Uploading Characteristic Hierarchies from Flat File

Applies to:

SAP BI 2004s or SAP BI 7.x For more information, visit EDW homepage

Summary

This white paper explains how to load hierarchies using flat files. It also helps to understand the flat file format to be used and how to maintain the data in that flat file.

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Author Bio

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Introduction

Info Object with master data can have hierarchies as part of master data. Many times it is required to load these hierarchies using flat files. These hierarchies are also known as characteristic hierarchies. Characteristic Hierarchy is tree-like structure for the characteristic values for a characteristic. Characteristic hierarchies are stored in their own data tables. Like master data, they can be used in all Info Providers.

Example: Hierarchy using cost centers that are assembled in cost center groups

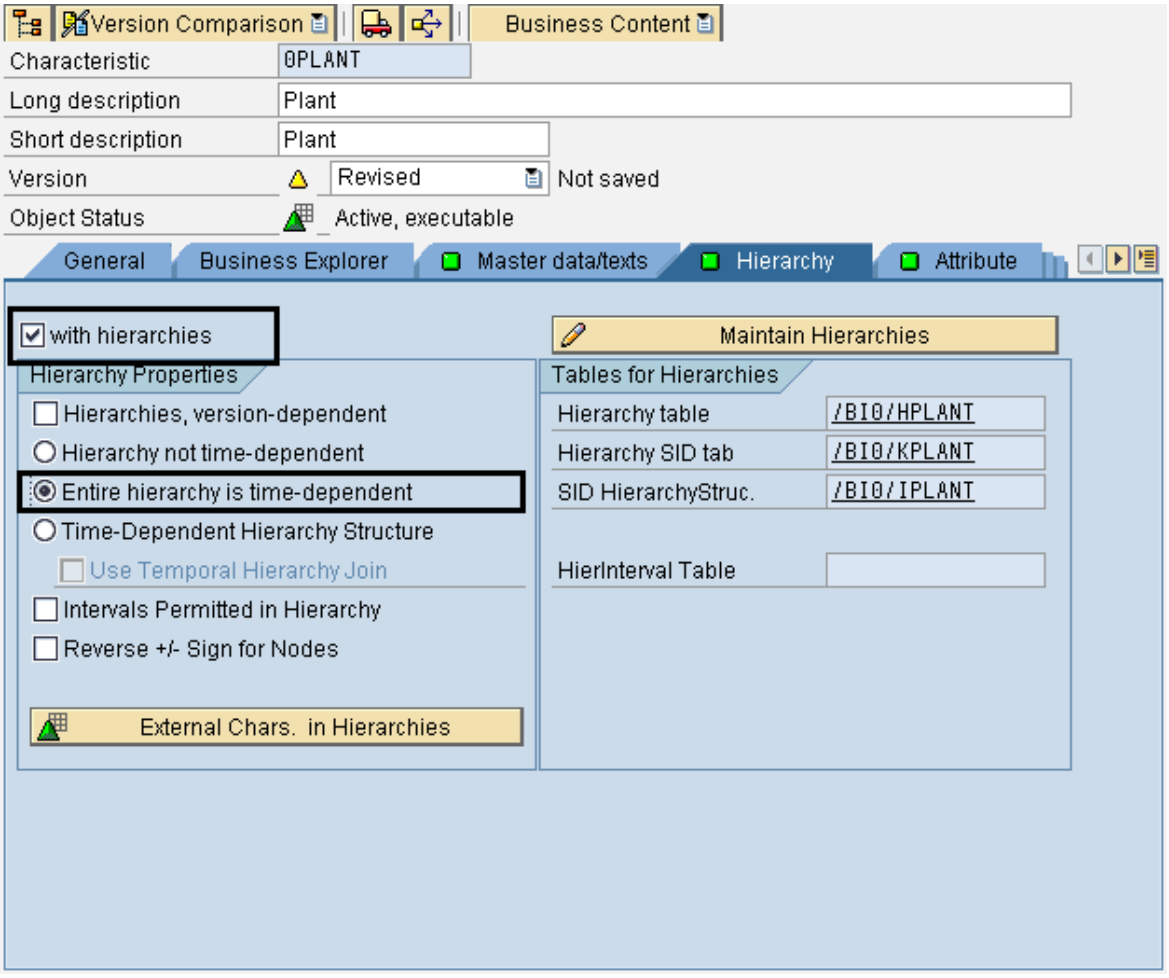
Characteristic hierarchies offer you options to create queries for reporting. In the Query Designer you can set characteristic hierarchies in the following ways:

- As a presentation hierarchy for a characteristic, if this needs to be hierarchically displayed
- As a selection for specific characteristic values, if a characteristic needs to be restricted for a hierarchy or for hierarchy nodes.

Prerequisites

If you want to load Info Objects in the form of hierarchies, you have to activate the indicator *with hierarchies* for each of the relevant Info Objects in the Info Object maintenance.

Here we will take example of time-dependent hierarchy load from flat file.



You can also mention whether the whole hierarchy or the hierarchy structure is to be time-dependent, whether the hierarchy can contain intervals, whether additional node attributes are allowed (only when loading using a PSA), and which characteristics are allowed.

Flat File Structure

The following table shows which data you should upload from the flat file.

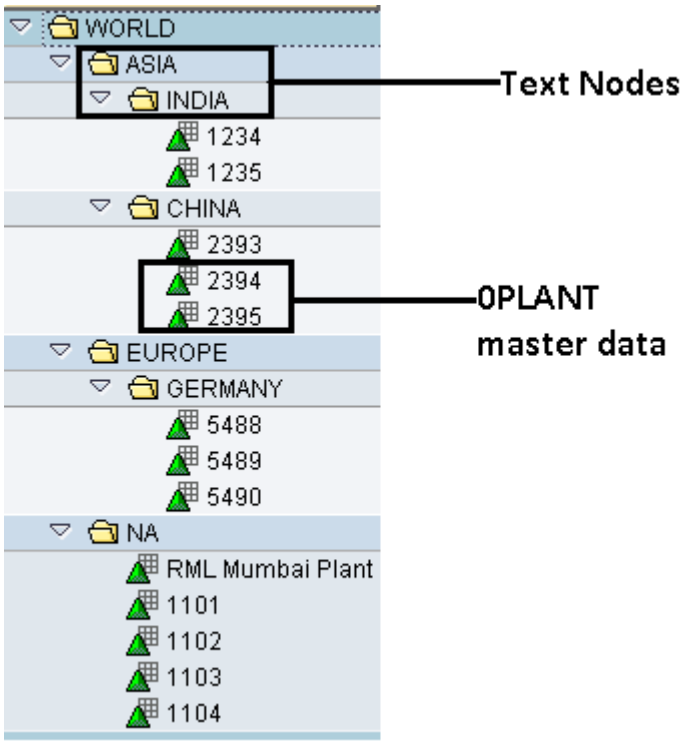
Description	Field Name	Length	Type	Contents
Node ID	NODEID	8	NUMC	Specify the internal ID of the hierarchy node.
Info Object name	INFO OBJECT	30	CHAR	In the row INFO OBJECT, specify the name of the basic characteristic to which the hierarchy should be assigned. The master data for this characteristic is then used. Alternatively, you can include a text node. Text nodes are always based on Info Object 0HIER_NODE.
Node name	NODENAME	32	CHAR	For master data, enter the key of the master data table. Enter any name you choose for text nodes.
Catalog ID	LINK	1	CHAR	With 'normal' nodes, leave the field empty.
Parent node	PARENTID	8	NUMC	Enter the NODEID for the first higher-level node. Enter, "00000000"if there is no higher-level node.
First subnode	CHILDID	8	NUMC	Enter the NODEID for the first lower-level node. Enter, "00000000"if there is no lower-level node.
Next adjacent node	NEXTID	8	NUMC	Enter the NODEID for the first 'next node'. Enter, "00000000"if there is no 'next node'.
Valid to	DATETO	8	CHAR	Valid–to nodes (are needed if the hierarchy structure is time-dependent).
Valid from	DATEFROM	8	CHAR	Valid–from nodes (are needed if the hierarchy structure is time-dependent).
Language key	LANGU	1	CHAR	Enter the language ID (is required for text nodes) For example, F for French, E for English, and so on.
Description - short	TXTSH	20	CHAR	Enter a short text. This is needed for text nodes, as no texts can be loaded for these nodes.
Description - medium	TXTMD	40	CHAR	Enter a medium text. This is needed for text nodes, as no texts can be loaded for these nodes.
Description- long	TXTLG	60	CHAR	Enter a long text. This is needed for text nodes, as no texts can be loaded for these nodes.

Sample Flat File

NODEID	INFOOBJECT	NODENAME	LINK	PARENTID	CHILDID	NEXTID	DATETO	DATEFROM	LANGU	TXTSH	TXTMD	TXTLG
1	0HIER_NODE	WORLD		0	2	0	20091231	20090101	D		WORLD	
2	0HIER_NODE	ASIA		1	3	10	20091231	20090101	D		ASIA	
3	0HIER_NODE	INDIA		2	4	6	20091231	20090101	D		INDIA	
4	0PLANT	1234		3	0	5	20091231	20090101	D			
5	0PLANT	1235		3	0	0	20091231	20090101	D			
6	0HIER_NODE	CHINA		2	7	0	20091231	20090101	D		CHINA	
7	0PLANT	2393		6	0	8	20091231	20090101	D			
8	0PLANT	2394		6	0	9	20091231	20090101	D			
9	0PLANT	2395		6	0	0	20091231	20090101	D			
10	0HIER_NODE	EUROPE		1	11	15	20091231	20090101	D		EUROPE	
11	0HIER_NODE	GERMANY		10	12	0	20091231	20090101	D			
12	0PLANT	5488		11	0	13	20091231	20090101	D			
13	0PLANT	5489		11	0	14	20091231	20090101	D			
14	0PLANT	5490		11	0	0	20091231	20090101	D			
15	0HIER_NODE	NA		1	16	0	20091231	20090101	D		NA	
16	0PLANT	1105		15	0	17	20091231	20090101	D			
17	0PLANT	1101		15	0	18	20091231	20090101	D			
18	0PLANT	1102		15	0	19	20091231	20090101	D			
19	0PLANT	1103		15	0	20	20091231	20090101	D			
20	0PLANT	1104		15	0	0	20091231	20090101	D			

This file can be used to upload plant hierarchy which is valid from 01.01.2009 to 31.12.2009

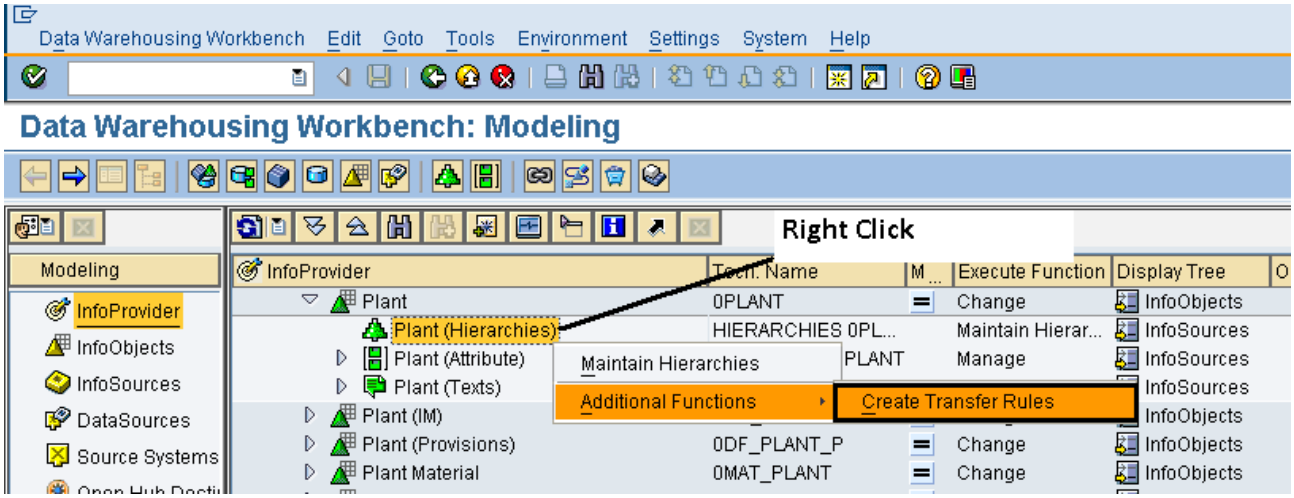
This file will load following hierarchy:



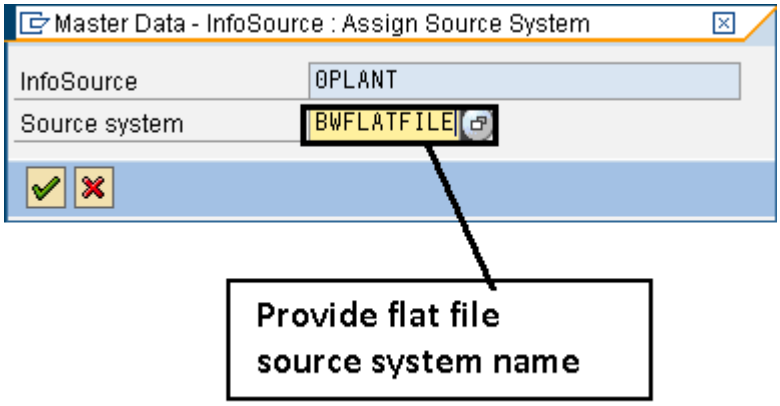
Data Modeling Steps

Create transfer rules for loading plant hierarchies

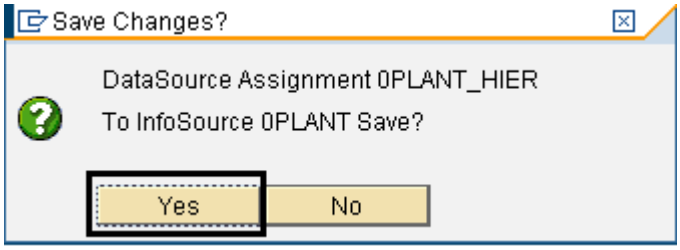
1 Go to InfoProvider list. Search for 0PLANT and drill down. You will get Plant(Hierarchies) node. Right click on it to create Transfer Rules.



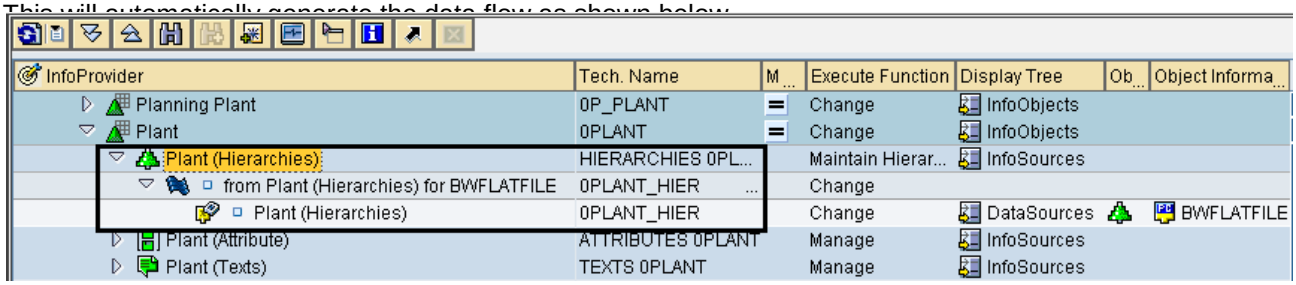
2 This will pop up a window, here you need to specify source system name as shown below



3 System automatically creates DataSource 0PLANT_HIER and asks for confirmation to save it.

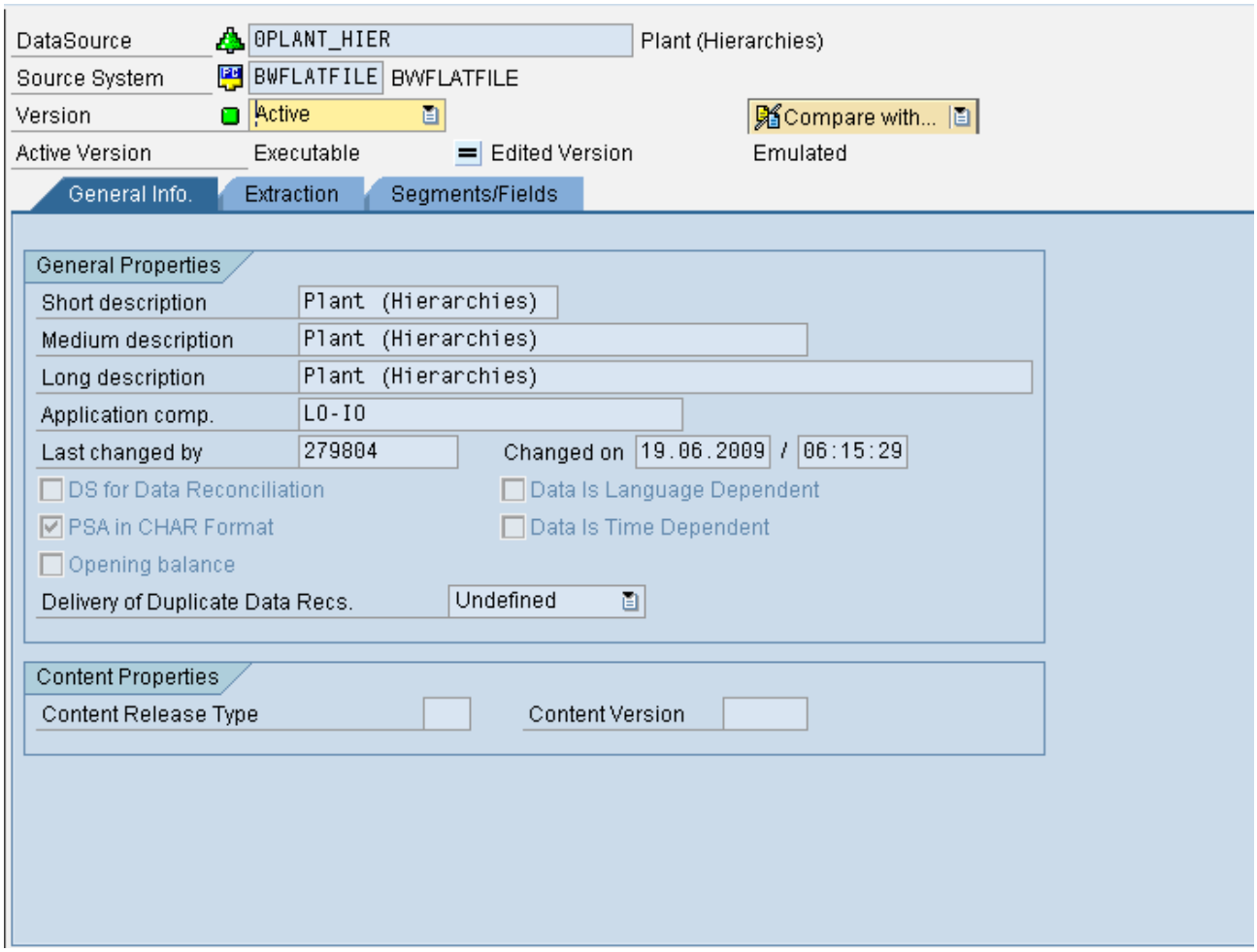


This will automatically generate the data flow as shown below

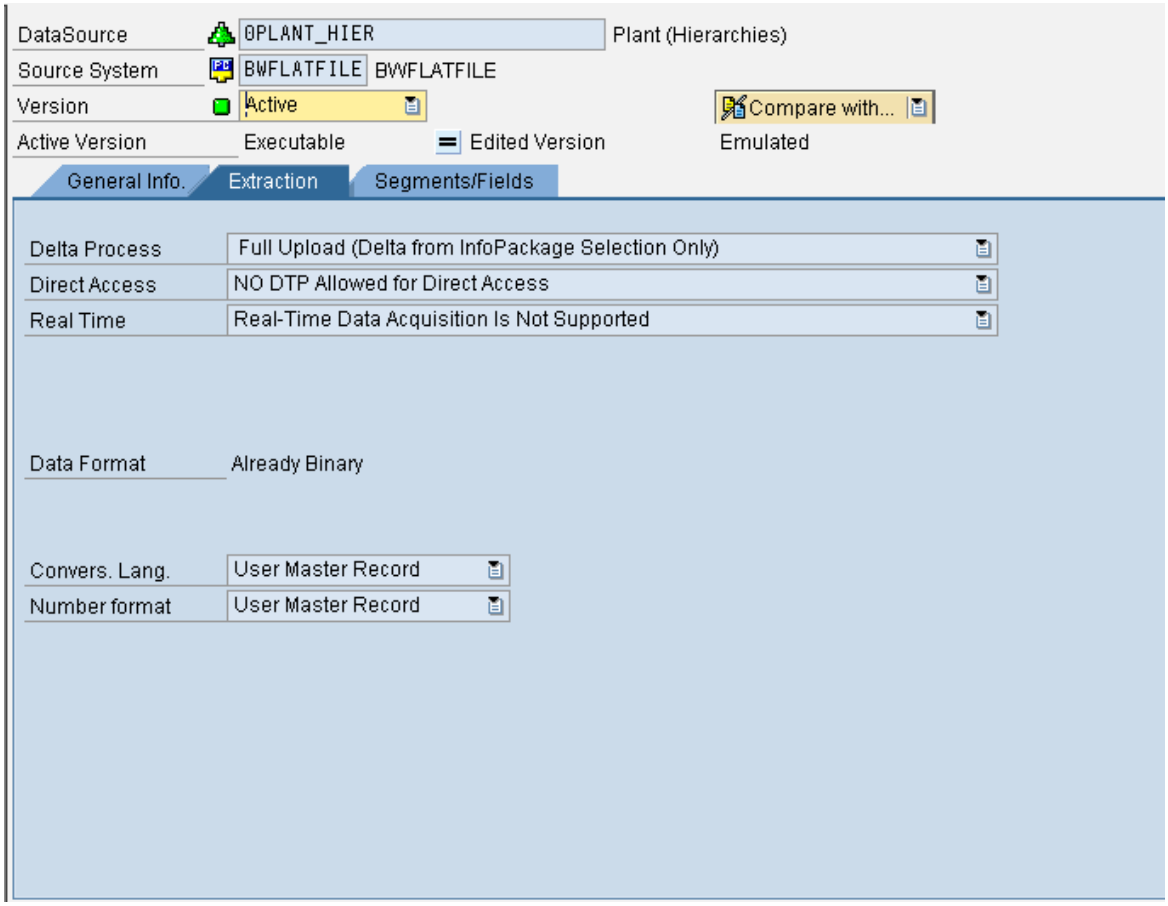


System creates a DataSource as shown below:

General Information:



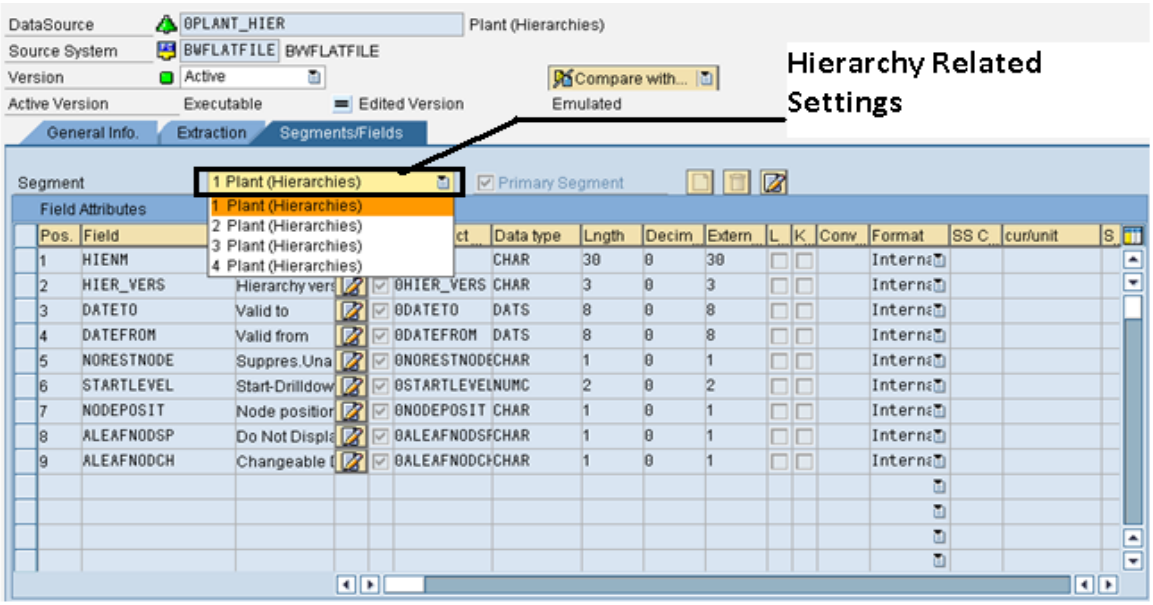
Extraction Tab:



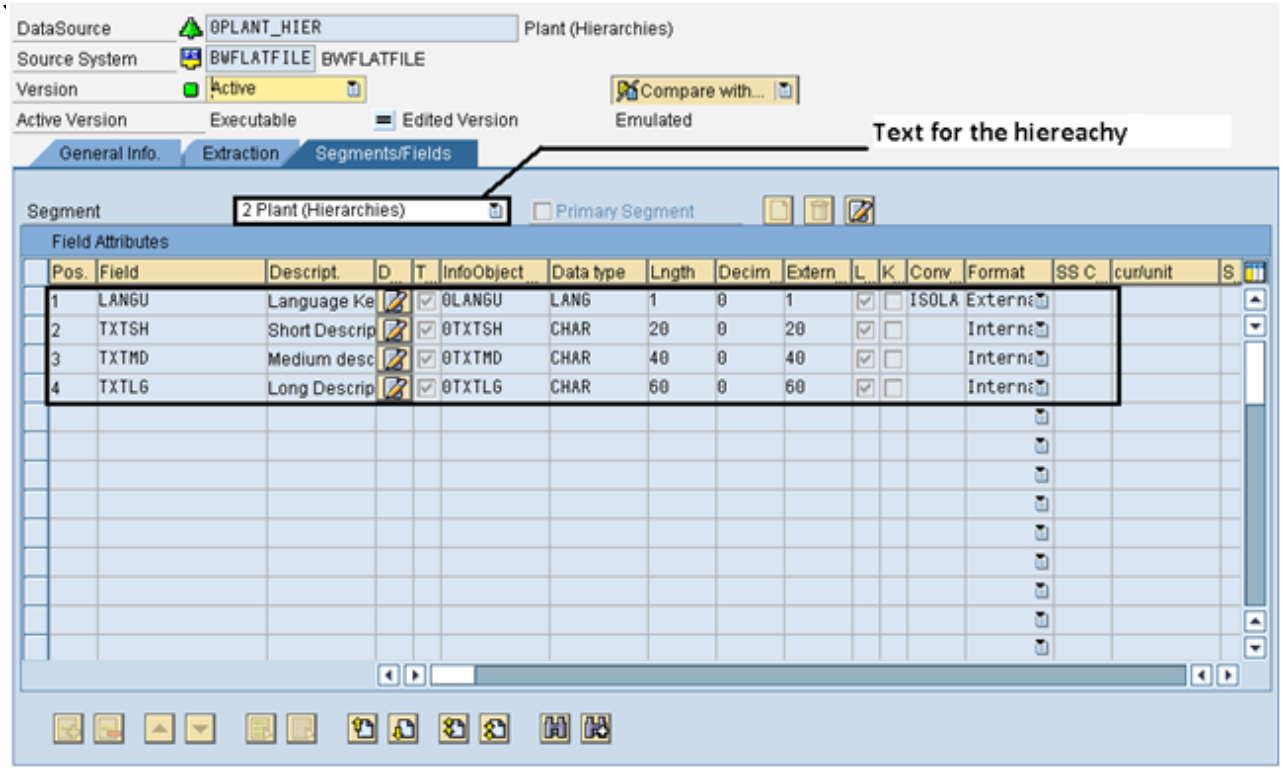
Segments/Fields tab:

Hierarchy Data Source has segments of the fields to be loaded. This does not make any difference to the structure of the flat file to be loaded.

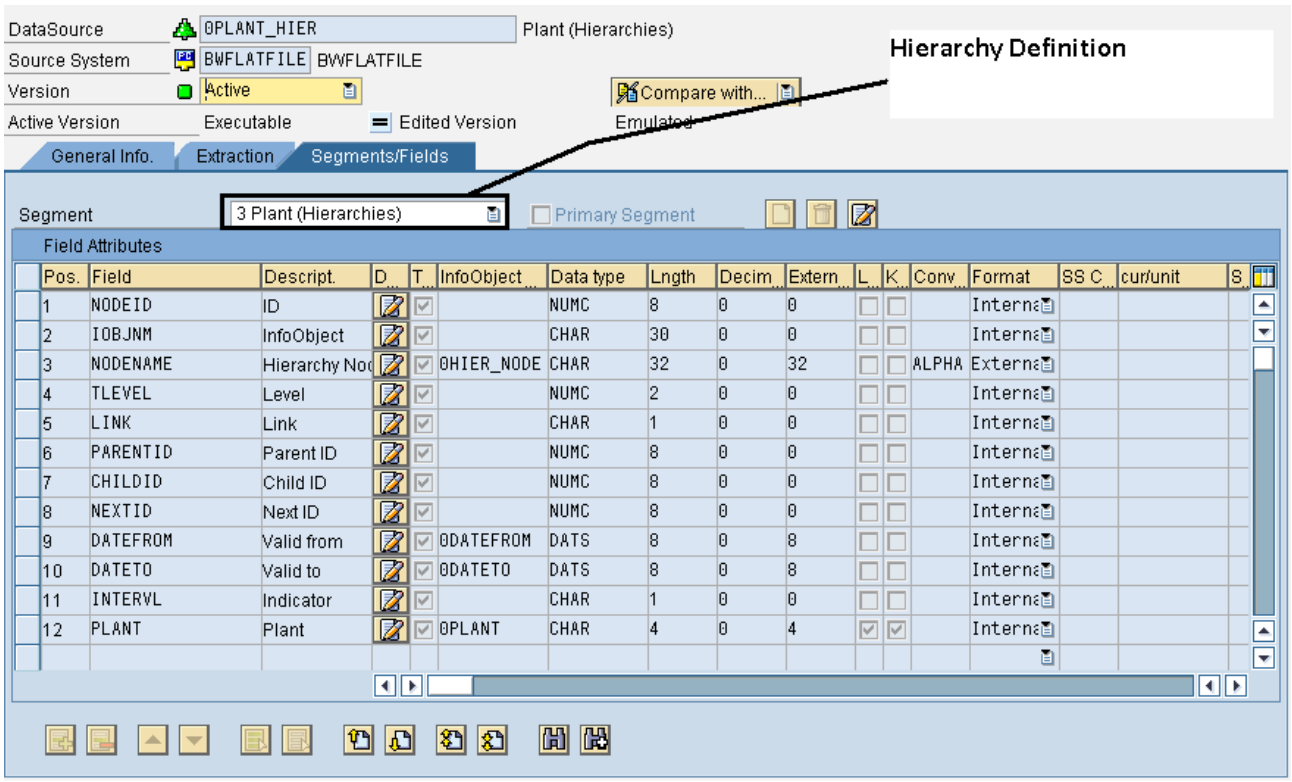
Segment 1 -> Contains fields related to Hierarchy settings



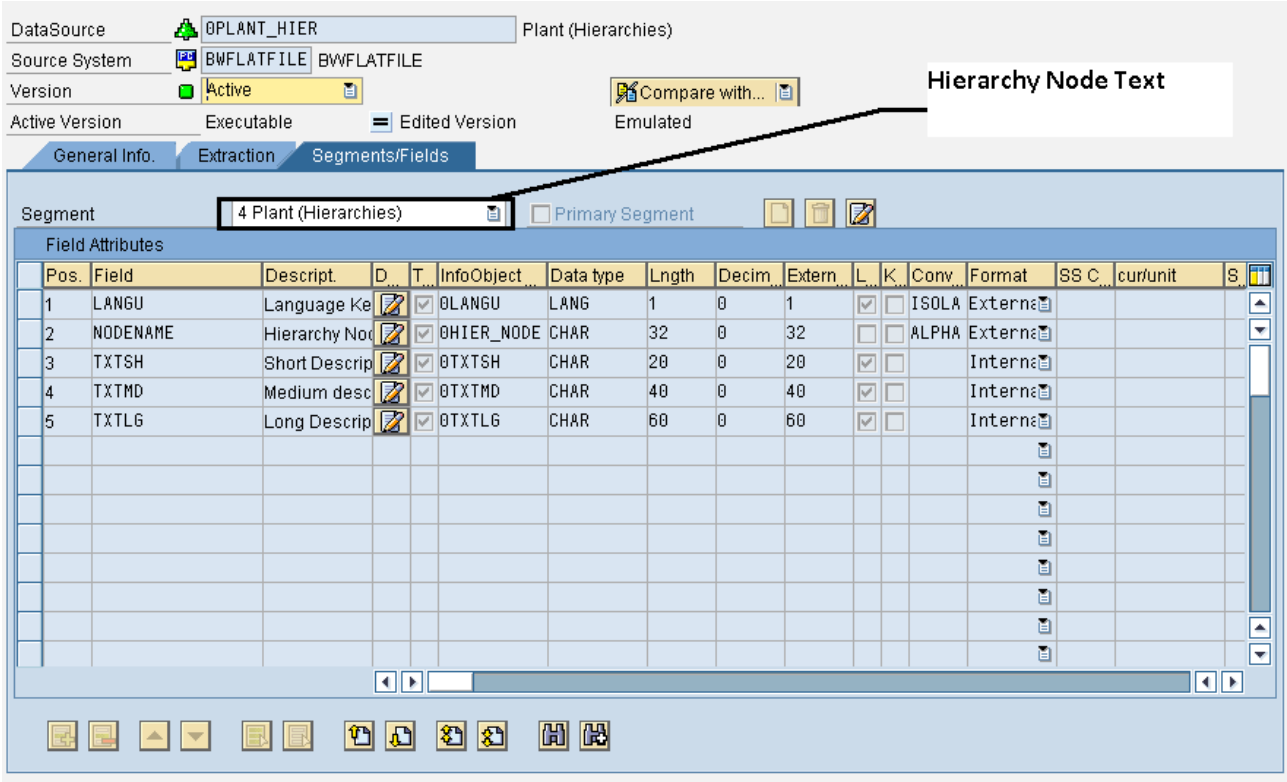
Segment 2 -> Contains fields related to Hierarchy Text



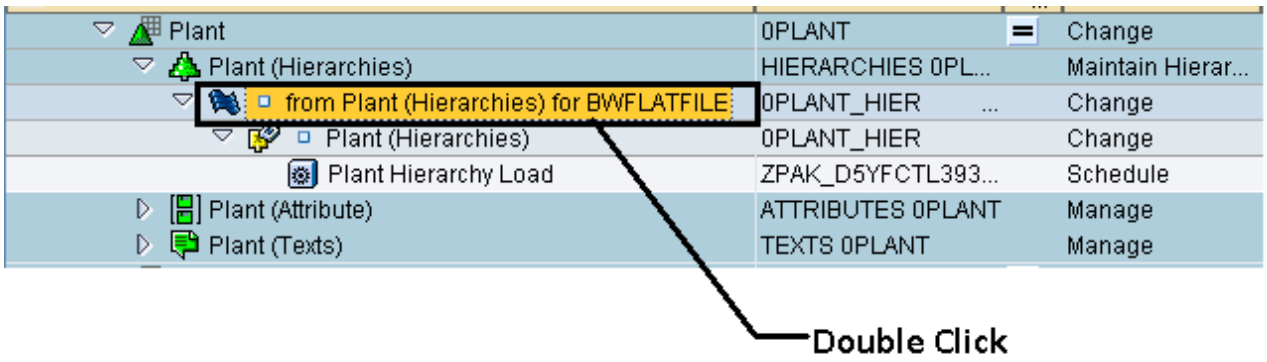
Segment 3-> Contains fields related to Hierarchy definition that is child parent relationships



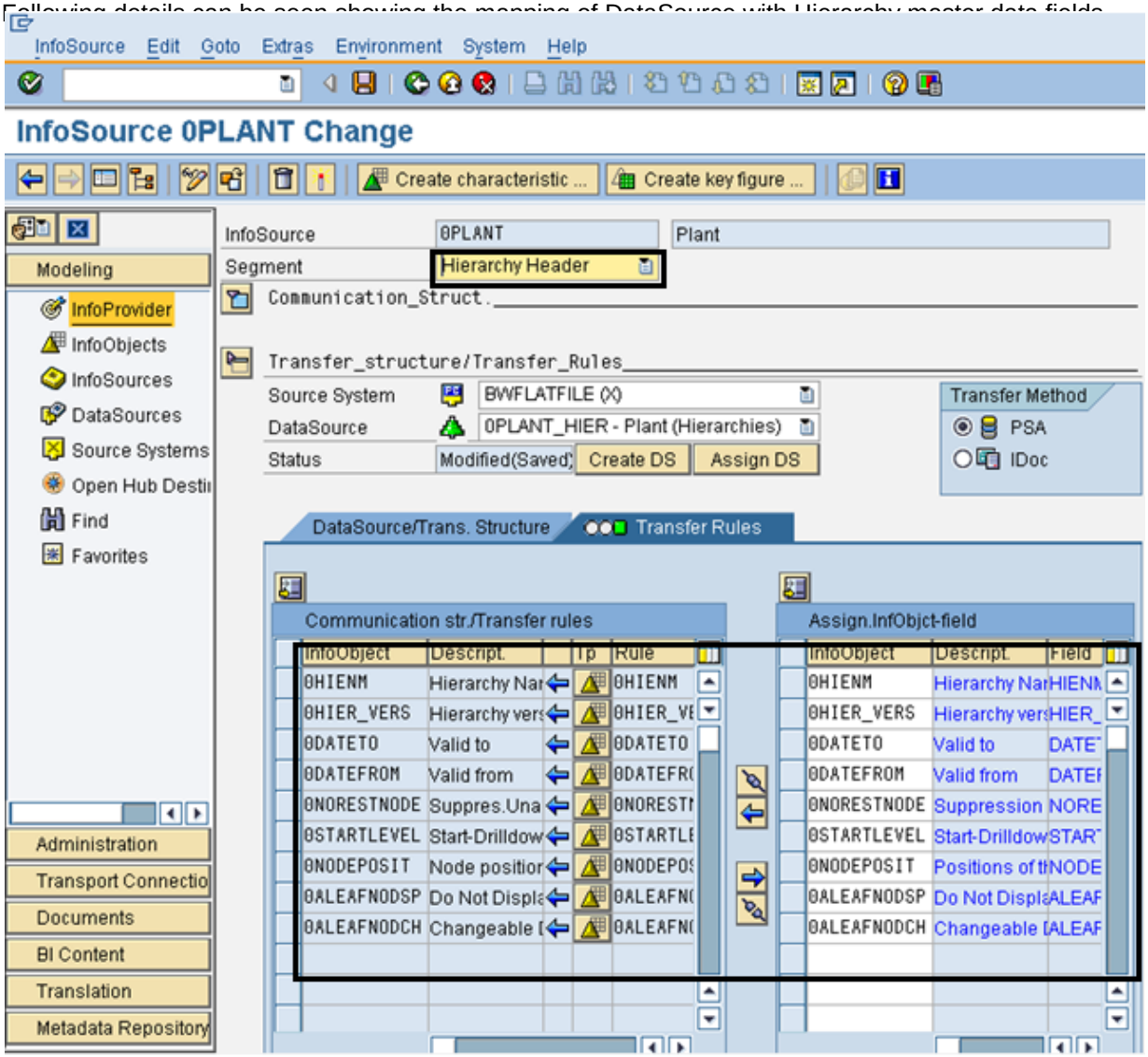
Segment 4 -> Contains fields related to Hierarchy Nodes text

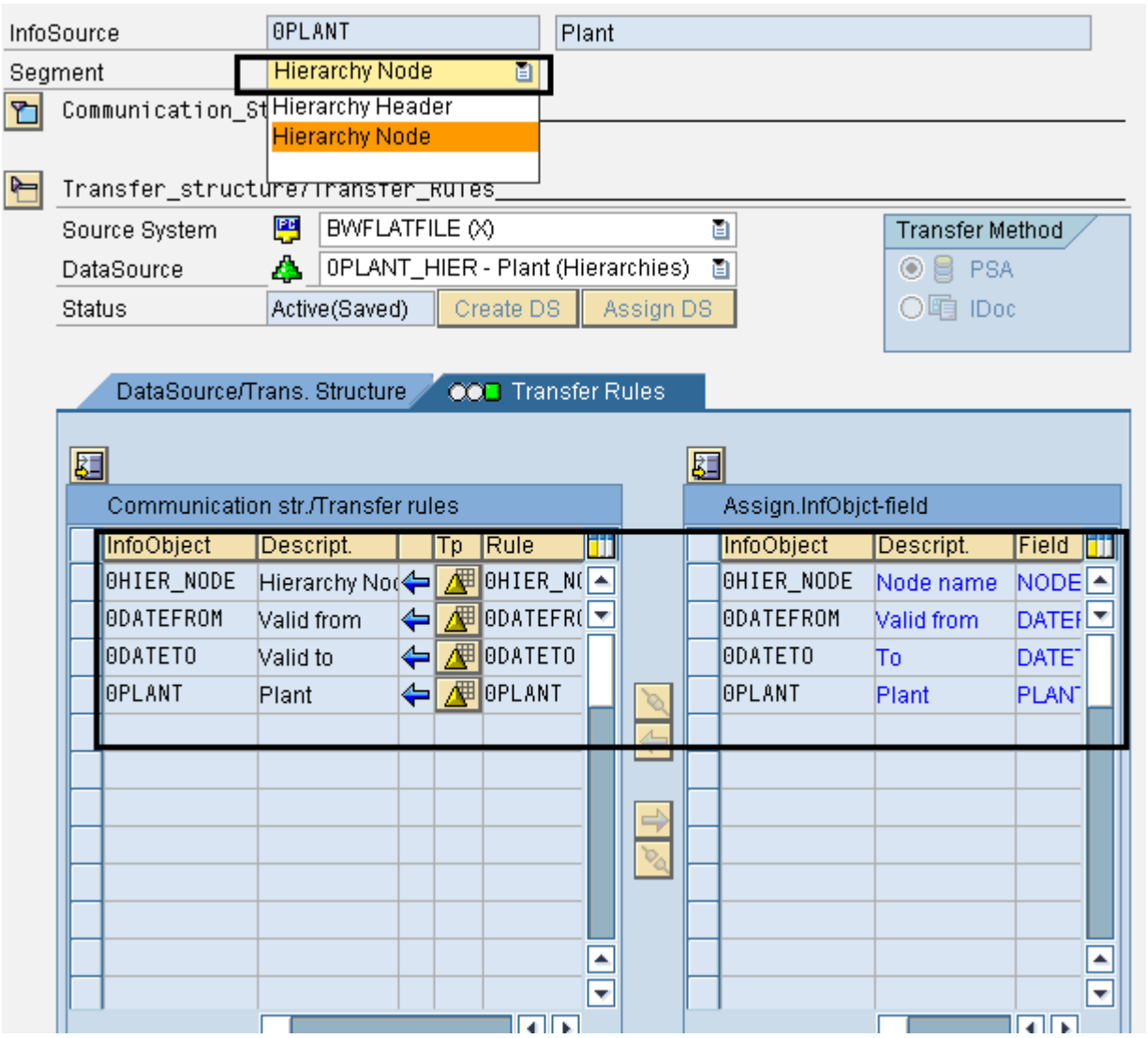


4 When you double click on transfer rules

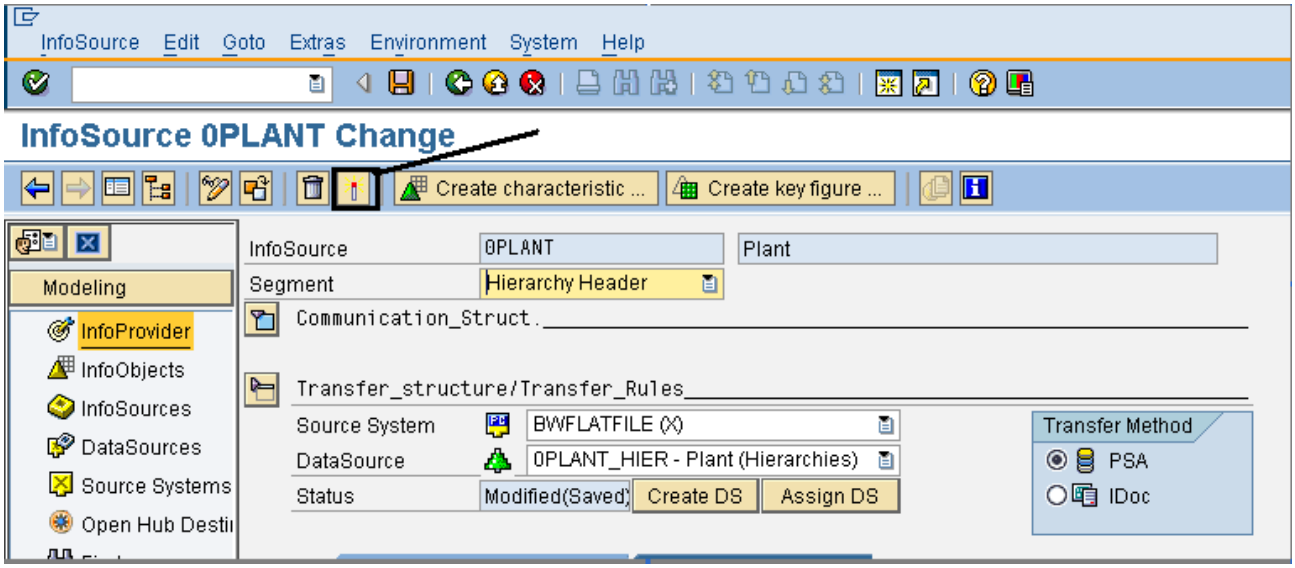


Following details can be seen showing the mapping of DataSource with Hierarchy master data fields



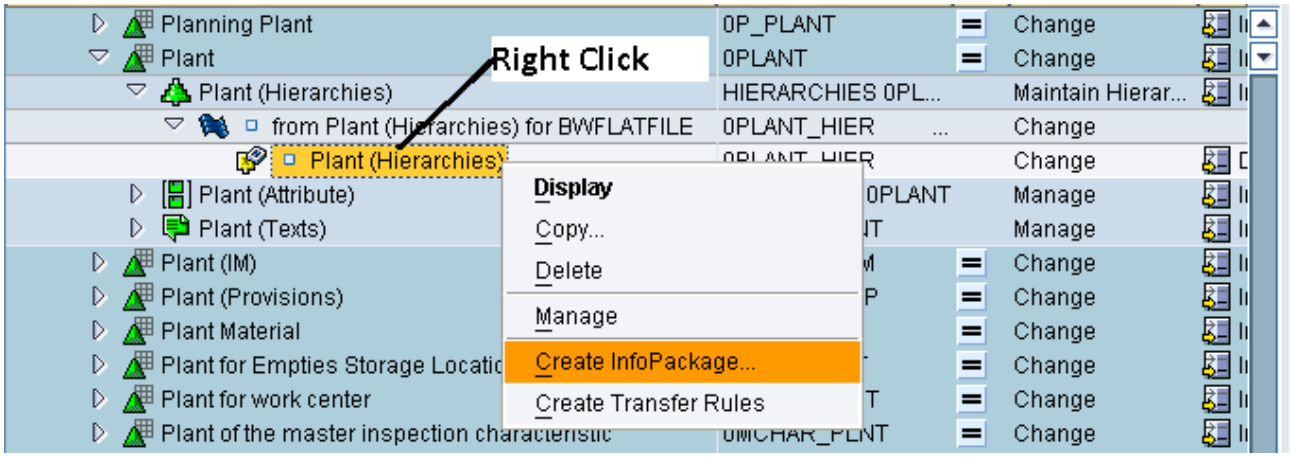


5 Activate the transfer rules as shown below

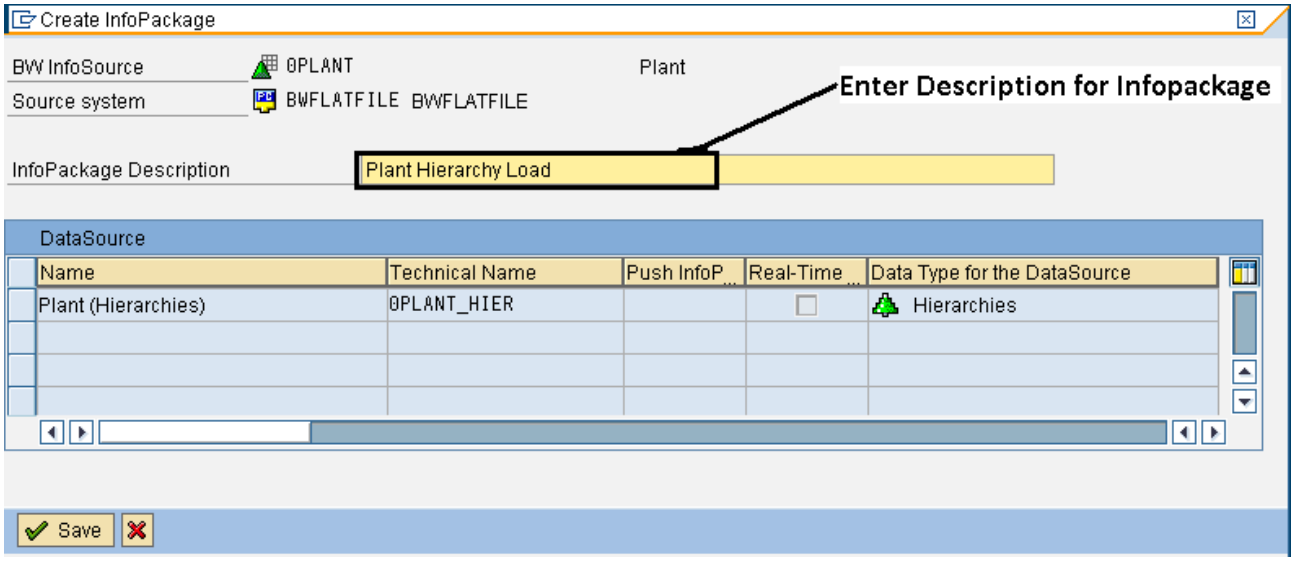


Create Info Package for data loading

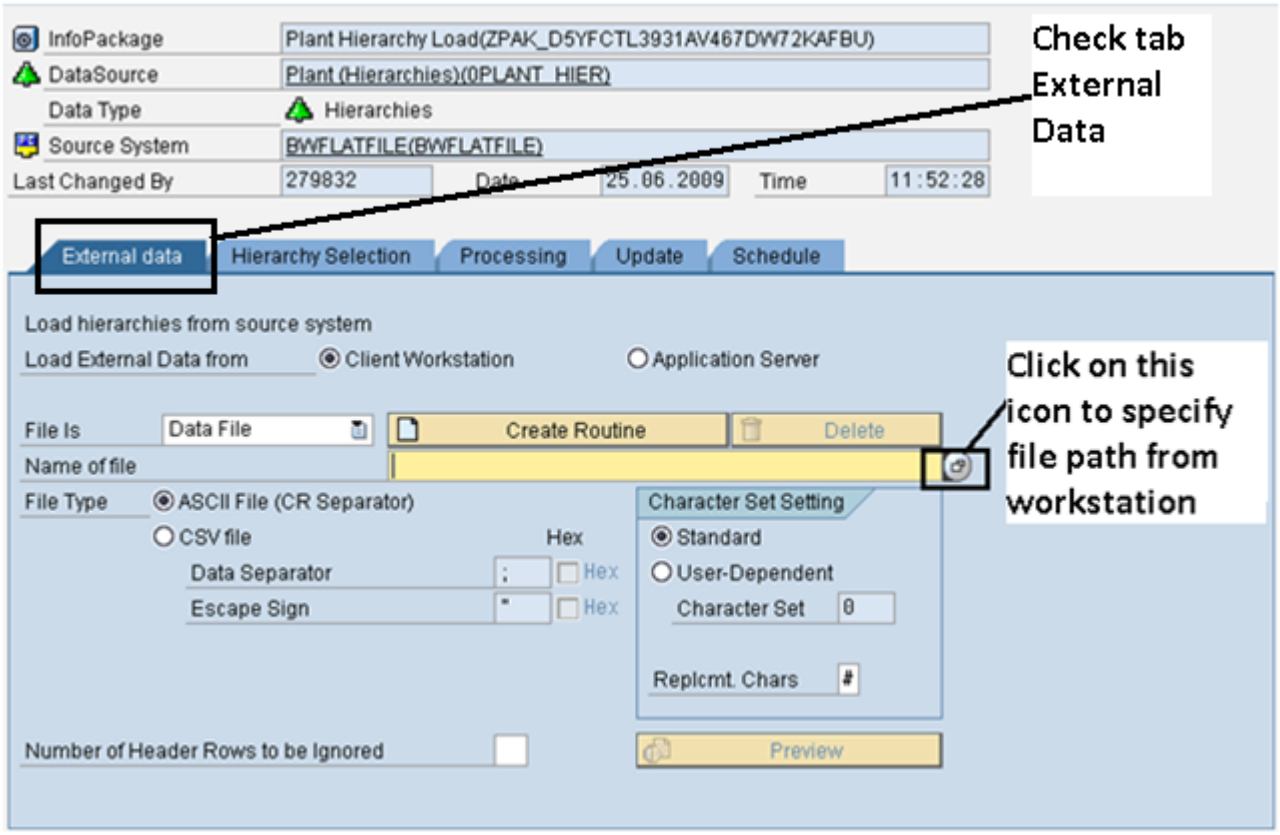
1 Right click on Data Source 0PLANT_HIER and choose Create Info Package



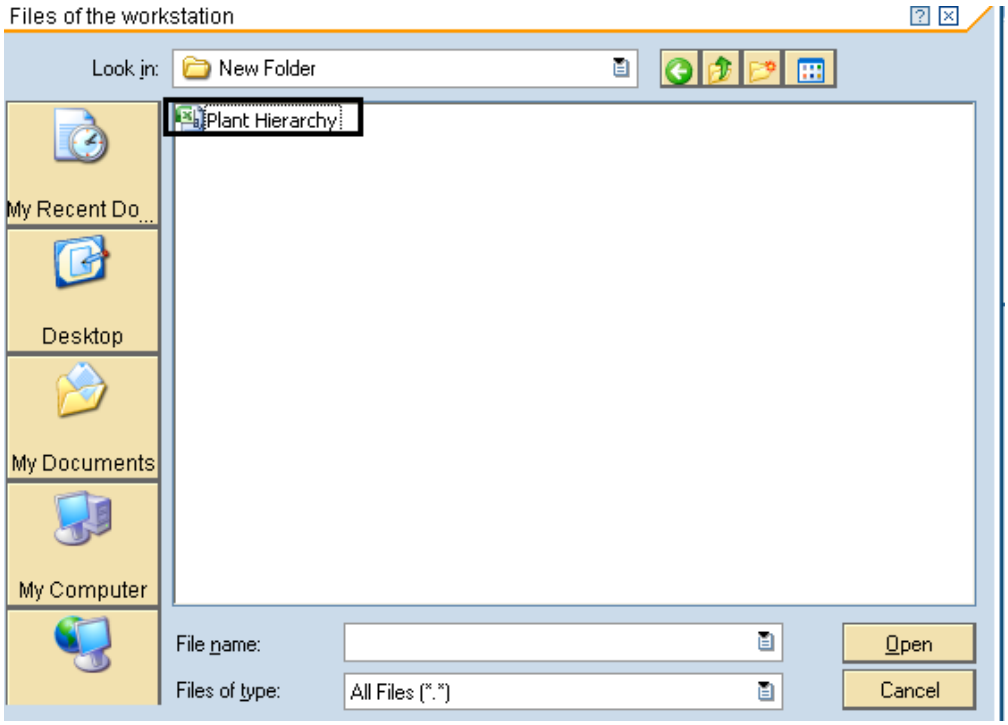
2 Provide description for the Info Package



3 Go to Tab External Data and specify the path for flat file which is stored on workstation (local machine).

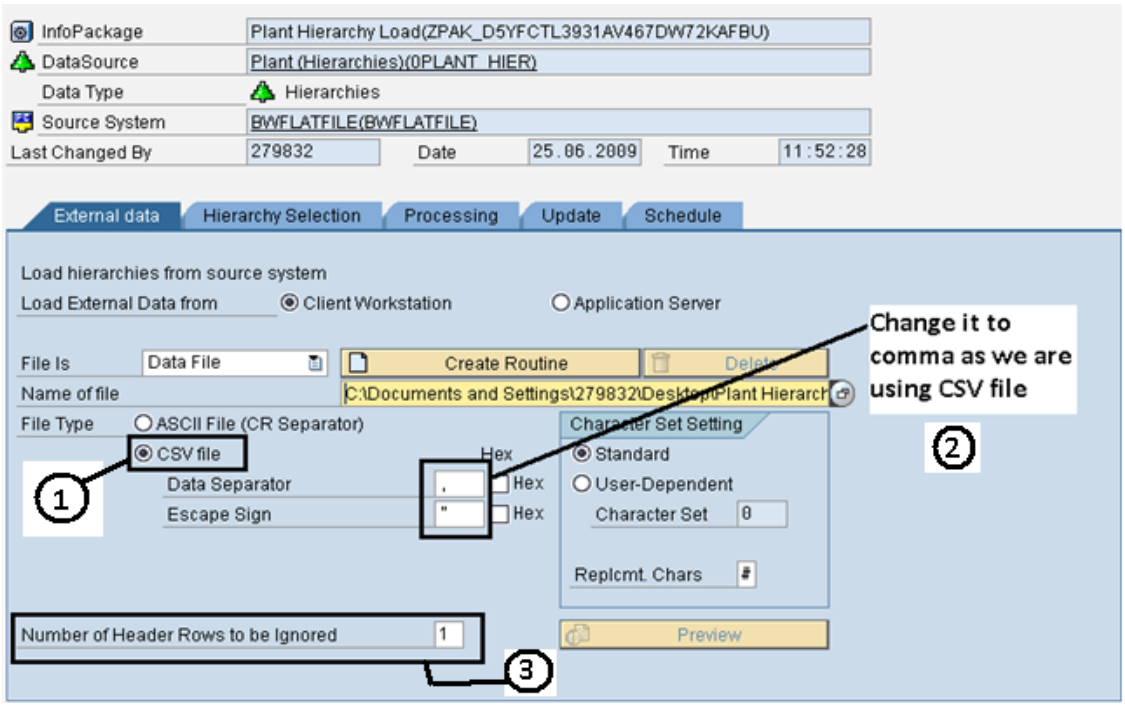


This will navigate you to the browser to specify the file to be loaded. Here, select the file that you have created for loading.



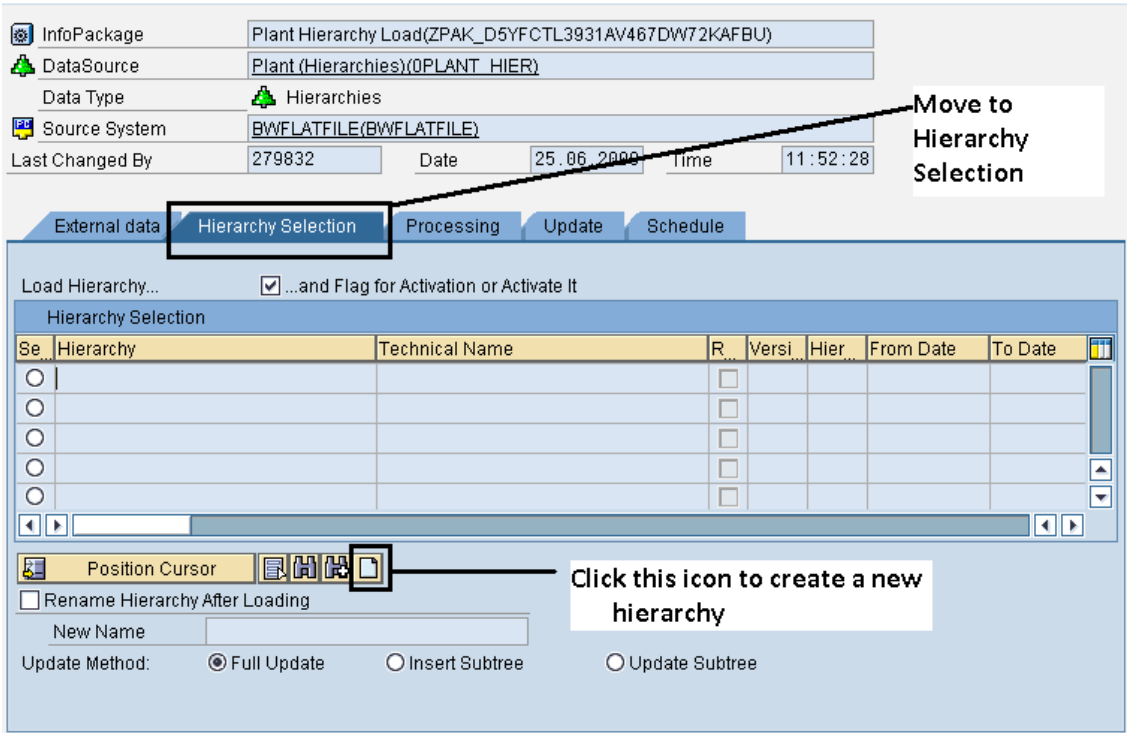
4 On the same tab (External Data)

- Select File Type as CSV File
- Change the Data Separator from " ; " (semi colon) to " , " (comma) as we are using CSV i.e. Comma Delimited file.
- Mention the number of header lines to be ignored as 1 as we would be providing headings to the columns in CSV file. So that row needs to be ignored.

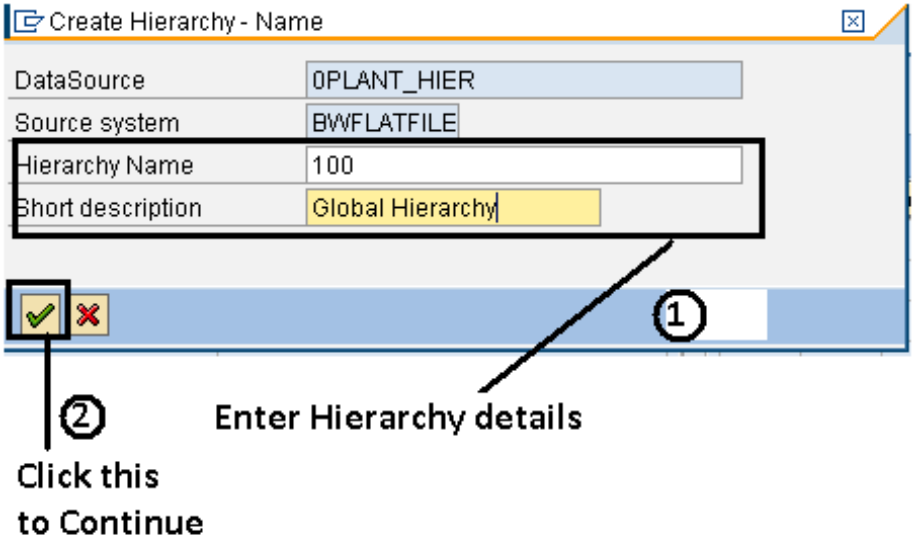


5 Navigate to Hierarchy Selection Tab of Info Package

Here click on create new hierarchy icon as shown below.



6 System will pop up a window; here you will need to specify the Hierarchy name you are planning to upload and description for that hierarchy.



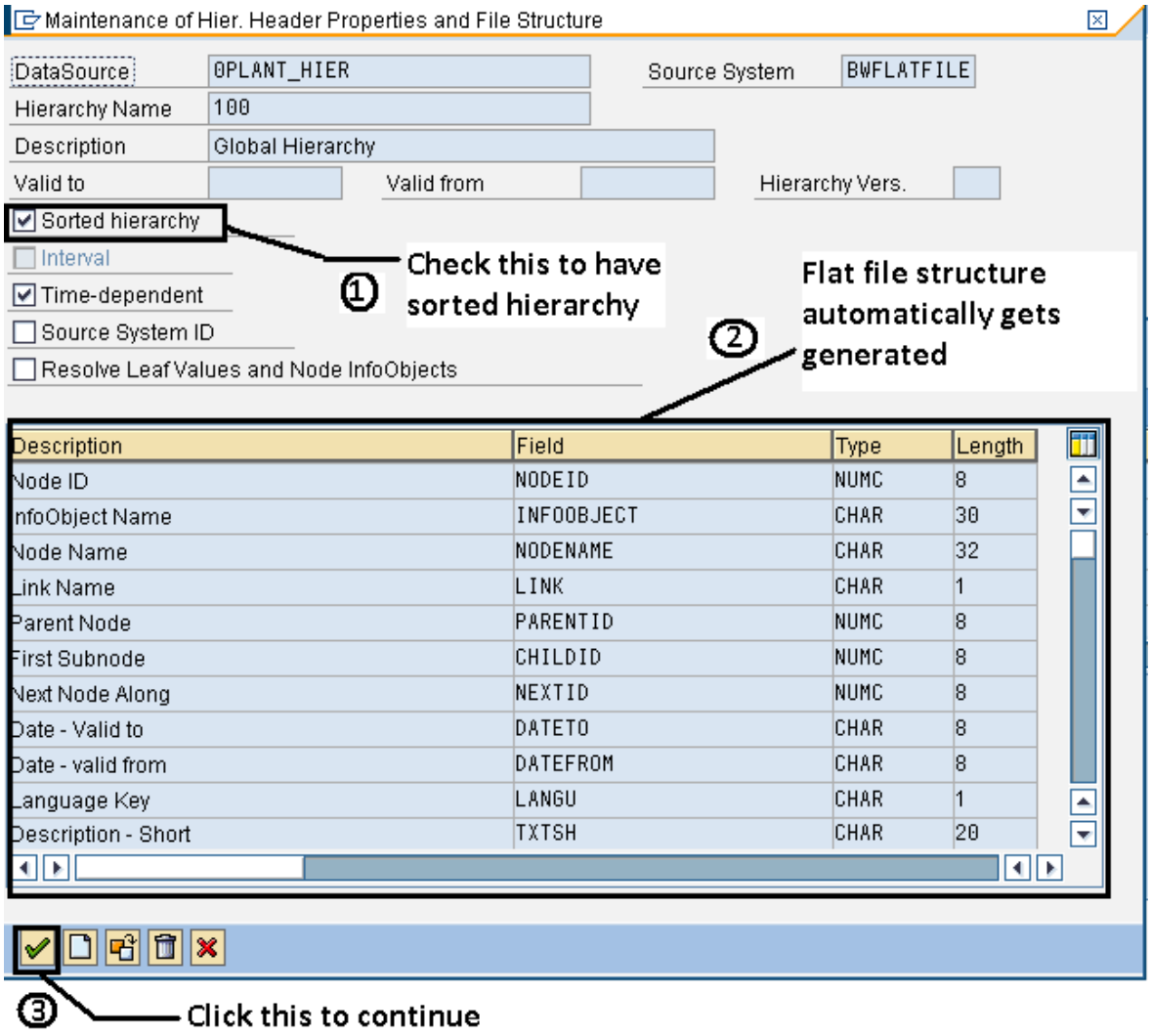
This will take you to the following window here, you will have to specify whether the hierarchy is sorted hierarchy or not.

7 Set this indicator to define the nodes of a hierarchy in a sequence.

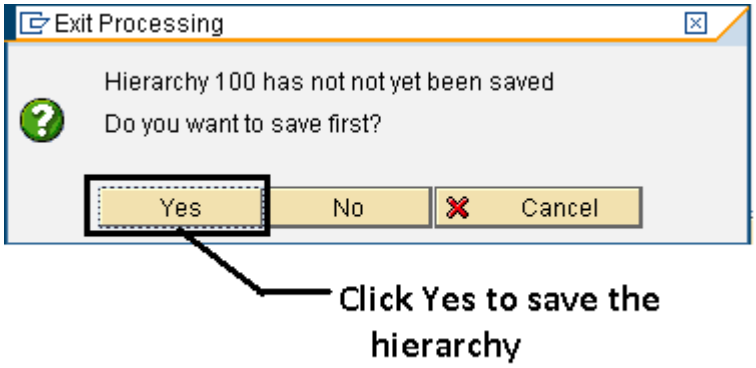
In this case, for every node there is a defined first subordinated node (CHILDID).

To this node there are further subsequent nodes. These are found on a level (NEXTID).

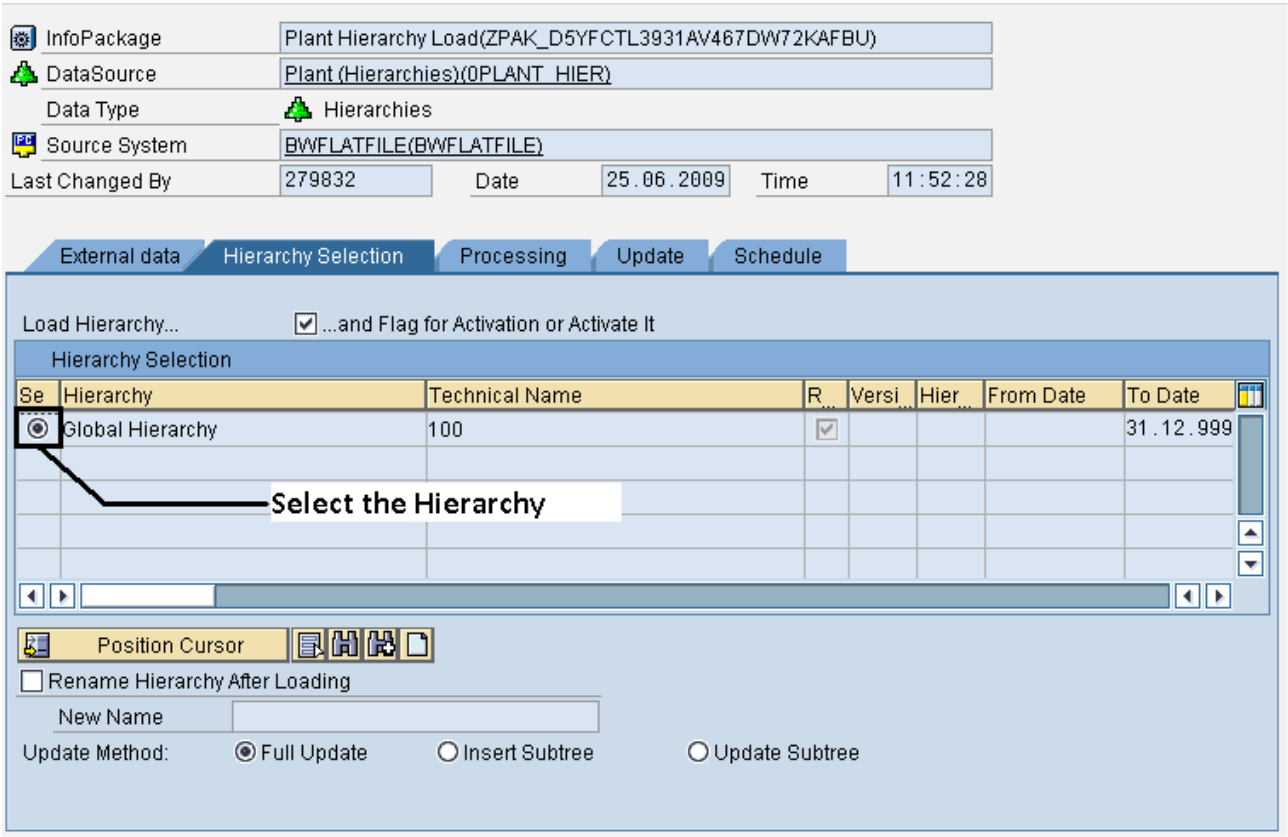
With set indicators a structure is formed that contains these fields (CHILDID, NEXTID).



Note: The listing of fields in the above screenshot shows the flat file structure to be uploaded.

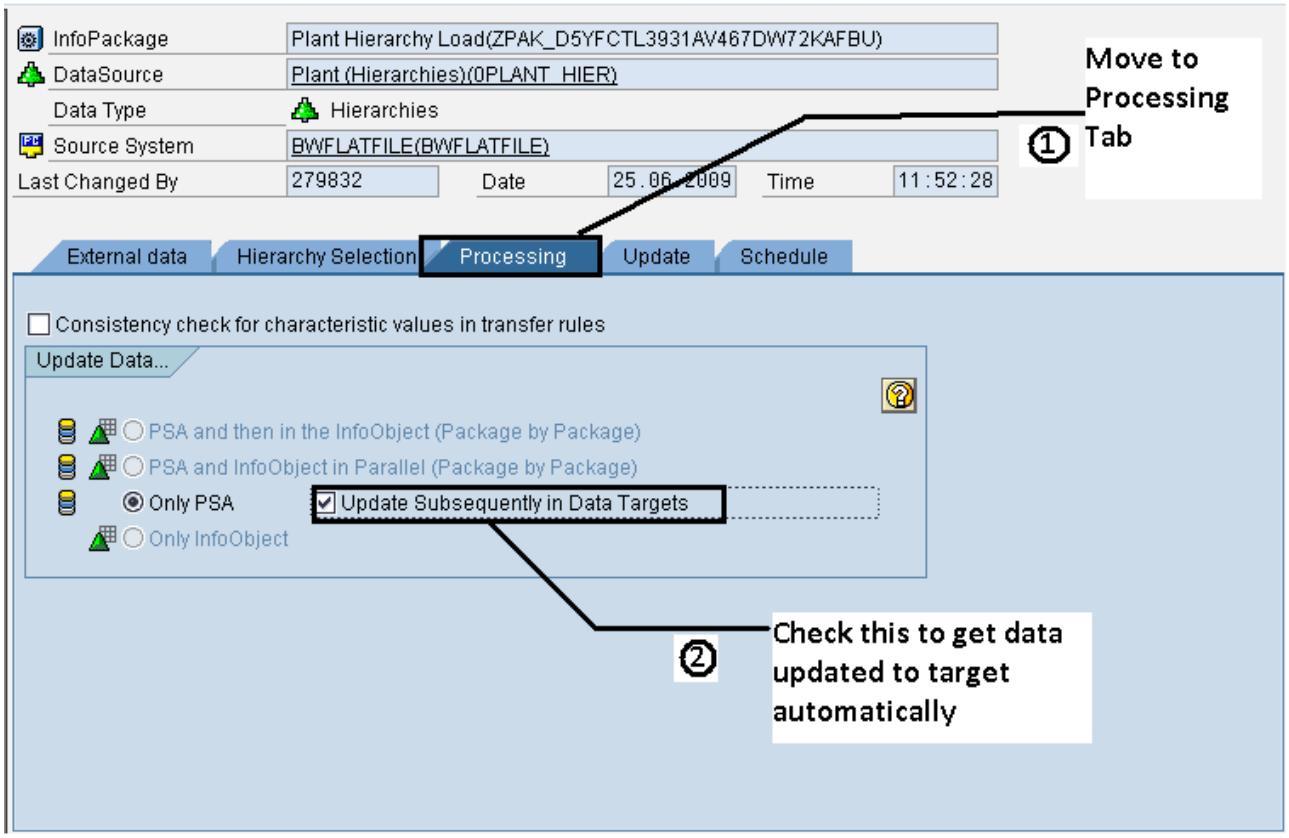


8 After creating the Hierarchy to be loaded please select it on the Hierarchy Selection tab as shown below.

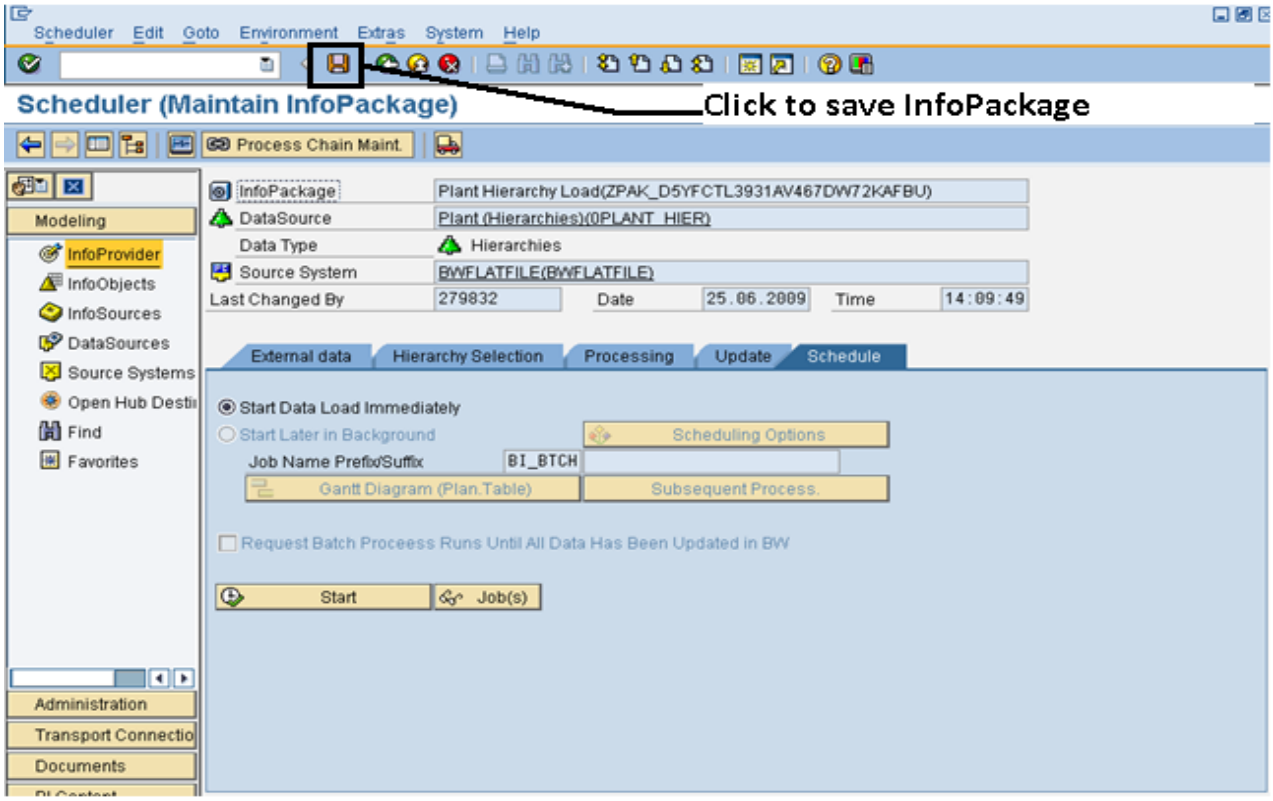


Move to Processing Tab.

9 Here you will need to check “Update Subsequently in Data Targets” so that data will get updated directly to the Info Object 0PLANT



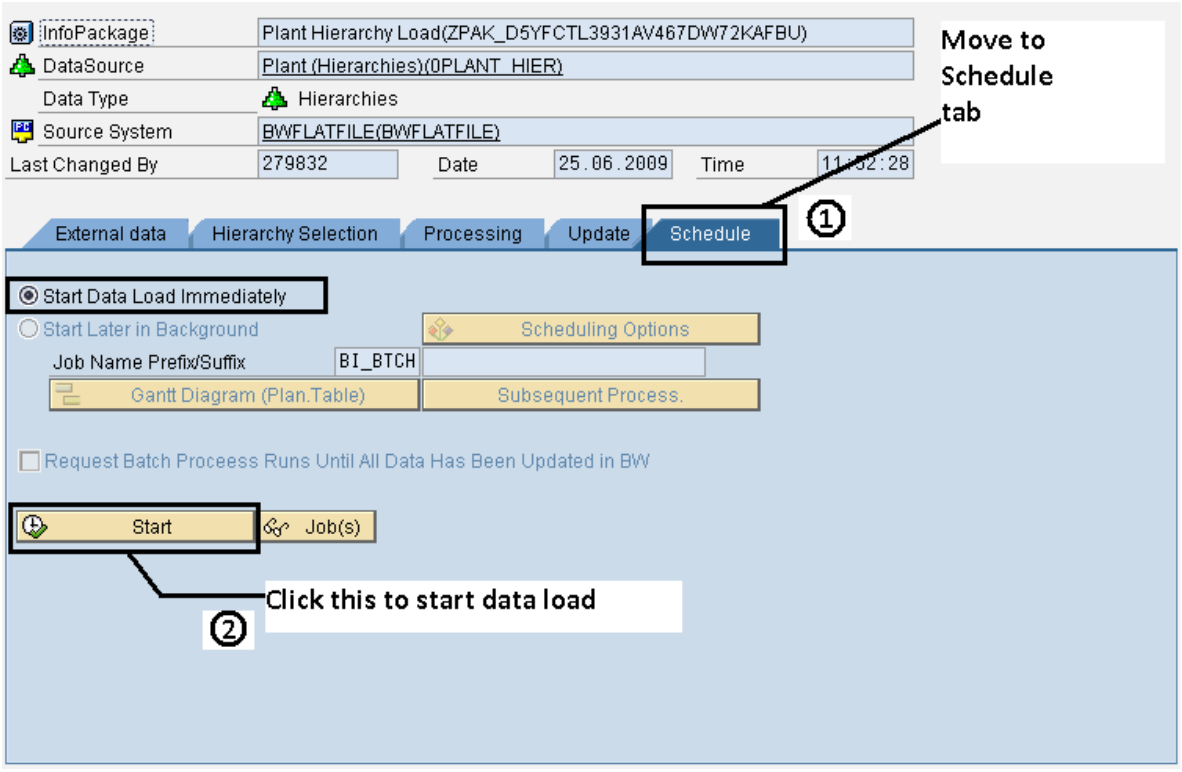
10 Save the Info Package that you have created.



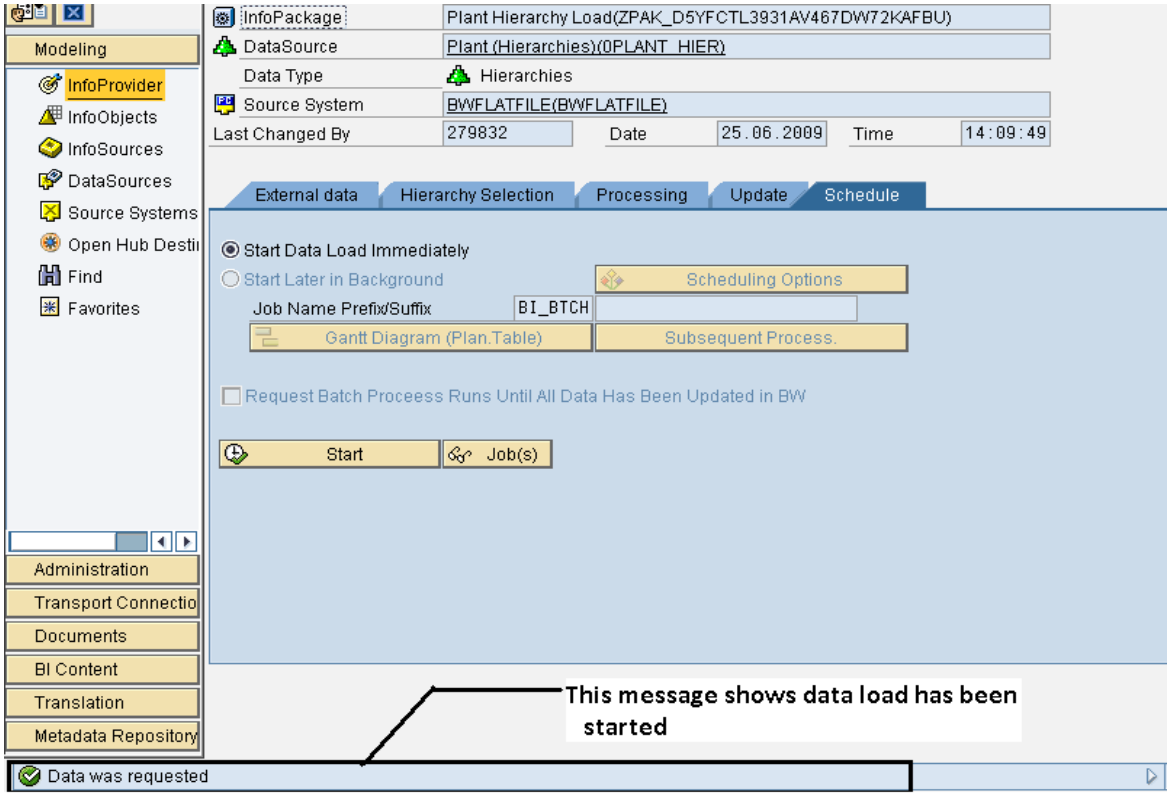
Hierarchy Data Loading

Navigate to Schedule Tab

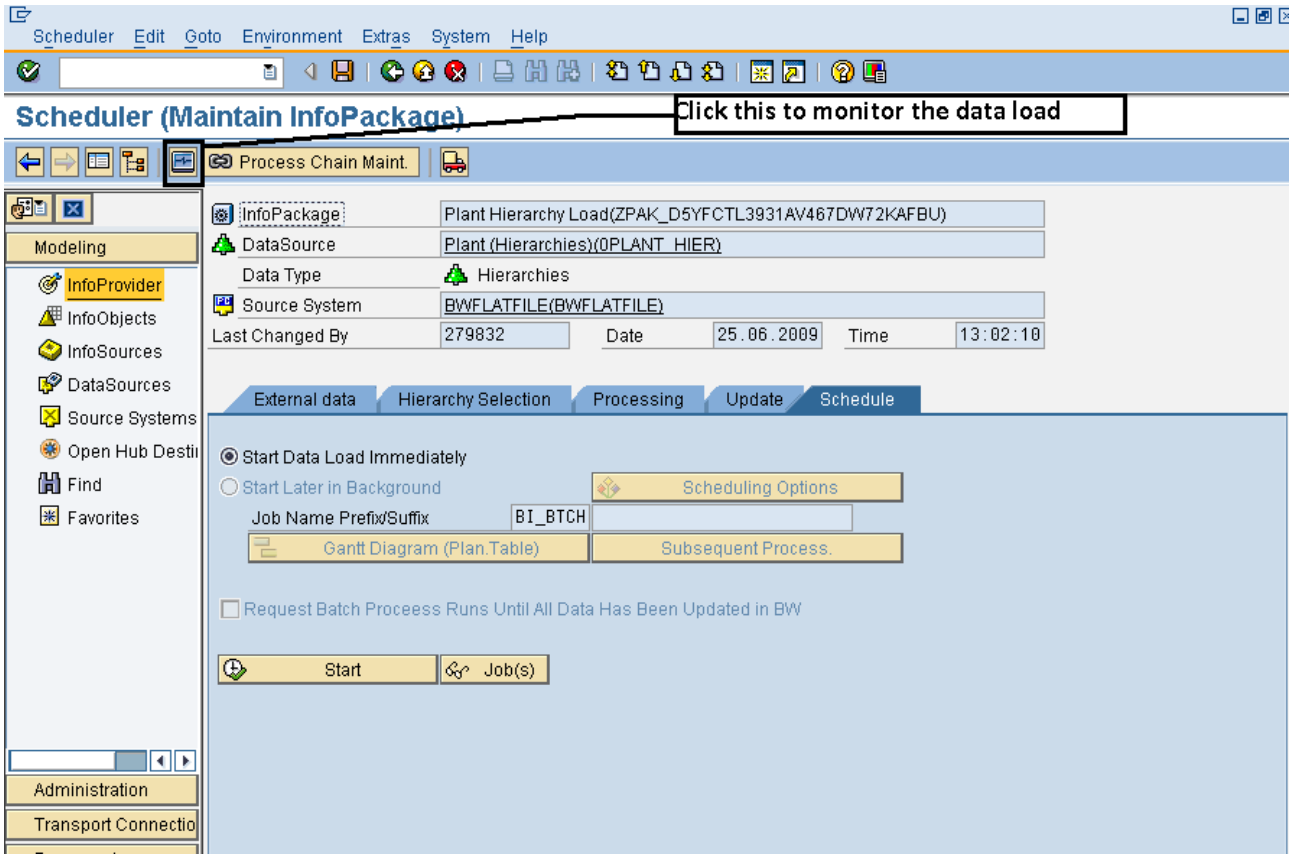
1 Here, select start Data load immediately in order to load hierarchy manually to the 0PLANT.



Once the system starts data loading you will receive the following message



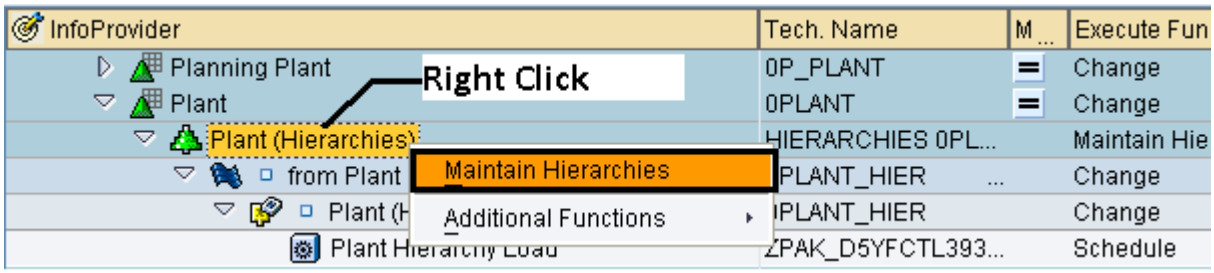
2 You can monitor the data load by clicking on following icon.



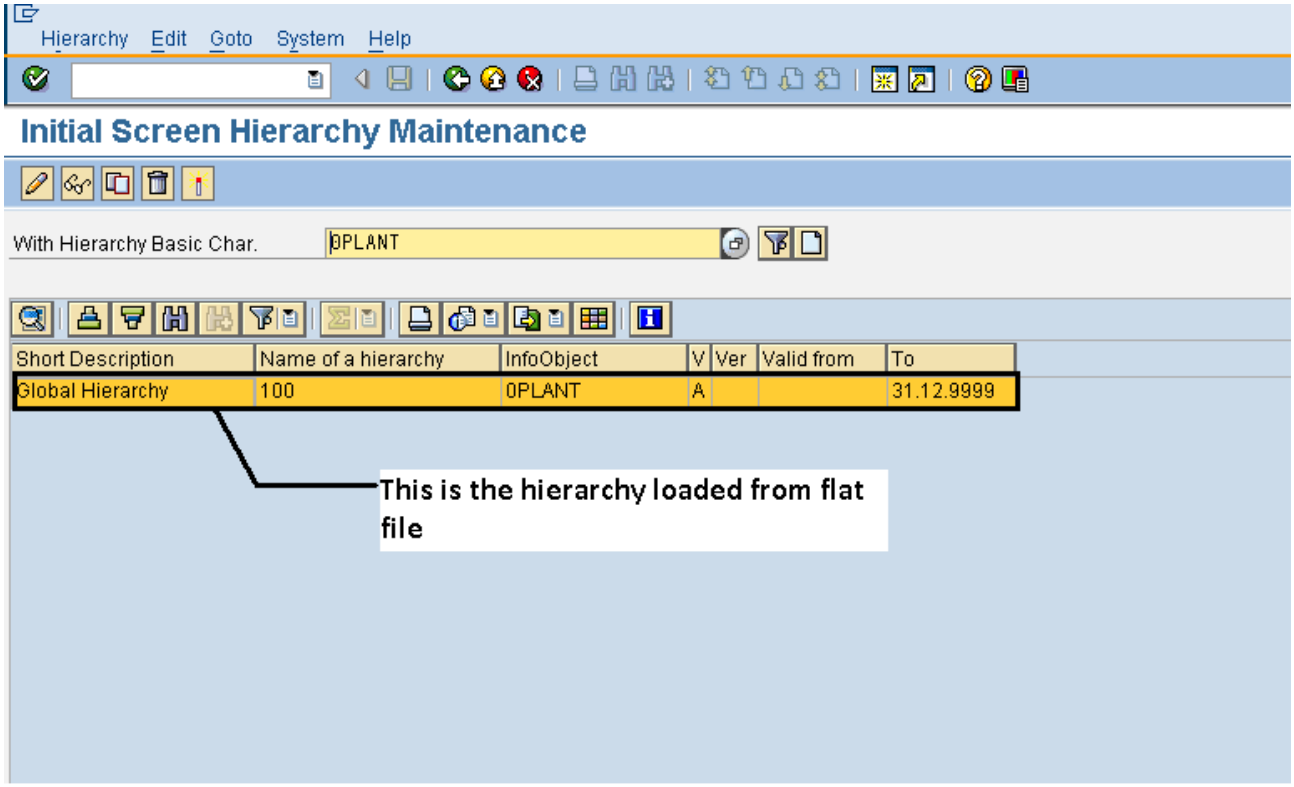
Viewing Uploaded Hierarchy

Once the hierarchy gets loaded successfully you can view it as shown below:

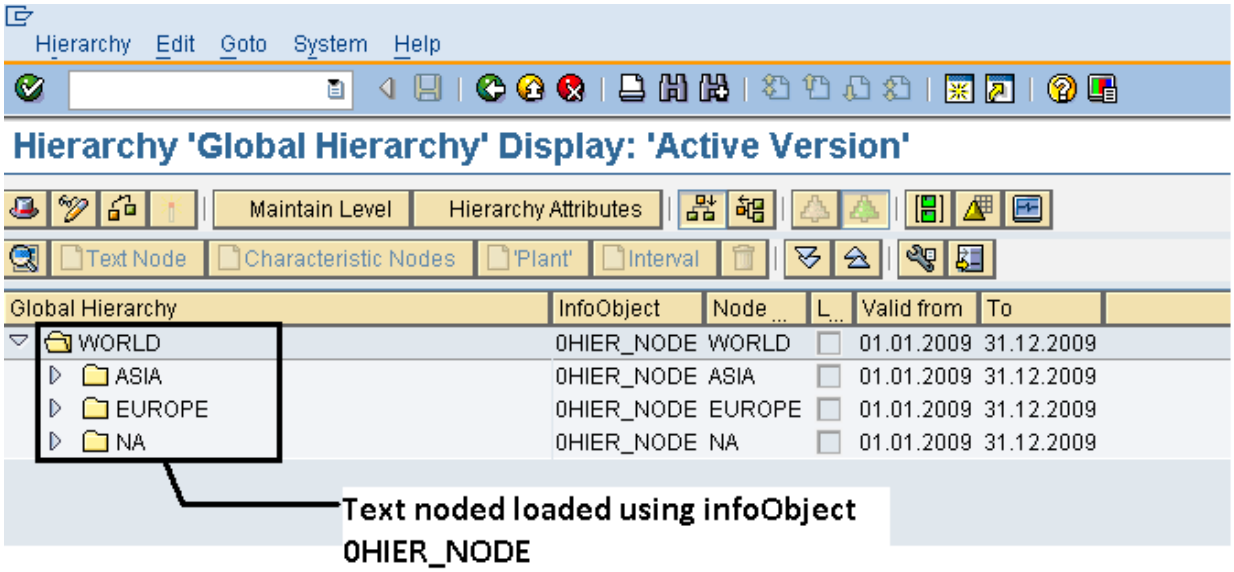
1 Right click on the Plant (Hierarchies) node and select Maintain Hierarchies



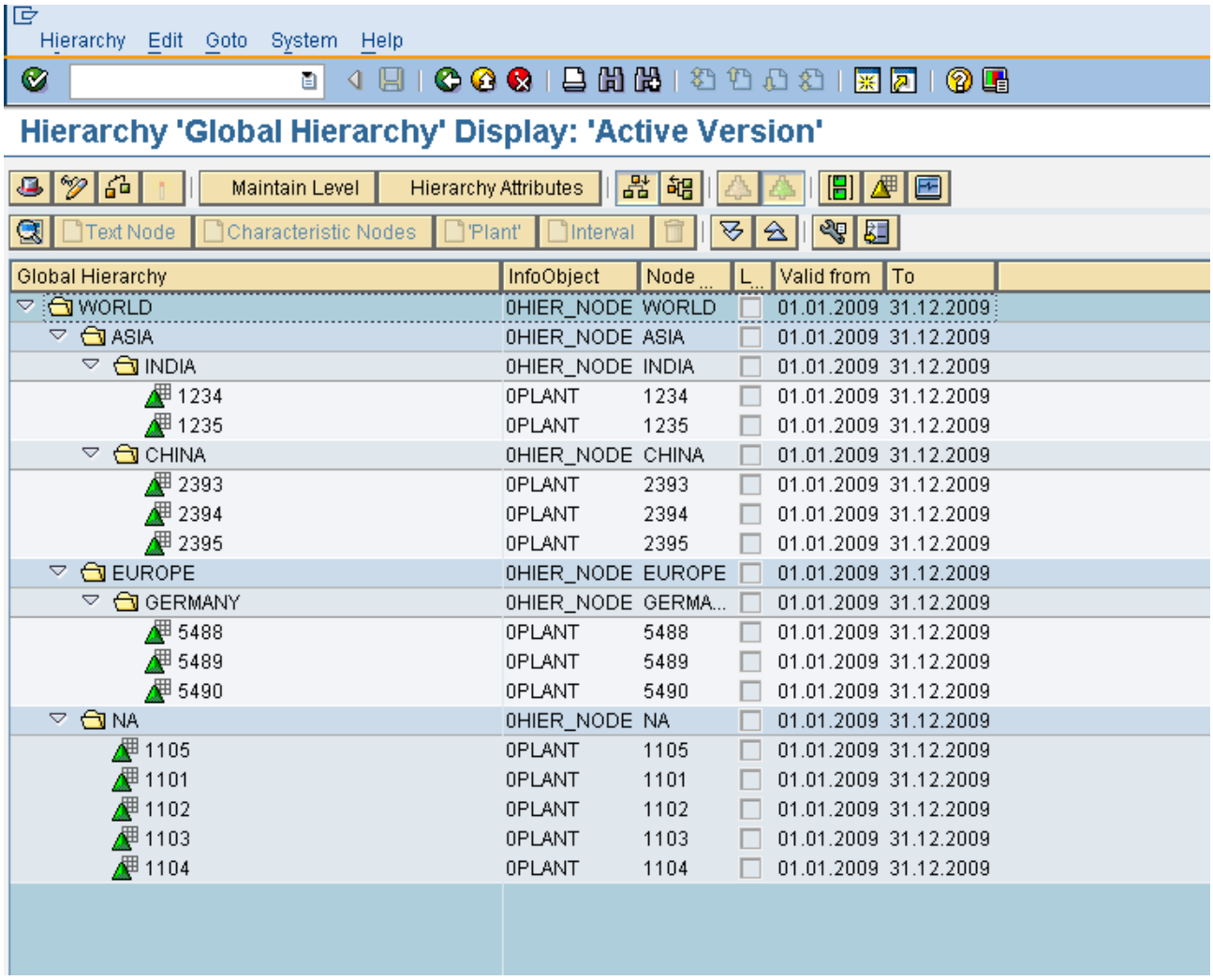
This will take you to the following screen



Double click on the hierarchy name to display it. It will show hierarchy as follows



Further drill down will show you the complete hierarchy that got loaded as shown below.



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