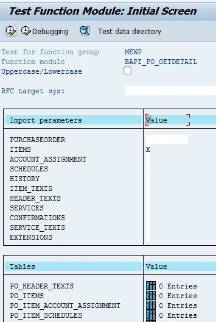
**Service 1: Expand Entity**

<https://help.sap.com/saphelp_gateway20sp08/helpdata/en/ca/c683e803494b77a2e1290b987556e2/content.htm>

**Requirement**

Considering a basic scenario where I am using  BAPI\_PO\_GETDETAIL which has multiple output tables and input is PO number

[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499505/bapipo.JPG)

Now we shall start with SAP Gateway

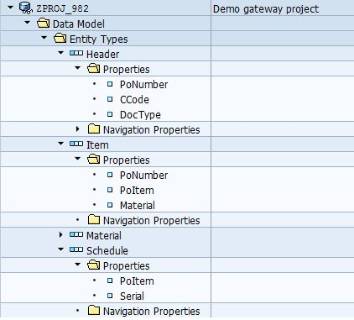
Create Project in SEGW

Create three entity types and Entity Sets with the properties in screen shot

Entity Type-1- Header

Entity Type-2- Item

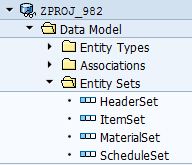
Entity Type-3- Schedule

[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499623/po1.JPG)

Entity Set-1- HeaderSet

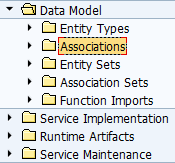
Entity Set-2- ItemSet

Entity Set-3- ScheduleSet

[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499624/po2.JPG)

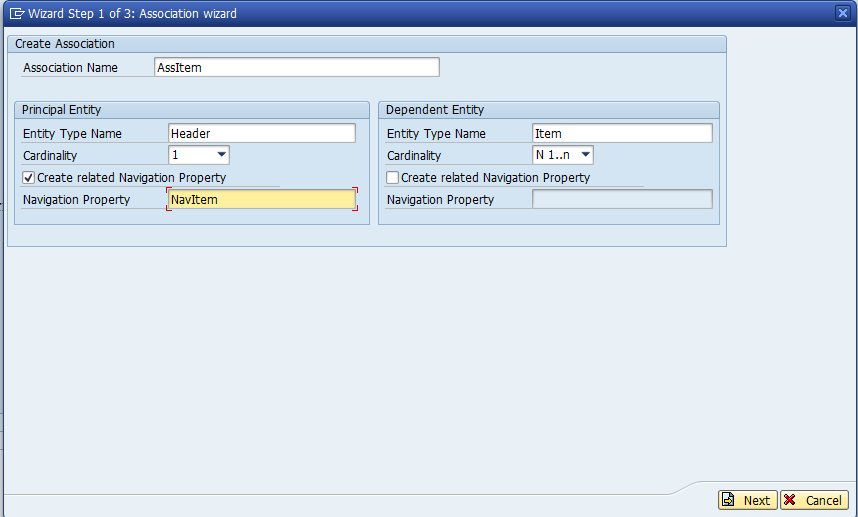
Create Association:

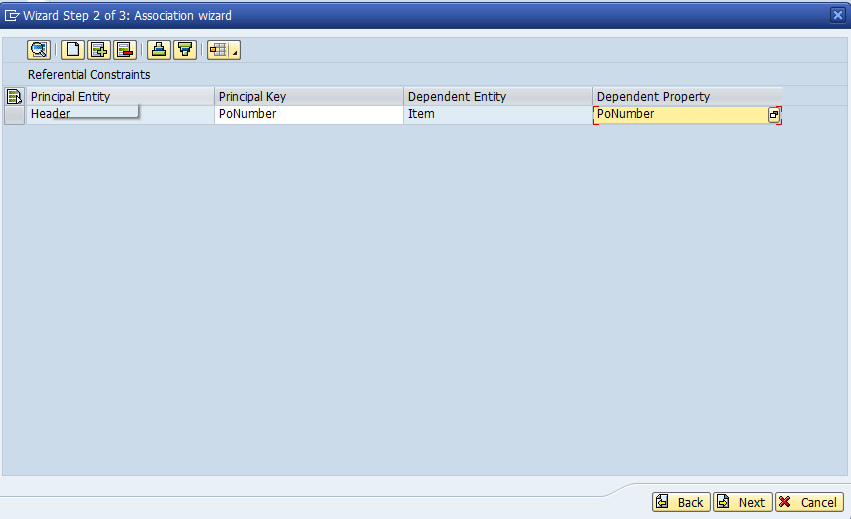
Right click on association -> Create.



Enter the association name and fill in principle and dependent entity properties.

Check the check box ‘Create relation navigation property under principal entity’ and enter the navigation property name.

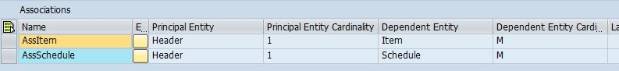


Enter the relation between two entities( Note that this is not mandatory).  


Similarly create AssSchedule without key mapping as those two entities don’t have keys (Don’t forget to enter navigation property unders header as this is important for the principal entity to navigate to dependent entity).

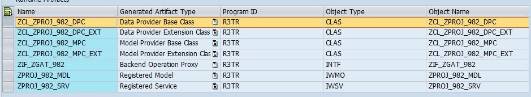
Association-1 -  AssItem (With key fields mapping)

Association-2 -  AssSchedule (Without key fields mapping)

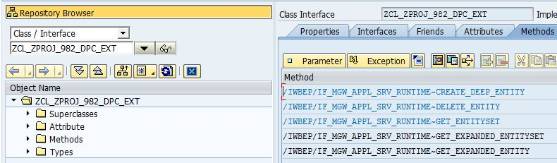
[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499637/po3.JPG)

Let’s generate runtime artifacts. Click on generate runtime objects button. It will display pop-up. Keep the default class names as-is and click on enter button.

Once generation is successful, you will get 4 classes. 2 for Data provider and 2 for Model provider.

[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499639/po5.JPG)

We have to Redefine the method/IWBEP/IF\_MGW\_APPL\_SRV\_RUNTIME~GET\_EXPANDED\_ENTITYSET

**[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499664/po6.JPG)**

Code Snippet

METHOD /iwbep/if\_mgw\_appl\_srv\_runtime~get\_expanded\_entityset.

\*-------------------------------------------------------------------------\*

\*             Deep Structure

\*-------------------------------------------------------------------------\*

   DATA:  BEGIN OF ls\_order\_items.

   INCLUDE       TYPE zcl\_zproj\_982\_mpc=>ts\_header.

   DATA: navitem       TYPE STANDARD TABLE OF zcl\_zproj\_982\_mpc=>ts\_item WITH DEFAULT KEY.

   DATA: navschedule   TYPE STANDARD TABLE OF zcl\_zproj\_982\_mpc=>ts\_schedule WITH DEFAULT KEY,

        END OF ls\_order\_items,

        ls\_item1       TYPE zcl\_zproj\_982\_mpc=>ts\_item,

        ls\_schedle1    TYPE zcl\_zproj\_982\_mpc=>ts\_schedule.

\*-------------------------------------------------------------------------\*

\*             Data Declarations

\*-------------------------------------------------------------------------\*

   DATA :   ls\_item                    TYPE zcl\_zproj\_982\_mpc\_ext=>ts\_item,

            lt\_item                    TYPE TABLE OF zcl\_zproj\_982\_mpc\_ext=>ts\_item,

            ls\_sch                     TYPE zcl\_zproj\_982\_mpc\_ext=>ts\_schedule,

            lt\_sch                     TYPE TABLE OF zcl\_zproj\_982\_mpc\_ext=>ts\_schedule,

            ls\_header                  TYPE zcl\_zproj\_982\_mpc\_ext=>ty\_header,

            lthead                     TYPE STANDARD TABLE OF bapiekkol,

            lshead                     TYPE bapiekkol,

            lsitem                     TYPE bapiekpo,

            ltitem                     TYPE STANDARD TABLE OF bapiekpo,

            lv\_filter\_str              TYPE string,

            lt\_filter\_select\_options   TYPE /iwbep/t\_mgw\_select\_option,

            ls\_filter                  TYPE /iwbep/s\_mgw\_select\_option,

            ls\_filter\_range            TYPE /iwbep/s\_cod\_select\_option,

            ls\_expanded\_clause1        LIKE LINE OF           et\_expanded\_tech\_clauses,

            ls\_expanded\_clause2        LIKE LINE OF           et\_expanded\_tech\_clauses,

            lv\_ebeln                   TYPE ebeln,

**lt\_order\_items             LIKE TABLE OF ls\_order\_items,**

            ltsch                      TYPE STANDARD TABLE OF bapieket,

            lssch                      TYPE bapieket.

\*-------------------------------------------------------------------------\*

\*             Entity Set - HeaderSet

\*-------------------------------------------------------------------------\*

   CASE iv\_entity\_set\_name.

     WHEN 'HeaderSet'.

       LOOP AT it\_filter\_select\_options INTO ls\_filter.

         LOOP AT ls\_filter-select\_options INTO ls\_filter\_range.

           TRANSLATE ls\_filter-property TO UPPER CASE.

           CASE ls\_filter-property.

             WHEN 'PONUMBER'.

               lv\_ebeln = ls\_filter\_range-low.

             WHEN OTHERS.

               " Log message in the application log

               me->/iwbep/if\_sb\_dpc\_comm\_services~log\_message(

                 EXPORTING

                   iv\_msg\_type   = 'E'

                   iv\_msg\_id     = '/IWBEP/MC\_SB\_DPC\_ADM'

                   iv\_msg\_number = 020

                   iv\_msg\_v1     = ls\_filter-property ).

               " Raise Exception

               RAISE EXCEPTION TYPE /iwbep/cx\_mgw\_tech\_exception

                 EXPORTING

                   textid = /iwbep/cx\_mgw\_tech\_exception=>internal\_error.

           ENDCASE.

         ENDLOOP.

       ENDLOOP.

\*-------------------------------------------------------------------------\*

\*             Call Method-BAPI\_PO\_GETDETAIL

\*-------------------------------------------------------------------------\*

       CALL FUNCTION 'BAPI\_PO\_GETDETAIL'

         EXPORTING

           purchaseorder     = lv\_ebeln

           items             = 'X'

           schedules         = 'X'

         IMPORTING

           po\_header         = lshead

\*         PO\_ADDRESS        =

         TABLES

\*         PO\_HEADER\_TEXTS   =

           po\_items          = ltitem

           po\_item\_schedules = ltsch.

\*-------------------------------------------------------------------------\*

\*             Fill Header Values to Deep Structure

\*-------------------------------------------------------------------------\*

       ls\_order\_items-ponumber = lshead-po\_number.

       ls\_order\_items-ccode = lshead-co\_code.

       ls\_order\_items-doctype = lshead-doc\_type.

\*-------------------------------------------------------------------------\*

\*             Fill Item values to Deep Structure

\*-------------------------------------------------------------------------\*

       LOOP AT ltitem INTO lsitem.

         CLEAR ls\_item1.

         ls\_item1-ponumber = lsitem-po\_number.

         CALL FUNCTION 'CONVERSION\_EXIT\_ALPHA\_OUTPUT'

           EXPORTING

             input  = ls\_item1-ponumber

           IMPORTING

             output = ls\_item1-ponumber.

         ls\_item1-poitem = lsitem-po\_item.

         ls\_item1-material = lsitem-material.

         APPEND ls\_item1 TO ls\_order\_items-navitem.

       ENDLOOP.

\*-------------------------------------------------------------------------\*

\*             Fill Schedule values to Deep Strcture

\*-------------------------------------------------------------------------\*

       LOOP AT ltsch INTO lssch.

         CLEAR ls\_item1.

\*        ls\_item1-ponumber = lsitem-po\_number.

         ls\_schedle1-poitem = lssch-po\_item.

         ls\_schedle1-serial = lssch-serial\_no.

         APPEND ls\_schedle1 TO ls\_order\_items-navschedule.

       ENDLOOP.

\*-------------------------------------------------------------------------\*

\*             Assign the Navigation Proprties name to Expanded Tech clauses

\*-------------------------------------------------------------------------\*

       ls\_expanded\_clause1  = 'NAVITEM'.

       ls\_expanded\_clause2  = 'NAVSCHEDULE'.

       APPEND ls\_expanded\_clause1 TO et\_expanded\_tech\_clauses.

       APPEND ls\_expanded\_clause2 TO et\_expanded\_tech\_clauses.

\*-------------------------------------------------------------------------\*

\*             Append Deep Strcture Values to Final Internal Table

\*-------------------------------------------------------------------------\*

       APPEND ls\_order\_items TO lt\_order\_items.

\*-------------------------------------------------------------------------\*

\*             Send back Response to Consumer

\*-------------------------------------------------------------------------\*

       copy\_data\_to\_ref(

         EXPORTING

           is\_data = lt\_order\_items

         CHANGING

           cr\_data = er\_entityset ).

     WHEN OTHERS.

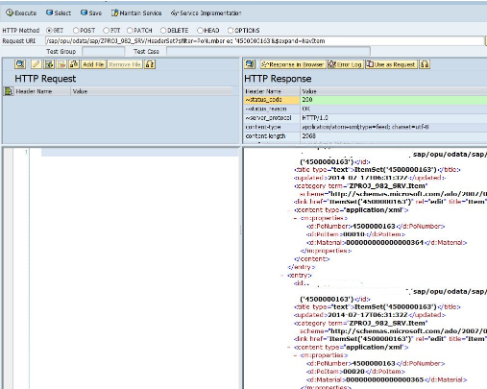
   ENDCASE.

ENDMETHOD.

Coding Part Done....Let’s move to Testing http://scn.sap.com/1273/images/emoticons/happy.gif

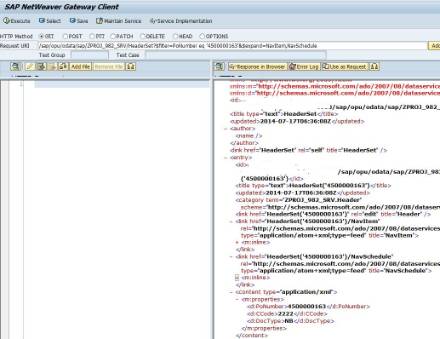
Test Case 1:

URI : /sap/opu/odata/sap/ZPROJ\_982\_SRV/HeaderSet?$filter=PoNumber eq '4500000163'&$expand=NavItem

**[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499665/po9.png)**

Test Case 2:

URI : /sap/opu/odata/sap/ZPROJ\_982\_SRV/HeaderSet?$filter=PoNumber eq '4500000163'&$expand=NavItem,NavSchedule

[](http://scn.sap.com/servlet/JiveServlet/showImage/38-110765-499682/po8.JPG)

For Expand Entity:-

From the modeling point of view there won’t be any changes

but in DPC we need to Redefine the method /iwbep/if\_mgw\_appl\_srv\_runtime~get\_expanded\_entity.

Also there would be a small change in Code, Like Below the change is get\_expanded\_entity is a single entity i.e. nothing but a single purchase order so you need to pass structure to Copy\_data\_to\_ref method ( ls\_order\_items).

\*-------------------------------------------------------------------------\*

\*             Deep Structure

\*-------------------------------------------------------------------------\*

   DATA:  BEGIN OF ls\_order\_items.

   INCLUDE       TYPE zcl\_zproj\_982\_mpc=>ts\_header.

   DATA: navitem       TYPE STANDARD TABLE OF zcl\_zproj\_982\_mpc=>ts\_item WITH DEFAULT KEY.

   DATA: navschedule   TYPE STANDARD TABLE OF zcl\_zproj\_982\_mpc=>ts\_schedule WITH DEFAULT KEY,

        END OF ls\_order\_items,

        ls\_item1       TYPE zcl\_zproj\_982\_mpc=>ts\_item,

        ls\_schedle1    TYPE zcl\_zproj\_982\_mpc=>ts\_schedule.

       copy\_data\_to\_ref(

         EXPORTING

           is\_data = **ls\_order\_items**

         CHANGING

           cr\_data = **er\_entity** ).