

Different Types of Characteristic Info Object Tables and its Structures in SAP BI 7.0



Applies to:

SAP BI 2004s or SAP BI 7.x. For more information, visit the [EDW homepage](#)

Summary

This document explains about the different characteristic info object tables will be generated by DDIC, when we activate the info object and its structures in SAP BI 7.0

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Author Bio



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Info Object:

Info Objects are the smallest available information modules or fields in BI. We can uniquely identify this by their technical name.

Naming Convention:

- 1) SAP Delivered Info object starts with "0<Info object name>"
- 2) Object created by us should not start with 0 or any number and special character.
- 3) Length of the Info Object should be between 3 and 9 character length.

Types of Info Objects:

Info Objects are divided into 5 types, they are as follows

Characteristics

Key Figures

Unit Characteristics

Time Characteristics

Technical Characteristics

Characteristics: Characteristics hold business information which is used to analyze key figures or these are business reference objects.

Examples: Customer (0CUSTOMER)

Material (0MATERIAL)

Cost Center (0COSTCENTER)

Key Figures: Key figures describe numeric information that is reported in a query.

Example: Quantity (0QUANTITY)

Amount (0AMOUNT)

Revenue (0REVENUE)

Unit Characteristics: Unit characteristics provide a means of key figures values, stores currencies or units of measure.

Example: Currency unit (0CURRENCY) → Holds the currency of the transaction (\$, EUR, and so on)

Value unit (0UNIT) → Hold the unit of measure (Gallon, Inch, cm, PC)

Time Characteristics: Time characteristics form the time reference frame for many data analyses and evaluations. They are delivered with BI Content.

Example: Calendar day (0CALDAY) → Time characteristic with the largest granularity

Calendar year (0CALYEAR) or fiscal year (0FISCYEAR) → Time characteristic with the smallest granularity

Note: System does not allow creating our own time characteristics.

Technical Characteristics: Technical characteristics have administrative purposes.

Example: Request ID (0REQUID)

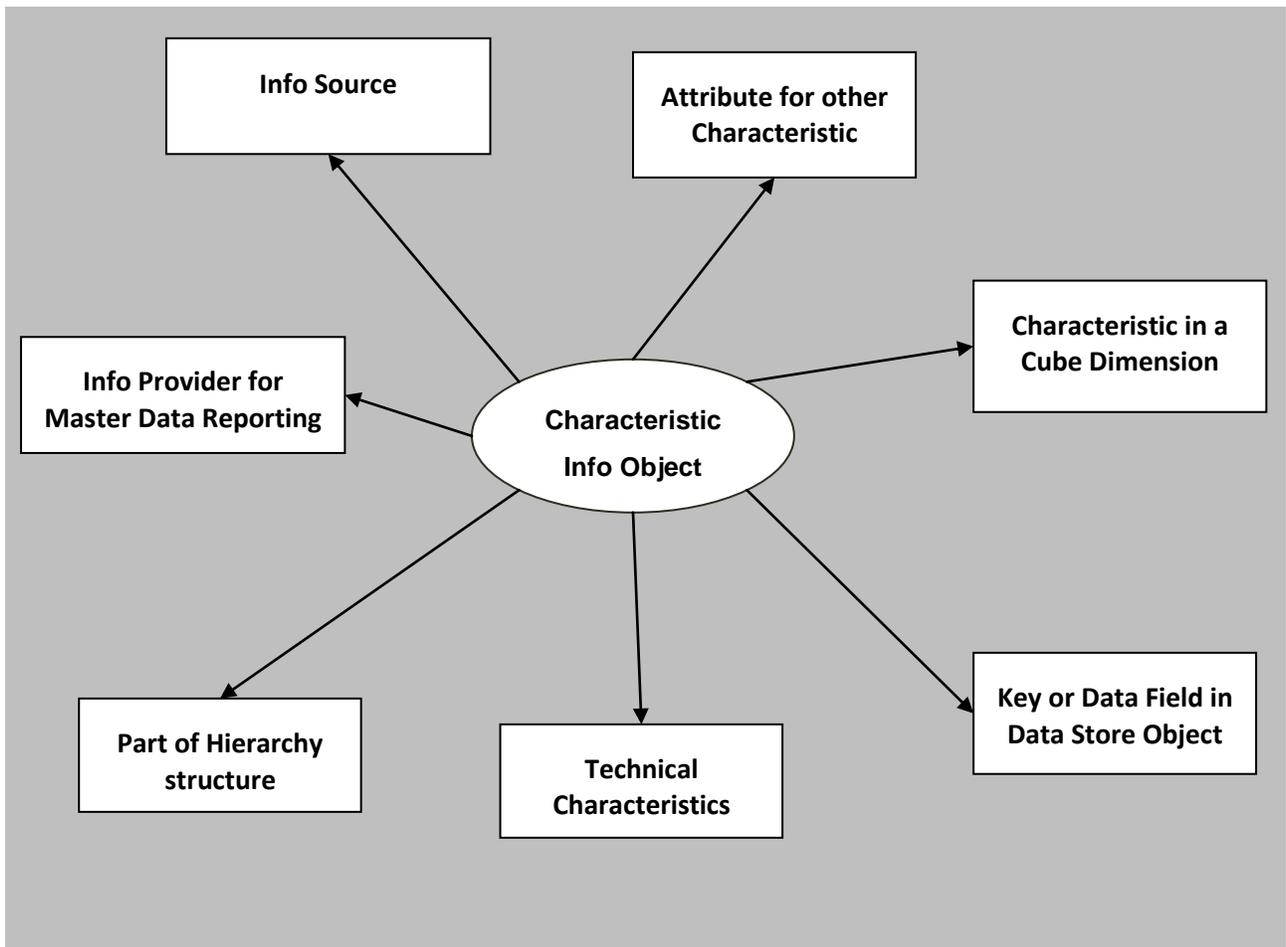
Change ID (0CHNGID)

Info Object 0REQUID delivers the numbers allocated by the system when loading requests.

Info Object 0CHNGID delivers the numbers allocated during aggregate change runs.

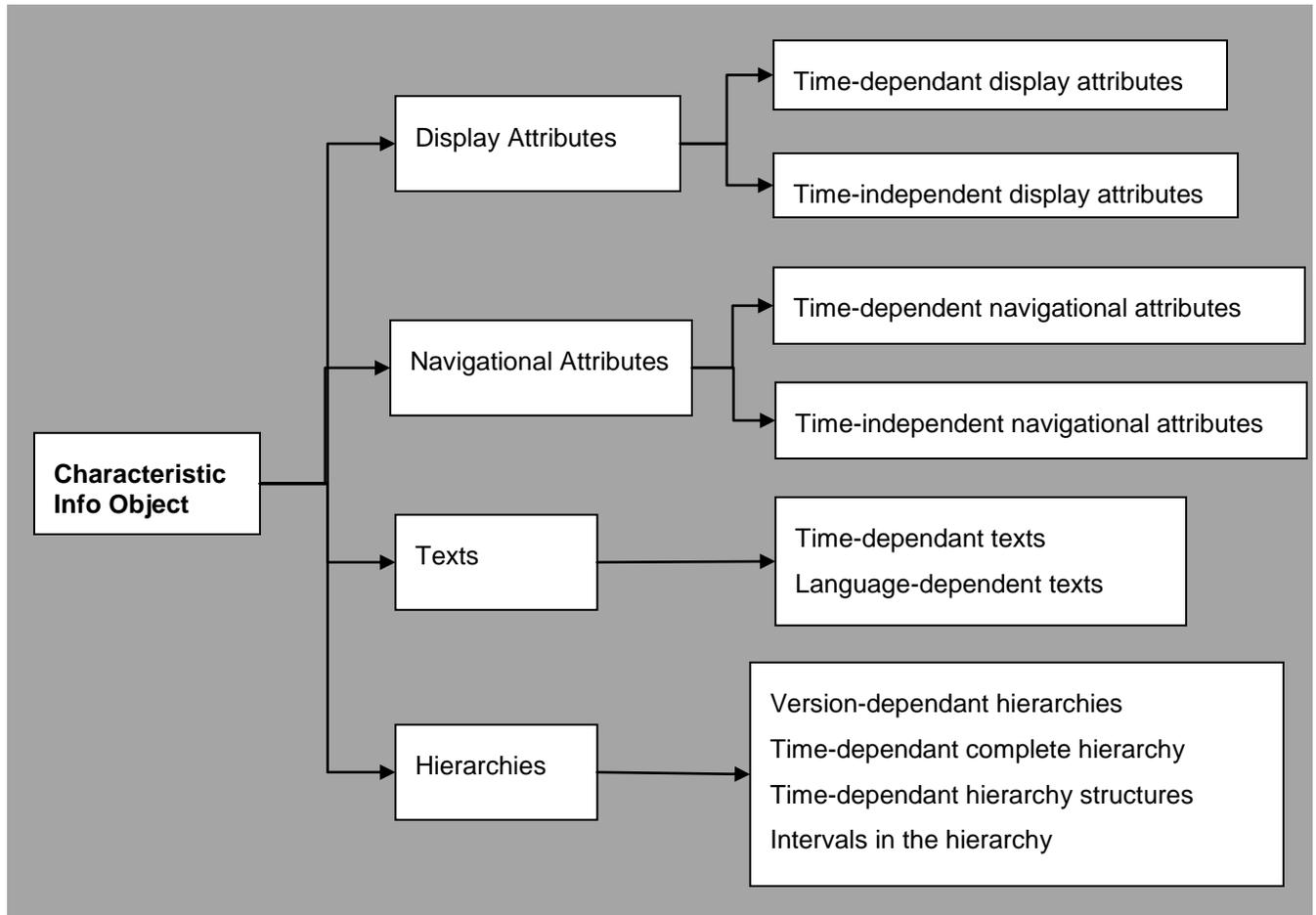
Possible Uses of Characteristic Info Objects in BI

The below figure shows what are all the scenarios in which we can include Characteristics



Types of Characteristic Info Objects

Based on the options we select while creating the Characteristic info object, we have following types characteristic info objects.



Different Types of Tables

When we activate a characteristic, based on the settings we chose while creating characteristic below tables will generate.

- 1) Master data table
- 2) Text table
- 3) SID Table
- 4) Attribute tables
- 5) Hierarchy tables.

Master data table:

While creating characteristic if we select the option “with master data” in “master data/text” tab, then a master table will be generated for that info object upon activation.

Naming convention

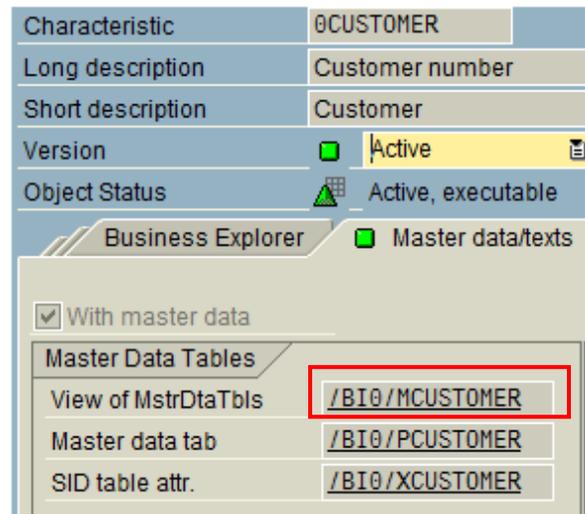
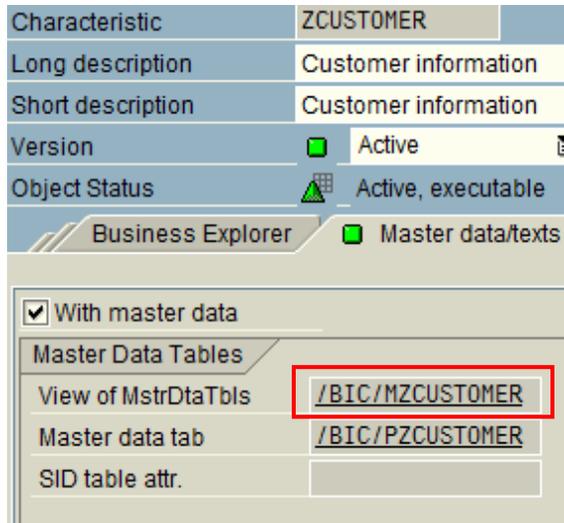
For business content characteristics: /BIO/M<Info object name>

For customer created characteristic: /BIC/M<Info object name>

If the Info object is SAP delivered, then in table naming convention you will not get /BIO/MOCUSTOMER.

If it customer created info object, then in table naming convention you will get /BIC/MZCUSTOMER.

You can check this in the below screen.



Note: Master data table is a view of attribute tables (P and Q tables)

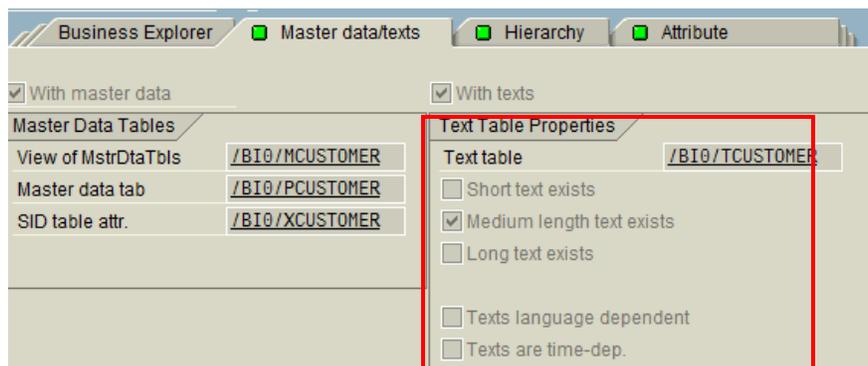
Text Table:

A text table is created if we flag the “With text” check box while creating and activating the characteristic info object. We can choose how text should look like from the below properties.

Naming Convention:

For business content characteristics: /BIO/T<Info object name>

For customer created characteristic: /BIC/T<Info object name>



- i) Short text exists (allows max. of 20 char length)
- ii) Medium length text exists (allows max. of 40 char length)
- iii) Long text exists (allows max. of 60 char length)
- iv) Texts are language dependent (allows texts with different languages)
- v) Texts are time dependent

Based on the options we select from the above, the text table key fields will change.

The basic key field of a text table is

- 1) Characteristic value

We can see in the below screen.

| Field | Key | Initi... | Data element | Data Ty... | Length | Decim... | Short Description |
|----------|-------------------------------------|-------------------------------------|-----------------|------------|--------|----------|--------------------|
| CUSTOMER | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | /BI0/OICUSTOMER | CHAR | 10 | 0 | Customer number |
| TXTMD | <input type="checkbox"/> | <input checked="" type="checkbox"/> | RSTXTMD | CHAR | 40 | 0 | Medium description |

If we select "Texts are language dependent" option, then Language key also will be added to the key field of the text table.

If we select "Texts are time dependent" option, then we will get two more additional fields into a table. Those are time intervals i) DATETO and ii) DATEFROM.

Now the key fields of text table are

- 1) Characteristic value
- 2) Language Key
- 3) Valid to

We can see in the below screen

| Field | Key | Initi... | Data element | Data Type | Length | Decim... | Short Description |
|----------------|-------------------------------------|-------------------------------------|------------------|-----------|--------|----------|----------------------|
| /BIC/ZCUSTOMER | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | /BIC/OIZCUSTOMER | CHAR | 10 | 0 | Customer information |
| LANGU | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | LANGU | LANG | 1 | 0 | Language Key |
| DATETO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | /BI0/OIDATETO | DATS | 8 | 0 | Valid to |
| DATEFROM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | /BI0/OIDATEFROM | DATS | 8 | 0 | Valid from |
| TXTSH | <input type="checkbox"/> | <input checked="" type="checkbox"/> | RSTXTSH | CHAR | 20 | 0 | Short description |

SID Table:

The SID table is generated when a characteristic is activated unless it is defined as exclusively attribute (Display attribute only).

Naming Convention:

For business content characteristics: /BIO/S<Info object name>

For customer created characteristic: /BIC/S<Info object name>

→The key field for the SID table is characteristic value.

→The system automatically generates the SID keys when the master data is uploaded.

→If the characteristic has compounding Info object, the key also comprises the compounded characteristic.

→ SID table links between master data bearing characteristics, navigational attributes and external hierarchies.

The below figure shows the relationship between SID table and the tables related to the characteristic 0CUSTOMER (This is a simple table for better understanding)

/BIO/PCUSTOMER

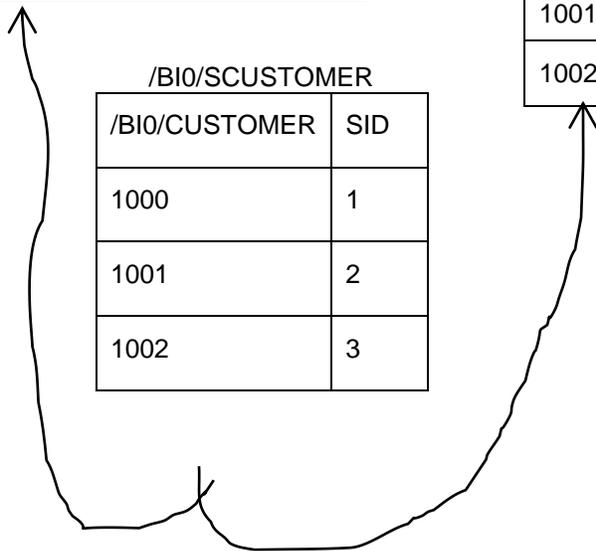
| /BIO/CUSTOMER | LOCATION |
|---------------|----------|
| 1000 | BANG |
| 1001 | HYD |
| 1002 | CHN |

/BIO/QCUSTOMER

| /BIO/CUSTOMER | DATE TO | DATE FROM | CONTACT NO |
|---------------|---------|-----------|------------|
| | 12/9999 | 01/1000 | |
| 1000 | 12/9999 | 01/1000 | 987654 |
| 1001 | 12/2005 | 01/1000 | 12345 |
| 1001 | 12/9999 | 01/2006 | 123456 |
| 1002 | 12/9999 | 01/1000 | 456789 |

/BIO/SCUSTOMER

| /BIO/CUSTOMER | SID |
|---------------|-----|
| 1000 | 1 |
| 1001 | 2 |
| 1002 | 3 |



Attribute Tables:

If we have selected the option “With master data” (The check box is checked by default) on the “Master data/Texts” tab page, then we can maintain attributes for the master data bearing characteristic on the Attribute tab page. We can define attributes as Display attributes or navigational attributes and we can make this attributes as time independent or time dependent using the settings available on the Attribute tab page.

If we have Display attributes (Time independent), then we will get P Table.

If we have Display attributes (Time dependent), then we will get Q Table.

If we have Navigational attributes (Time independent), then we will get X Table.

If we have Navigation attributes (Time dependent), then we will get Y Table.

Now we will discuss about each and every table in detail.

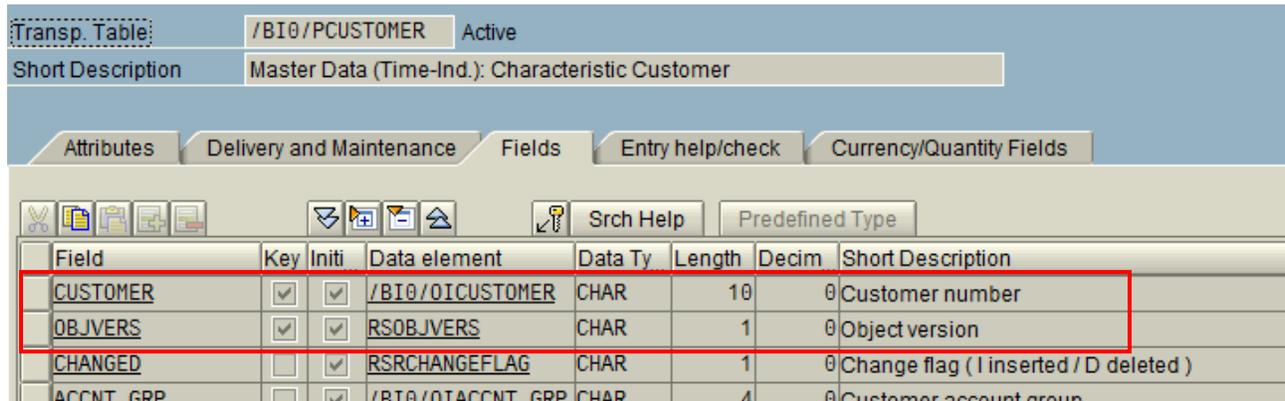
P Table:

P Table will generate if we have time independent Display attributes for base info object.

The key fields in the P table are

- i) Characteristic value
- ii) Object version

We can see in the below screen.



We will have 2 object version statuses.

- i) A → Active(The data is available for reporting)
- ii) M → Modified/Revised (The data is not available for reporting)

In the above screen shot we can see the field “Change flag”. This field will have 2 statuses.

- i) D → Deleted
- ii) I → Inserted

With the below table you can understand the above concept

| Step | Customer | OBJVERS | CHANGED | City |
|------|----------|---------|---------|------|
| 1 | 1000 | A | | BANG |
| 2 | 1000 | A | D | BANG |
| | 1000 | M | I | HYD |
| 3 | 1000 | A | | HYD |

Step1: This shows the original record of 0CUSTOMER characteristic.

Step2: Customer location has been changed, so you will have a new record in M version.

For old record you will get change flag as D-deleted

For new record you will get change flag as I –Inserted.

Until we activate this record (Master data activation), it will not available for reporting.

Step 3: when we activate the record, change flag will get removed and version will change from M to A.

Now this record will be available for reporting.

Q Table:

Q Table will generate if we have time dependent display attributes for base Info Object. As it has time dependent master data we will get time intervals into the table structure.

The Key fields of Q Table are

- i) Characteristic value
- ii) Object Version
- iii) DATETO (Valid to)

We can see in the below screen

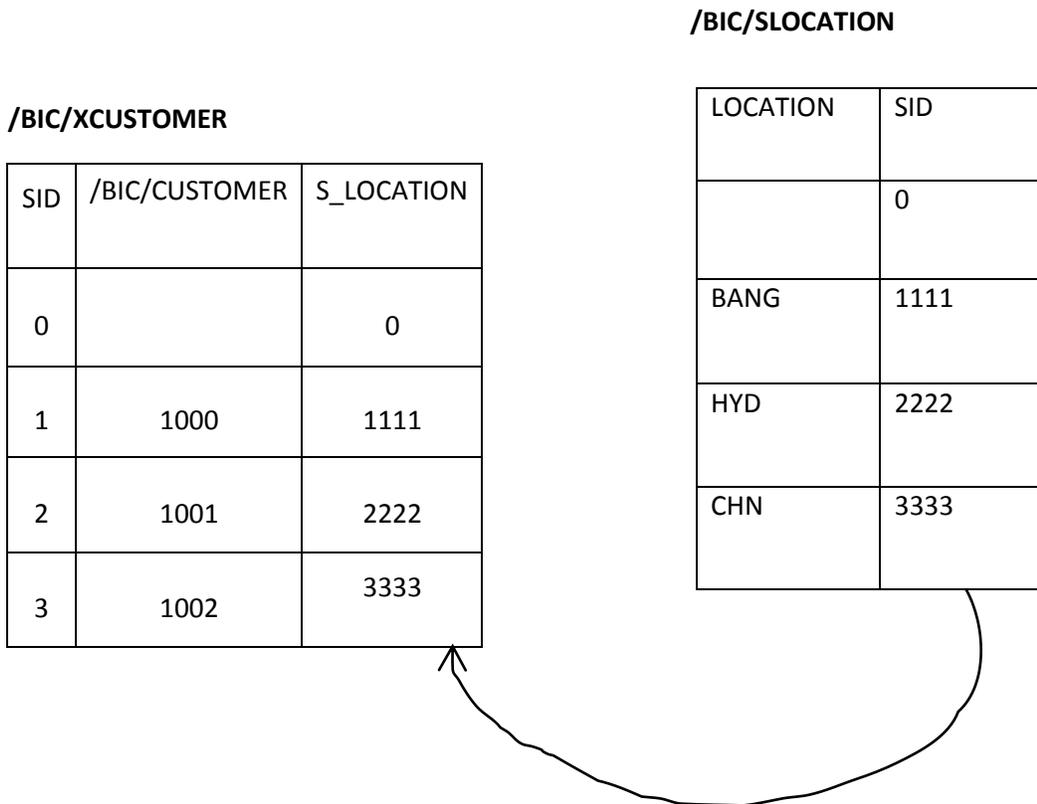
| Field | Key | Initi... | Data element | Data Ty... | Length | Decim... | Short Description |
|------------|-------------------------------------|-------------------------------------|-------------------|------------|--------|----------|-------------------|
| CO_AREA | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | /BI0/OICO_AREA | CHAR | 4 | 0 | Controlling area |
| COSTCENTER | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | /BI0/OICOSTCENTER | CHAR | 10 | 0 | Cost Center |
| OBJVERS | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | RSOBJVERS | CHAR | 1 | 0 | Object version |
| DATETO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | RSDATETO | DATS | 8 | 0 | Valid-to date |

X Table:

X Table is generated if at least one attribute is defined as time-independent navigational attribute. The key for the X table of the navigation attributes (naming convention S_<name of attribute>) is the SID for the SID table belonging to the characteristic whose attribute is used here as navigation attribute.

The following figure illustrates the relationship between X table and the SID table of navigational attribute.

Let's take we have defined LOCATION as navigations attribute for 0CUSTOMER.



Note: From the above picture we analyze the following things

- i. If we have any navigational attributes then while reading data it has pick to data from its SID table based on SID's mapping.
- ii. This is the reason why the query performance increases if we have any navigational attribute in base info object.

Y Table:

Y Table is generated if we have at least one attribute is defined as time-dependent navigational attribute. The key for the Y table of the navigation attributes (naming convention S_<name of attribute>) is the SID for the SID table belonging to the characteristic, whose attribute is used here as navigation attribute.

Naming Convention:

For business content characteristics: /BIO/Y<Info object name>

For customer created characteristic: /BIC/Y<Info object name>

This behaves same as X Table, but the difference comes at the key fields of the table.

In this we will have one extra field as key field i.e. DATETO (Valid to).

The key fields of Y table are

- 1) SID
- 2) DATETO (Valid to)

Possible changes to the Characteristic Info Object:

We can make the following changes to a characteristic after the master data has been loaded

- i) Display attribute (time-independent) → Navigation attribute (time-independent)
- ii) Display attribute (time-independent) → Navigation attribute (time-dependent)
- iii) Display attribute (time-independent) → Display attribute (time-dependent)
- iv) Display attribute (time-dependent) → Navigation attribute (time-dependent)

Hierarchies Tables:

Hierarchies are used in analysis to describe alternative views of the data. Hierarchies comprise a series of nodes that are joined to one another in a tree structure. Usually, the leaves of a hierarchy are represented by characteristic values.

In hierarchies for characteristics, the characteristics are arranged hierarchically.

Example: the Company characteristic is split into subsidiaries that, in turn, are split into local offices.

We have three options for integrating hierarchies into our data model.

- i) Internal hierarchies from the Characteristics in the Dimension tables.
- ii) Hierarchies from Characteristic Attributes
- iii) External hierarchies from the Hierarchy Tables.

H Table:

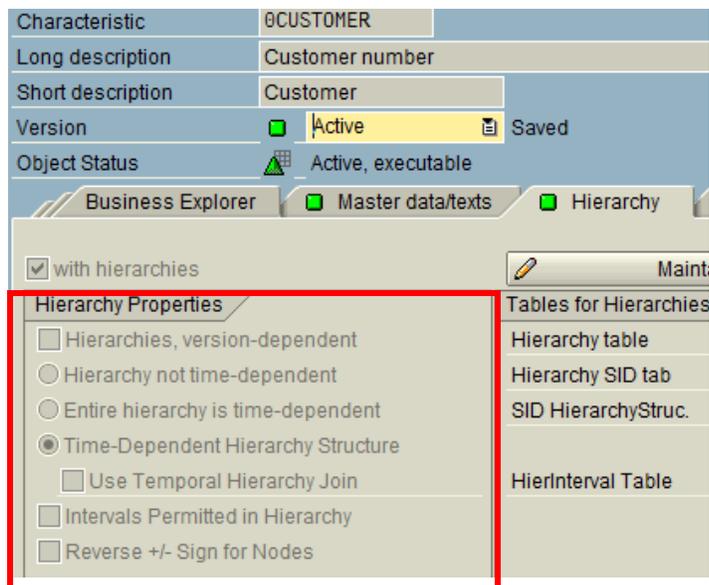
The Hierarchy table (H Table) is used to store the hierarchical relationships between Characteristic values if external hierarchies are used for the characteristic.

Only one H Table is generated even if a characteristic contains several hierarchies. In other words H table contains all hierarchies.

If the entire hierarchy is time-dependent, the DATETO and DATEFROM fields do not appear in the H table. They appear as global fields (Meta information) in the RSHIEDIR table instead. This also applies to the VERSION field in version-dependent hierarchies. On the other hand, if the hierarchy structure is

Time-dependent, the two date fields appear in the H table.

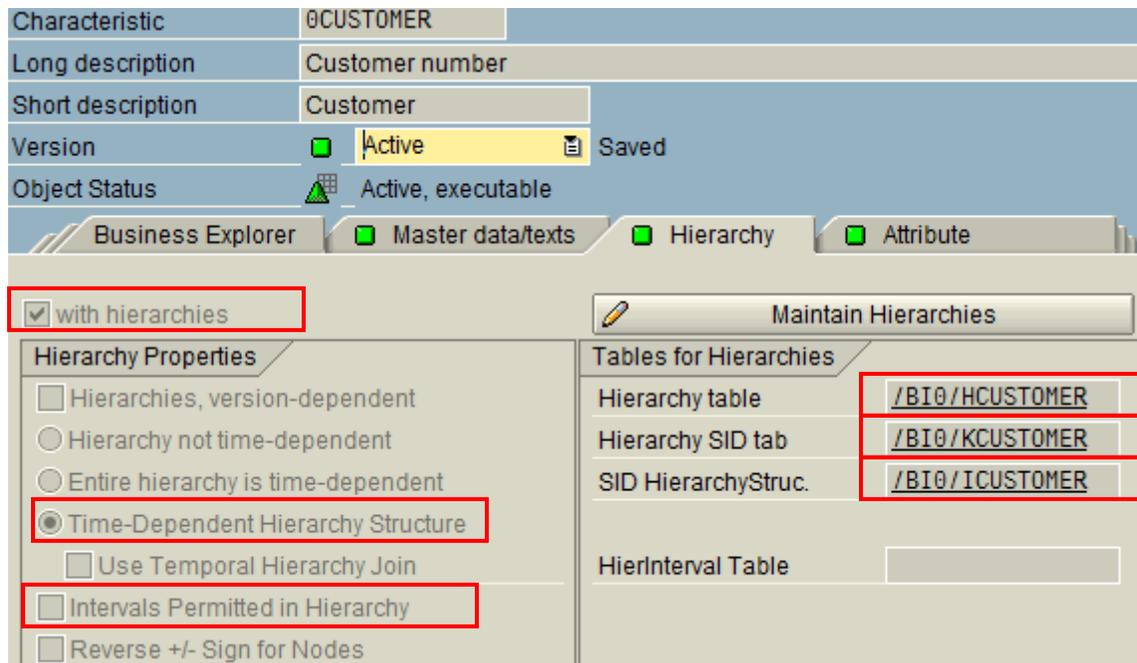
We can see the different options for hierarchies in the below screen.



Based on the options we select while maintaining hierarchies, the below tables will generate.

- 1) H Table → Base table for hierarchies and contains all the hierarchies.
- 2) K Table → If we select “with hierarchies” option, then this table will generate.
- 3) J Table → If we select “Intervals Permitted in Hierarchy” option, then this table will generate.
- 4) I Table → If we select “Time-Dependent Hierarchy Structure” option, then this table will generate.

We can see in the below screen



Related Content

<https://www.sdn.sap.com/irj/sdn/nw-bi>

http://help.sap.com/saphelp_nw70/helpdata/en/0e/fd4e3c97f6bb3ee10000000a114084/frameset.htm

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