(s).