Technical Specification Form

SAP PRODUCTION GOODS ISSUE

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**Technical specification content**

1. Business Requirement
2. Development Tools
3. Development Objects

* DDIC Structure
* SEGW – OData Project.

1. Business API / OData API and Output Screen
2. **Business Requirement:**

Develop an OData POST API for Production Goods Issue, through which Business user can Perform the Goods issue against Production Order from External SAP application.

Business Logic mentioned in FS.  
**ORDERID : this field used in case of production order transfer posting**

**Run the BAPI: BAPI\_GOODSMVT\_CREATE**

**GOODSMVT\_HEADER = PSTNG\_DATE = “System date”**

**DOC\_DATE= “System Date”**

**GOODSMVT\_CODE = “03”**

**Tables:**

**GOODSMVT\_ITEM:**

**MATERIAL = "MATNR "**

**PLANT = "WERKS"**

**STGE\_LOC = " Fetch Issue storage location"**

**BATCH = " CHARG "**

**MOVE\_TYPE = "Constant= 261"**

**ENTRY\_QNT = " Fetch Transfer stock QTY "**

**ENTRY\_UOM = " Fetch Transfer stock UOM "**

**ORDERID = " PRODUCTION ORDER "**

**RESERV\_NO = "RESERVATION NO"**

**RES\_ITEM = " RESERVATION ITEM NO"**

**2.Development Tools :**

For development these are the following tool used :

* **OData Project**
* Created OData project with SEGW Tcode. Here I have used IMPORT from **DDIC structure** for Data modeling and Redefine the Creat Entity Method To Achieve our Business Requirement .
* For Service Registration used Tcode : /N/IWFND/MAINT\_SERVICE.
* To Check the final data at Gateway Client used Tcode :/N/IWFND/GW\_CLIENT.

**3.Development Objects :**

* **Function Module:**

BAPI Name: BAPI\_GOODSMVT\_CREATE

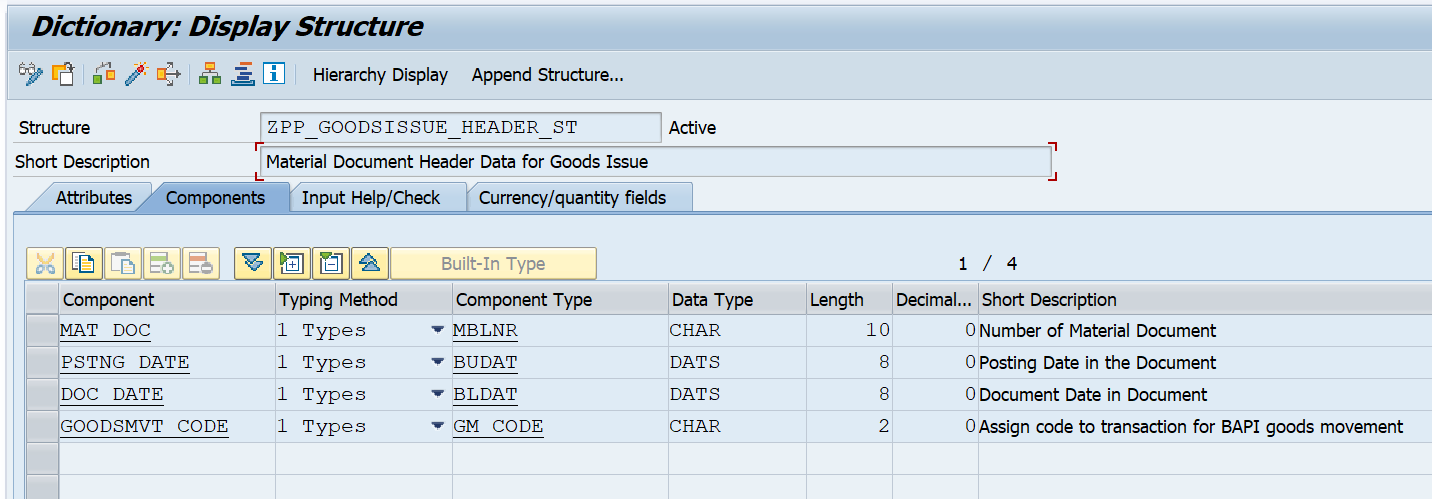
Description : Post Goods Movements with MB\_CREATE\_GOODS\_MOVEMENT

* **DDIC Structure**

**Header**

Name: ZPP\_GOODSISSUE\_HEADER\_ST

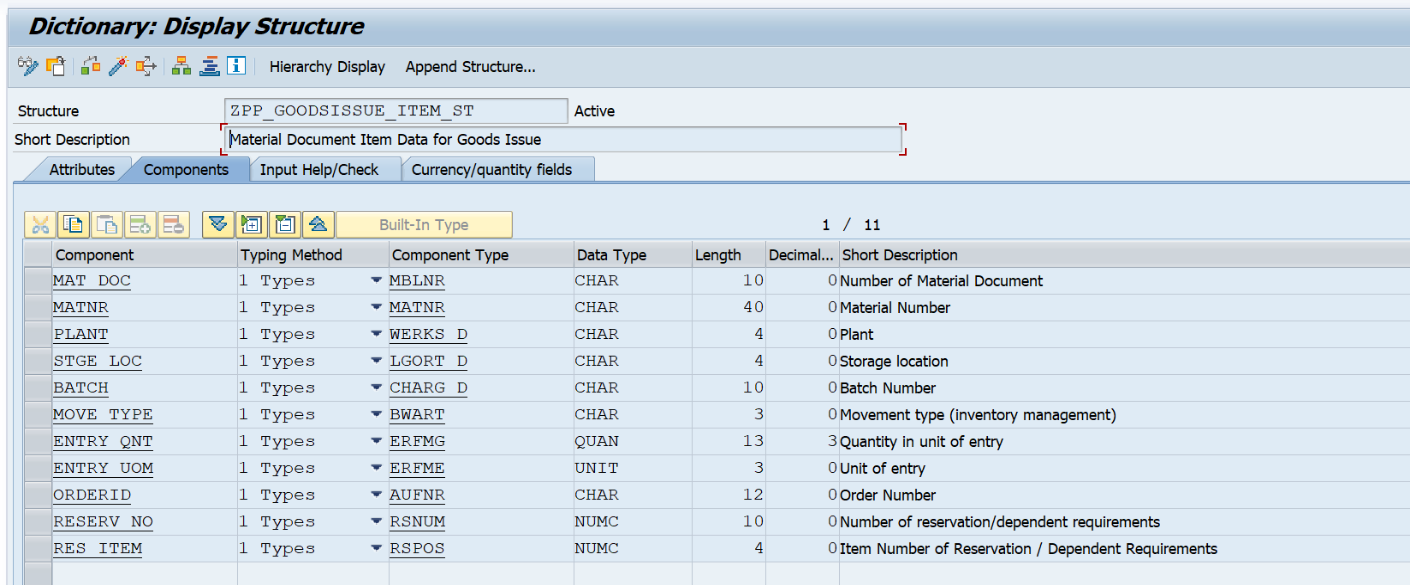
Description: Material Document Header Data for Goods Issue



**Item**

Name: ZPP\_GOODSISSUE\_ITEM\_ST

Description: Material Document Item Data for Goods Issue



* **SEGW – OData Project:**

**Project Name:** ZGW\_PP\_PRODUCTION\_GOODS\_ISSUE

**Project Description:** PP: SAP Production Goods Issue

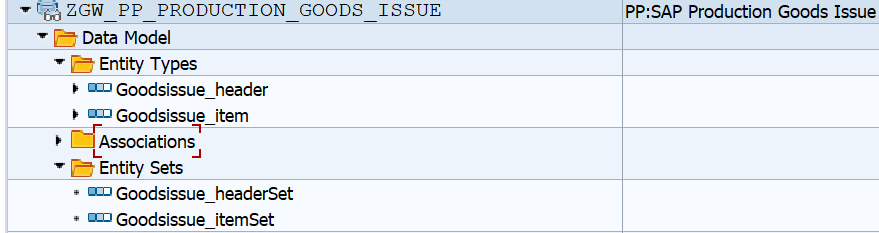
***Entity Type:***

Header: Goodsissue\_header

Item: Goodsissue\_item

***Entity Sets:***

Header: Goodsissue\_headerSet

Item: Goodsissue\_itemSet

***Association:***

Basically Association is done in ODATA to create the relationship in between header and item Entity.

For more idea about how to create association please [click here](https://saplearners.com/association-and-navigation-in-sap-netweaver-gateway/) and check the step from 1 to 5.

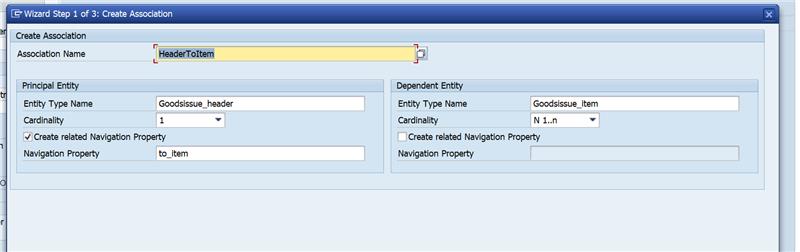
Association Name: ***HeaderToItem***

Principal Entity: ***Goodsissue\_header***

Dependent Entity: ***Goodsissue\_item***

Navigation Property name: ***to\_item***

Dependent Property: ***matdoc***



**Navigation Properties:**

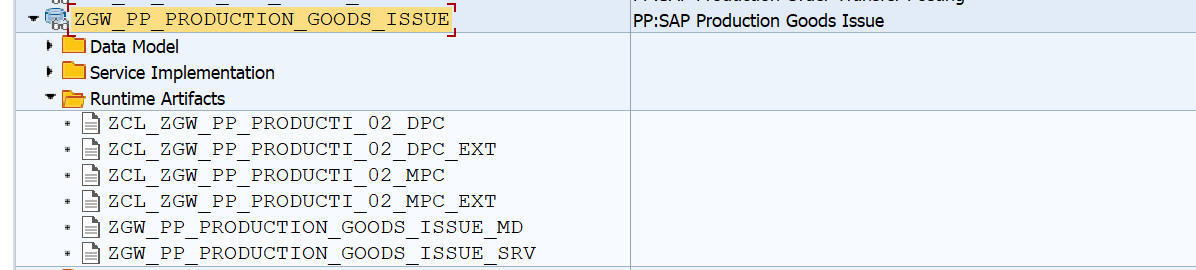
When we do Parent child relation in SEGW Odata project, one Navigation property also got created at the time of Create Association and this navigation property will help us to:

* navigate from Header details to Item details at the time of GET operation
* Carries item details with header details at the time of POST operation.

Also, it is needed at the time of deep entity modeling at MPC\_EXT Class, otherwise it will not Carrey the item detail from outside sap system. Always navigation Property comes under Header Entity after successfully creation of Association.

* **Runtime Artifacts**

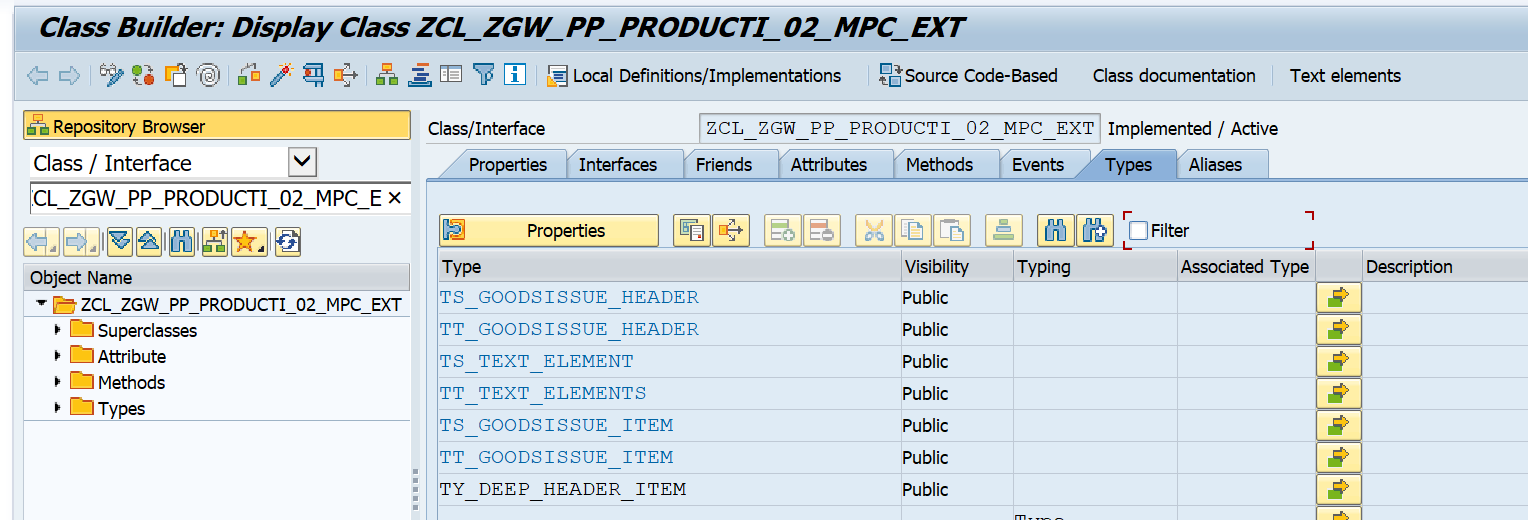
Here 6 Runtime Artifices to created after Generating the Project.



Here the operation can be handled through “CREATE\_DEEP\_ENTITY”. so, for that I had followed the following steps:

**step: 1**

* Go to Runtime Artifacts node, open the ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT class in **ABAP Workbench** & click on the **Types** tab.
* Click on Change button for edit.
* Click on the **Direct Type Entity** Button. Then create deep entity & activate.



**Business Logic for Type declaration in MPC\_EXT.**

class ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT definition  
  public  
  inheriting from ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC  
  create public .  
  
public section.  
  
   types:  
   BEGIN OF TY\_DEEP\_HEADER\_ITEM ,  
    MAT\_DOC       Type  MBLNR,  
    PSTNG\_DATE    Type  BUDAT,  
    DOC\_DATE      Type  BLDAT,  
    GOODSMVT\_CODE Type  GM\_CODE,  
*\*   Navigation property name should be used otherwise empty records will be shown In all API operations*  
    to\_item       TYPE  TABLE OF TS\_GOODSISSUE\_ITEM WITH DEFAULT KEY,  
   END OF TY\_DEEP\_HEADER\_ITEM .  
  
  
  methods DEFINE  
    redefinition .

**Step: 2**

**Redefine** the **DEFINE** method of the ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT and Enter the below code

**Business Logic Under Define Method.**

  method DEFINE.  
   SUPER->DEFINE( ).  
   DATA:LO\_ENTITY\_TYPE TYPE REF TO /IWBEP/IF\_MGW\_ODATA\_ENTITY\_TYP.  
  
   LO\_ENTITY\_TYPE = MODEL->GET\_ENTITY\_TYPE( IV\_ENTITY\_NAME = 'Goodsissue\_header' ).  
   LO\_ENTITY\_TYPE->BIND\_STRUCTURE(  
     exporting  
       IV\_STRUCTURE\_NAME   = 'ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT=>TY\_DEEP\_HEADER\_ITEM'  
   ).  
  endmethod.

**Step : 3**

Go to the **ZCL\_ZGW\_PP\_PRDC\_ORD\_TR\_DPC\_EXT class** & redefine the method:  **CREATE\_DEEP\_ENTIT**y.

**Business Logic CREATE\_DEEP\_ENTITY method.**

method /IWBEP/IF\_MGW\_APPL\_SRV\_RUNTIME~CREATE\_DEEP\_ENTITY.

IF IV\_ENTITY\_NAME = 'Goodsissue\_header'.

"--> Constant Declaration.

CONSTANTS: LC\_GM\_CODE TYPE GM\_CODE VALUE '03',

LC\_MOVE\_TYPE TYPE BWART VALUE '261'.

"--> Data Object Declaration.

DATA:LS\_DEEP\_ENTITY TYPE ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT=>TY\_DEEP\_HEADER\_ITEM,

LS\_HEADER TYPE ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT=>TS\_GOODSISSUE\_HEADER,

LT\_ITEM TYPE TABLE OF ZCL\_ZGW\_PP\_PRODUCTI\_02\_MPC\_EXT=>TS\_GOODSISSUE\_ITEM.

DATA:LS\_GOODSMVT\_HEADER TYPE BAPI2017\_GM\_HEAD\_01,

LS\_GOODSMVT\_CODE TYPE BAPI2017\_GM\_CODE,

LS\_GOODSMVT\_ITEM TYPE BAPI2017\_GM\_ITEM\_CREATE,

LT\_GOODSMVT\_ITEM TYPE TABLE OF BAPI2017\_GM\_ITEM\_CREATE,

LS\_RETURN TYPE BAPIRET2,

LT\_RETURN TYPE TABLE OF BAPIRET2,

LS\_GOODSMVT\_HEADRET TYPE BAPI2017\_GM\_HEAD\_RET,

LV\_MATERIALDOCUMENT TYPE BAPI2017\_GM\_HEAD\_RET-MAT\_DOC,

LV\_MATDOCUMENTYEAR TYPE BAPI2017\_GM\_HEAD\_RET-DOC\_YEAR.

DATA: lo\_message TYPE REF TO /iwbep/if\_message\_container,

LV\_SUCCESS\_MESSAGE TYPE BAPI\_MSG.

"--> Get the Requested Payload Details.

CLEAR:LS\_GOODSMVT\_HEADER,LS\_GOODSMVT\_CODE,LS\_GOODSMVT\_ITEM,LS\_DEEP\_ENTITY,LS\_HEADER,LS\_RETURN,

LS\_GOODSMVT\_HEADRET,LV\_MATERIALDOCUMENT,LV\_MATDOCUMENTYEAR,LV\_SUCCESS\_MESSAGE,lo\_message.

REFRESH:LT\_GOODSMVT\_ITEM,LT\_ITEM,LT\_RETURN.

TRY.

IO\_DATA\_PROVIDER->READ\_ENTRY\_DATA(

importing

ES\_DATA = LS\_DEEP\_ENTITY

).

catch /IWBEP/CX\_MGW\_TECH\_EXCEPTION. " Technical Exception

ENDTRY.

IF LS\_DEEP\_ENTITY IS NOT INITIAL.

LS\_HEADER = CORRESPONDING #( LS\_DEEP\_ENTITY ).

LT\_ITEM = CORRESPONDING #( LS\_DEEP\_ENTITY-TO\_ITEM ).

IF LS\_HEADER IS NOT INITIAL.

LS\_GOODSMVT\_HEADER-PSTNG\_DATE = LS\_HEADER-PSTNG\_DATE.

LS\_GOODSMVT\_HEADER-DOC\_DATE = LS\_HEADER-DOC\_DATE.

LS\_GOODSMVT\_CODE-GM\_CODE = LC\_GM\_CODE.

IF LT\_ITEM IS NOT INITIAL.

LOOP AT LT\_ITEM INTO DATA(LS\_ITEM).

LS\_GOODSMVT\_ITEM = CORRESPONDING #( LS\_ITEM ).

LS\_GOODSMVT\_ITEM-MOVE\_TYPE = LC\_MOVE\_TYPE.

LS\_GOODSMVT\_ITEM-MATERIAL = LS\_ITEM-MATNR.

APPEND LS\_GOODSMVT\_ITEM TO LT\_GOODSMVT\_ITEM.

CLEAR: LS\_GOODSMVT\_ITEM,LS\_ITEM.

ENDLOOP.

ENDIF.

ENDIF.

"-->Passing Data to BAPI for create record in sap System.

CALL FUNCTION 'BAPI\_GOODSMVT\_CREATE'

EXPORTING

GOODSMVT\_HEADER = LS\_GOODSMVT\_HEADER

GOODSMVT\_CODE = LS\_GOODSMVT\_CODE

IMPORTING

GOODSMVT\_HEADRET = LS\_GOODSMVT\_HEADRET

MATERIALDOCUMENT = LV\_MATERIALDOCUMENT

MATDOCUMENTYEAR = LV\_MATDOCUMENTYEAR

TABLES

GOODSMVT\_ITEM = LT\_GOODSMVT\_ITEM

RETURN = LT\_RETURN

.

"--> Prepare the Response message.

LO\_MESSAGE = MO\_CONTEXT->GET\_MESSAGE\_CONTAINER( ).

IF LS\_GOODSMVT\_HEADRET IS NOT INITIAL.

CALL FUNCTION 'BAPI\_TRANSACTION\_COMMIT'

EXPORTING

WAIT = ABAP\_TRUE

IMPORTING

RETURN = LS\_RETURN

.

IF LS\_RETURN IS INITIAL.

"--> Creted Material document number obly added in the Header Entity.

LS\_DEEP\_ENTITY-MAT\_DOC = LV\_MATERIALDOCUMENT.

LOOP AT LS\_DEEP\_ENTITY-TO\_ITEM ASSIGNING FIELD-SYMBOL(<FS\_DATA>).

<FS\_DATA>-MAT\_DOC = LV\_MATERIALDOCUMENT.

ENDLOOP.

COPY\_DATA\_TO\_REF(

exporting

IS\_DATA = LS\_DEEP\_ENTITY

changing

CR\_DATA = ER\_DEEP\_ENTITY

).

LV\_SUCCESS\_MESSAGE = |Material Document '{ LV\_MATERIALDOCUMENT }' Cretaed Successfully.|.

LO\_MESSAGE->ADD\_MESSAGE\_TEXT\_ONLY(

exporting

IV\_MSG\_TYPE = /iwbep/cl\_cos\_logger=>SUCCESS " Message Type

IV\_MSG\_TEXT = LV\_SUCCESS\_MESSAGE " MESSAGE TEXT

IV\_ADD\_TO\_RESPONSE\_HEADER = ABAP\_TRUE " Add the message to the header

).

ENDIF.

else.

IF LT\_RETURN IS NOT INITIAL.

lo\_message->add\_messages\_from\_bapi(

EXPORTING

it\_bapi\_messages = LT\_RETURN

).

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

EXPORTING

textid = /iwbep/cx\_mgw\_busi\_exception=>BUSINESS\_ERROR

message\_container = lo\_message.

ENDIF.

ENDIF.

ENDIF.

ENDIF.

endmethod.

4.Business API / OData API with Payload

API: /sap/opu/odata/sap/ZGW\_PP\_PRDC\_ORD\_TRANS\_POSTING\_SRV/Goodsmvt\_headerSet

**Payload:**

{

  "MatDoc": "",

  "PstngDate": "/Date(1754438400000)/", 🡪 Today’s date in JSON Format

  "DocDate": "/Date(1754438400000)/", 🡪 Today’s date in JSON Format

  "GoodsmvtCode": "03",

  "to\_item": {

    "results": [

      {

        "MatDoc": "",

        "Matnr": "ECAP00052BE",

        "Plant": "3402",

        "StgeLoc": "M011",

        "Batch": "0013670558",

        "MoveType": "261",

        "EntryQnt": "1",

        "EntryUom": "NO",

        "Orderid": "404983450",

        "ReservNo": "0090746947",

        "ResItem": "0001"

      }

    ]

  }

}

**5.Positive and Negative Testing Screenshot :**

*Tcode****: /n/iwfnd/gw\_client***

***API:***

/sap/opu/odata/sap/ZGW\_PP\_PRODUCTION\_GOODS\_ISSUE\_SRV/Goodsissue\_headerSet

**Steps to follow for Check.**

**Step1:**put the above API in URL Request section and choose the radio button “POST” in the HTTP Method section.

**Step2:**

Payload: (Keep the payload In Header Request Section.)

{

  "MatDoc": "",

  "PstngDate": "/Today’s date in Microsoft JSON Format/ISO 8601 format like: Date(0000000000000 /",

  "DocDate": "/ Today’s date in Microsoft JSON Format/ISO 8601 format like: Date(0000000000000)/",

  "GoodsmvtCode": "03",

  "to\_item": {

    "results": [

      {

        "MatDoc": "",

        "Matnr": "Material Code",

        "Plant": "Plant Code",

        "StgeLoc": "Storage Location Code",

        "Batch": "Material batch no from MCHB ",

        "MoveType": "261",

        "EntryQnt": " quantity grater then 0",

        "EntryUom": "UNIT OF MEASURE of material",

        "Orderid": "Order No",

        "ReservNo": "Reservation Number",

        "ResItem": "Reservation Item Number"

      }

    ]

  }

}

**Step3:**

Click the Execute Button and Wait for the response in HTTP Response section.

Here according to Business logic, if Record successfully created in SAP system then Crated Material document number came with a success message in the HTTP Response Header’s SAP-message section with a status code 201 - Created, else whatever the error raise in Backend those will be displayed in the HTTP Response Body section.

**Positive Testing Screen:**

**Single line item test scenario**

**GUI Testing Screen:**

Payload:

{

  "MatDoc": "",

  "PstngDate": "/Date(1754438400000)/",

  "DocDate": "/Date(1754438400000)/",

  "GoodsmvtCode": "03",

  "to\_item": {

    "results": [

      {

        "MatDoc": "",

        "Matnr": "ECAP00052BE",

        "Plant": "3402",

        "StgeLoc": "M011",

        "Batch": "0013670558",

        "MoveType": "261",

        "EntryQnt": "1",

        "EntryUom": "NO",

        "Orderid": "404983450",

        "ReservNo": "0090746947",

        "ResItem": "0001"

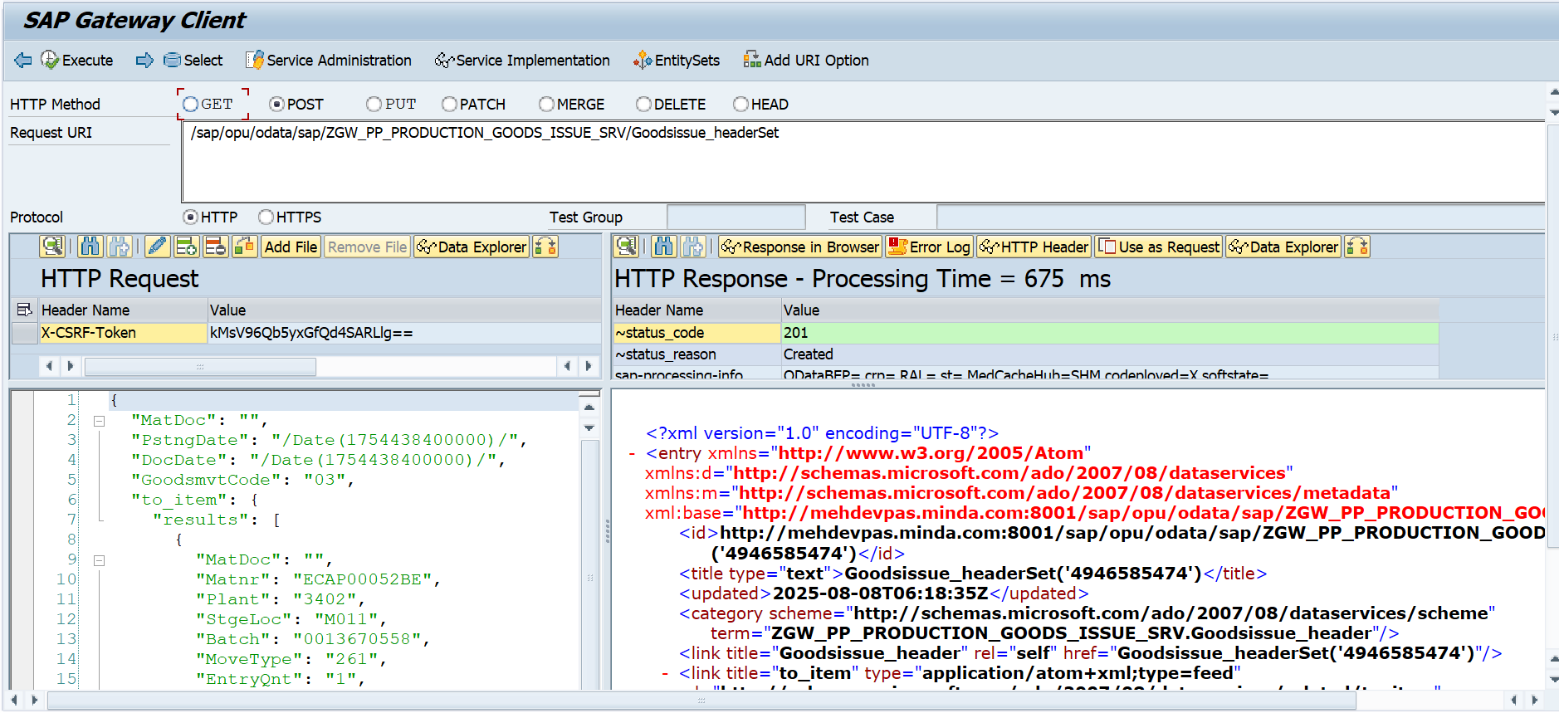
      }

    ]

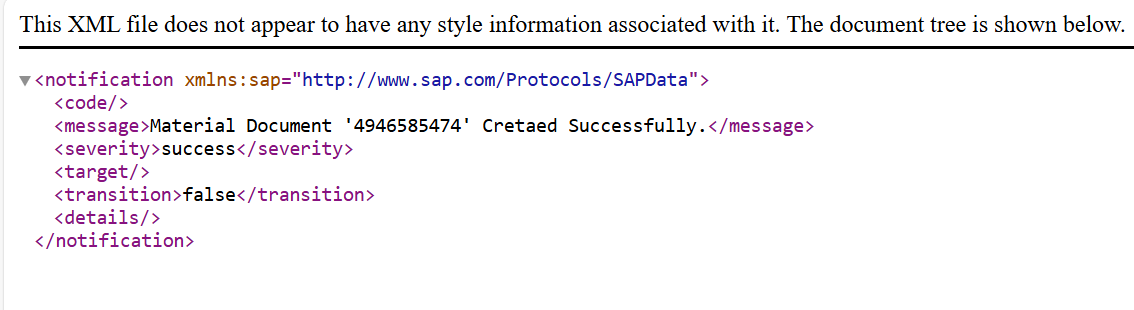
  }

}

Screenshot

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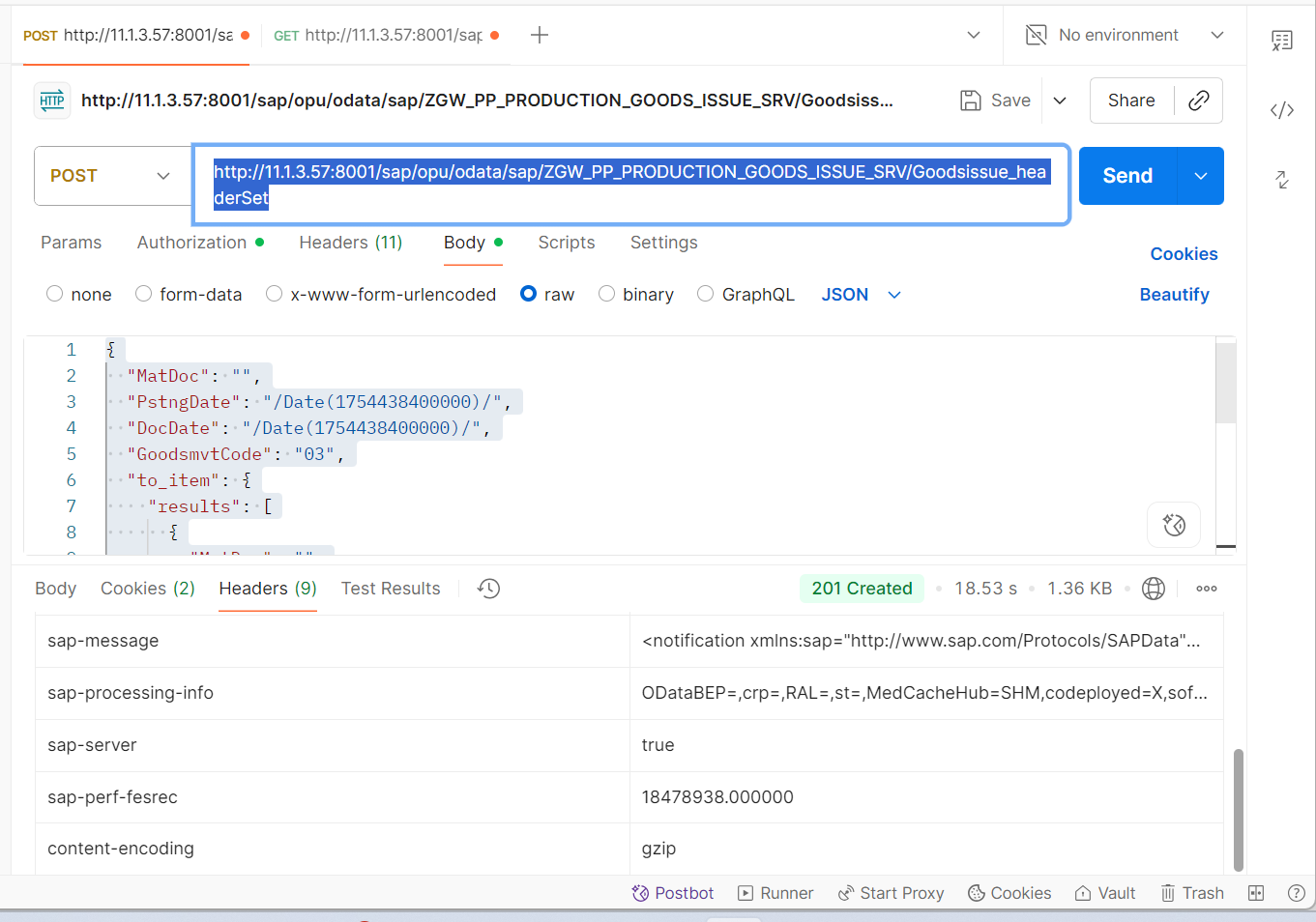
Success Meesage as response :

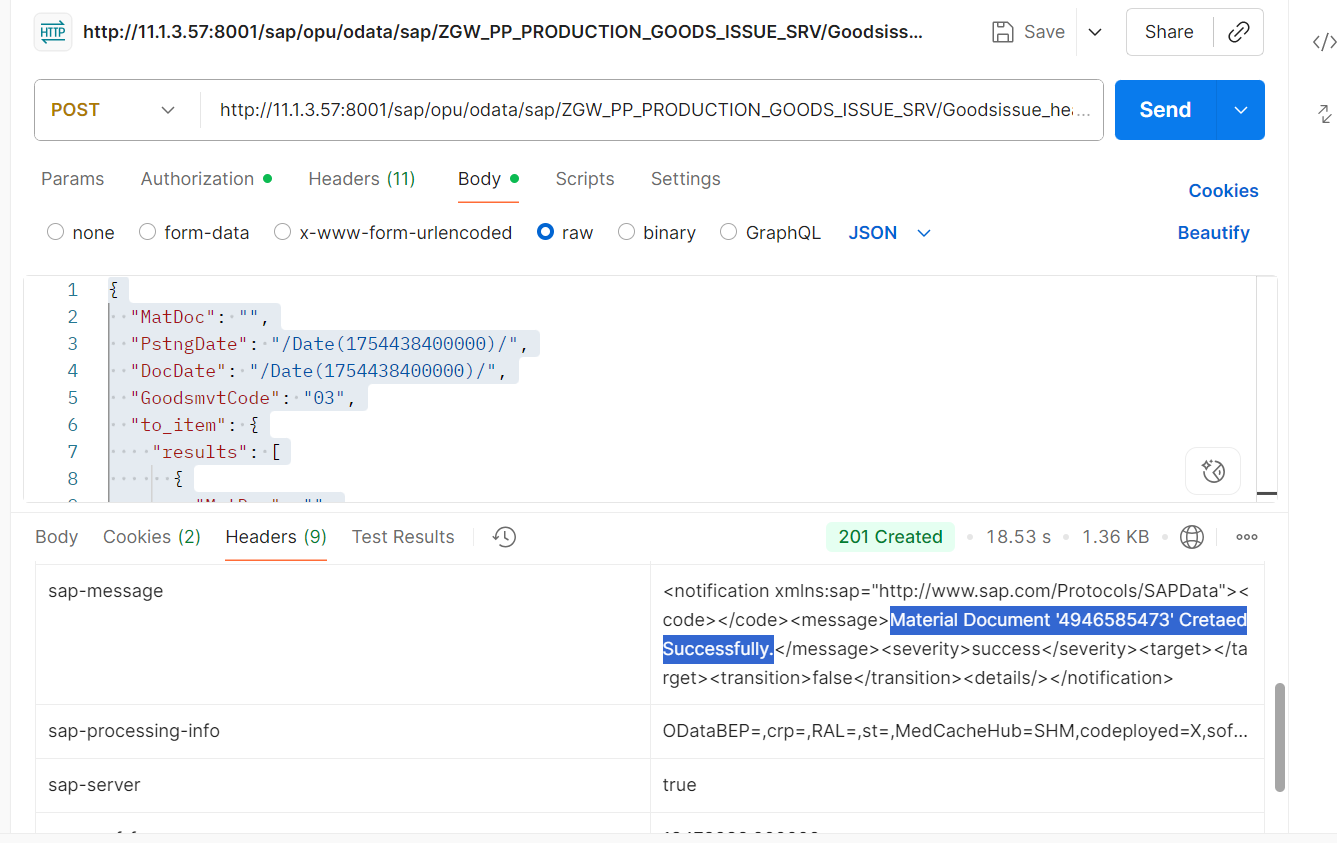


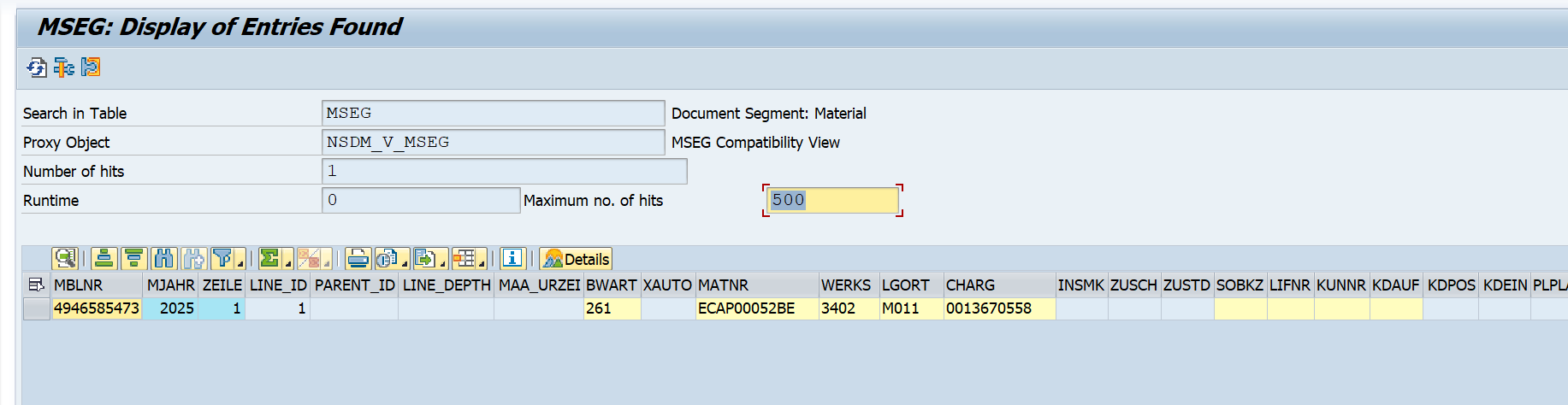
**Postman Testing:**

API:

<http://11.1.3.57:8001/sap/opu/odata/sap/ZGW_PP_PRODUCTION_GOODS_ISSUE_SRV/Goodsissue_headerSet>





Database Screenshot of Document created Successfully:

**Multiple item test scenario.**

API:

<http://11.1.3.57:8001/sap/opu/odata/sap/ZGW_PP_PRODUCTION_GOODS_ISSUE_SRV/Goodsissue_headerSet>

**Postman Level**

Payload

{

"MatDoc": "",

"PstngDate": "/Date(1754870400000)/",

"DocDate": "/Date(1754870400000)/",

"GoodsmvtCode": "03",

"to\_item": {

"results": [

{

"MatDoc": "",

"Matnr": "ECAP00052BE",

"Plant": "3402",

"StgeLoc": "M011",

"Batch": "0013670558",

"MoveType": "261",

"EntryQnt": "1",

"EntryUom": "NO",

"Orderid": "404983450",

"ReservNo": "0090746947",

"ResItem": "0001"

},

{

"MatDoc": "",

"Matnr": "ECAP00053BE",

"Plant": "3402",

"StgeLoc": "M011",

"Batch": "0013669260",

"MoveType": "261",

"EntryQnt": "1",

"EntryUom": "NO",

"Orderid": "404983450",

"ReservNo": "0090746947",

"ResItem": "0002"

},

{

"MatDoc": "",

"Matnr": "ECAP00060BE",

"Plant": "3402",

"StgeLoc": "M011",

"Batch": "0013669263",

"MoveType": "261",

"EntryQnt": "1",

"EntryUom": "NO",

"Orderid": "404983450",

"ReservNo": "0090746947",

"ResItem": "0003"

},

{

"MatDoc": "",

"Matnr": "34CH020001-00022Y0",

"Plant": "3402",

"StgeLoc": "M011",

"Batch": "0013669347",

"MoveType": "261",

"EntryQnt": "1",

"EntryUom": "NO",

"Orderid": "404983450",

"ReservNo": "0090746947",

"ResItem": "0004"

},

{

"MatDoc": "",

"Matnr": "34CH020001-00023Y0",

"Plant": "3402",

"StgeLoc": "M011",

"Batch": "0013670407",

"MoveType": "261",

"EntryQnt": "1",

"EntryUom": "NO",

"Orderid": "404983450",

"ReservNo": "0090746947",

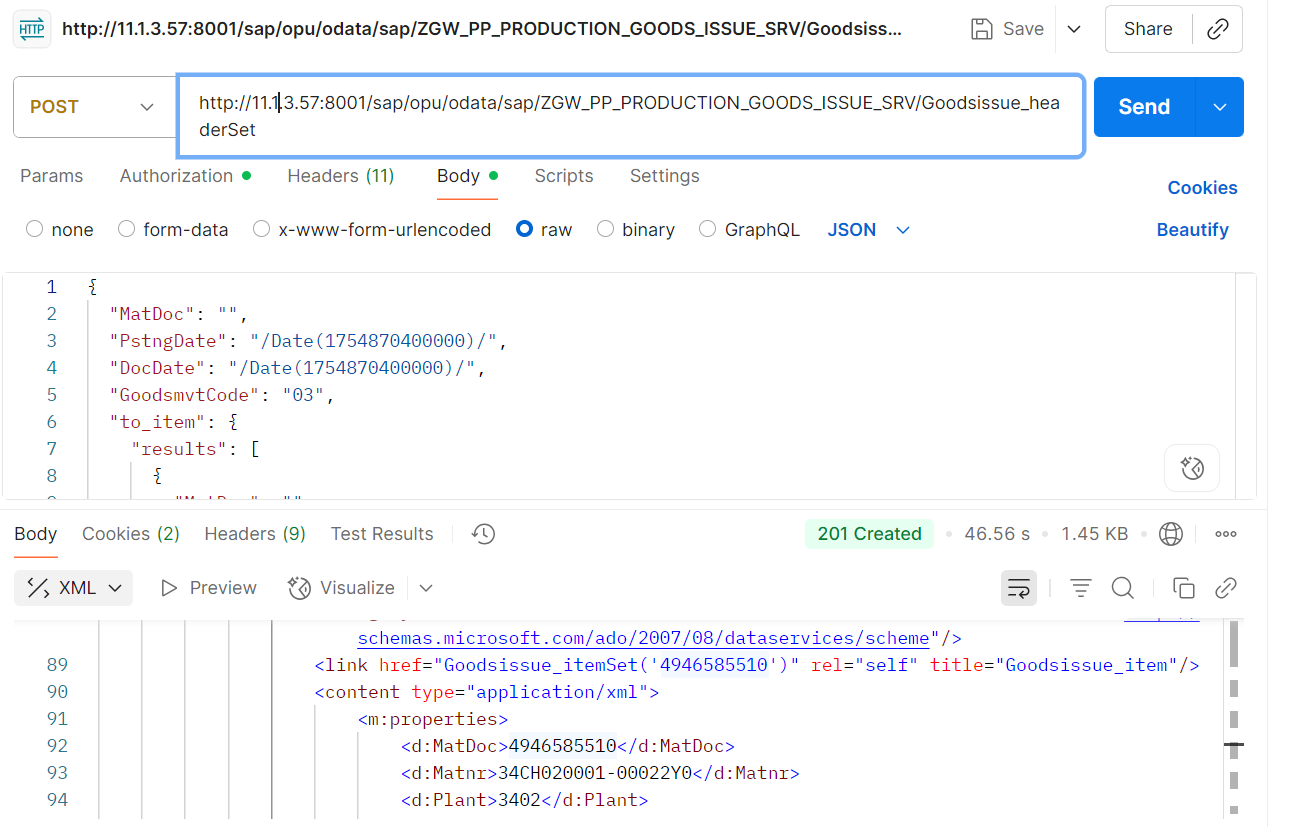
"ResItem": "0005"

}

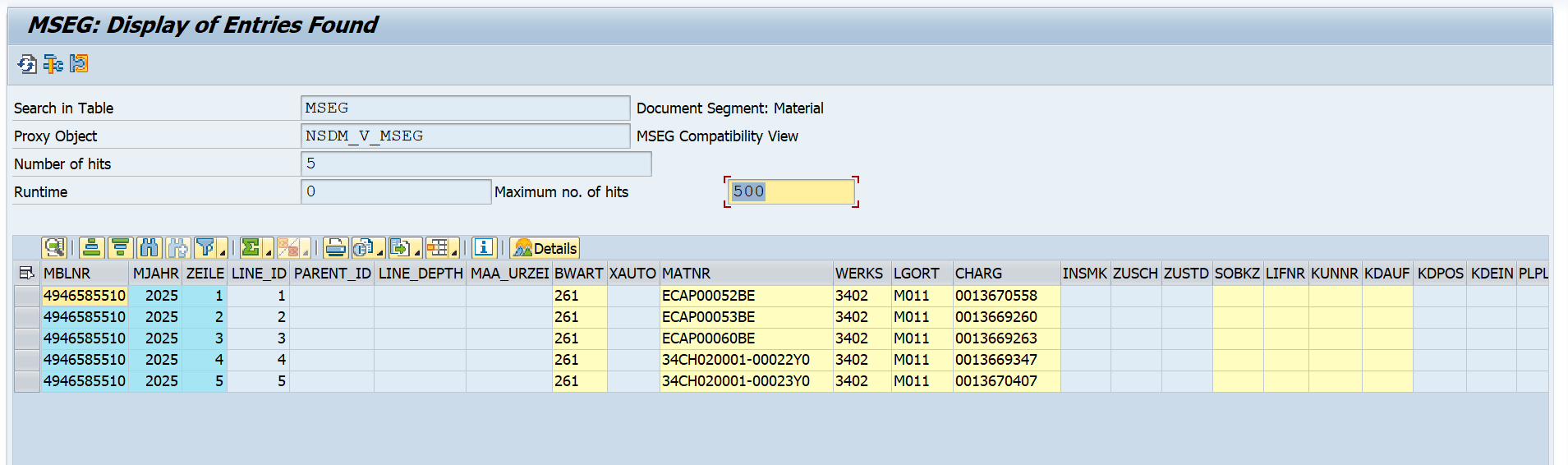
]

}

}



Database level Check:



**Note: Please consider the important point at the time of Prepare payload.**

* Header Posting date and Document Date are by default Today’s date.
* Goods movement code (Goodsmvtcode) and Movement Type (MoveType) are constant Value that is ‘03’ and ‘261’ respectively.
* Remaining all the fields in the payload are mandatory field except material documents number (MatDoc) because that field I had taken to establish relation ship in between header and item entity set and that should be blank at header and respected item also.
* Until you haven’t filled the details from frontend, it should through mandatory field error and won’t be hit/trigger the Post API. if it happens then inconsistent data will create in SAP Backend.

**Negative Testing:**

Consider the above Payload.

**Case 1:**

If user didn’t pass any Quantity or 0.  
  
