

In HANA STUDIO(eclipse with additional installations)

I created basic tables: zst7_sales_head1 & zst7_sales_item1.

Also was possible to create those tables from SAP.

```
[D] [S5M] ZST7C_SALES_... [D] [S5M] ZST7C_SALES_I... [D] [S5M] ZST7SALESITE...
1 @EndUserText.label : 'Sales header table'
2 @AbapCatalog.enhancement.category : #EXTENSIBLE_ANY
3 @AbapCatalog.tableCategory : #TRANSPARENT
4 @AbapCatalog.deliveryClass : #A
5 @AbapCatalog.dataMaintenance : #RESTRICTED
6 define table zst7_sales_head1 {
7   key mandt : mandt not null;
8   key sd_key : /bopf/conf_key not null;
9   doc_date : dats;
10  name : char12;
11  catg : char2;
12  order_type : char4;
13  order_reason : char3;
14  @Semantics.amount.currencyCode : 'zst7_sales_head1.currency'
15  net_value : wertv8;
16  currency : waers;
17
18 }
```

```
[D] [S5M] ZST7C_S... [D] [S5M] ZST7C_S... [D] [S5M] ZST7SAL... [S5M] ZST7_
1 @EndUserText.label : 'Sales order item table'
2 @AbapCatalog.enhancement.category : #EXTENSIBLE_ANY
3 @AbapCatalog.tableCategory : #TRANSPARENT
4 @AbapCatalog.deliveryClass : #A
5 @AbapCatalog.dataMaintenance : #ALLOWED
6 define table zst7_sales_item1 {
7   key mandt : mandt not null;
8   key itm_key : /bopf/conf_key not null;
9   parentkey : /bopf/conf_key;
10  mat_num : char40;
11  mat_grp : char9;
12  itm_type : char1;
13  @Semantics.amount.currencyCode : 'zst7_sales_item1.currency'
14  item_value : netwr_ap;
15  currency : waerk;
16
17 }
```

Anyway after the tables were created we can see them in SAP:

Dictionary: Display Table

Transparent Table **ZST7_SALES_HEAD1** Active

Short Description Sales header table

Attributes Delivery and Maintenance **Fields** Input Help/Check Currency/Quantity Fields Indexes

Field	Key	In...	Data element	Data Type	Length	Deci...	Coordinate	Short Description
MANDT	✓	✓	MANDT	CLNT	3	0	0	Client
SD_KEY	✓	✓	/BOPF/CONF_KEY	RAW	16	0	0	Key
DOC_DATE	□	□	DATS	DATS	8	0	0	Field of type DATS
NAME	□	□	CHAR12	CHAR	12	0	0	Character Field of Length 12
CATG	□	□	CHAR2	CHAR	2	0	0	Component of the Version Number
ORDER_TYPE	□	□	CHAR4	CHAR	4	0	0	Undefined range (can be used for patch levels)
ORDER_REASON	□	□	CHAR3	CHAR	3	0	0	3-Byte field
NET_VALUE	□	□	WERTV8	CURR	15	2	0	8(15)-character value field with 2 decimal places
CURRENCY	□	□	WAERS	CUKY	5	0	0	Currency Key

Dictionary: Display Table

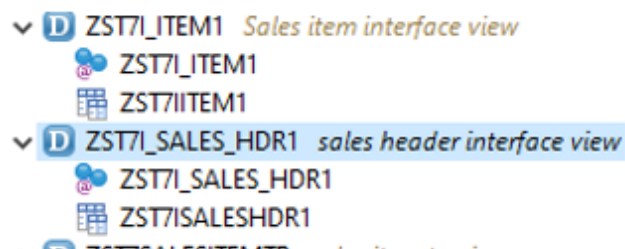
Transparent Table **ZST7_SALES_ITEM1** Active

Short Description Sales order item table

Attributes Delivery and Maintenance **Fields** Input Help/Check Currency/Quantity Fields Indexes

Field	Key	In...	Data element	Data Type	Length	Deci...	Coordinate	Short Description
MANDT	✓	✓	MANDT	CLNT	3	0	0	Client
ITM_KEY	✓	✓	/BOPF/CONF_KEY	RAW	16	0	0	Key
PARENTKEY	□	□	/BOPF/CONF_KEY	RAW	16	0	0	Key
MAT_NUM	□	□	CHAR40	CHAR	40	0	0	Character field of length 40
MAT_GRP	□	□	CHAR9	CHAR	9	0	0	Character field of 9 digits
ITM_TYPE	□	□	CHAR1	CHAR	1	0	0	Single-Character Flag
ITEM_VALUE	□	□	NETWR_AP	CURR	15	2	0	Net Value of the Order Item in Document Currency
CURRENCY	□	□	WAERK	CUKY	5	0	0	SD Document Currency



Then in HANA STUDIO I created interface CDS views for basic tables:








```
1 @AbapCatalog.sqlViewName: 'ZST7ISALESHDR1'
2 @AbapCatalog.compiler.compareFilter: true
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #NOT_REQUIRED
5 @EndUserText.label: 'sales header interface view'
6 define view zst7i_sales_hdr1 as select from zst7_sales_head1
7 {
8
9   key sd_key,
10   doc_date,
11   name,
12   catg,
13   order_type,
14   order_reason,
15   @Semantics.amount.currencyCode: 'currency'
16   net_value,
17   currency
18 }
19
```

```
D [S5M] ZST7C_...  [S5M] ZST7_...  [S5M] ZST7_...  D [S5M] ZST7I_... X  D [S5M] ZST7I_...
1 @AbapCatalog.sqlViewName: 'ZST7IITEM1'
2 @AbapCatalog.compiler.compareFilter: true
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #NOT_REQUIRED
5 @EndUserText.label: 'Sales item interface view'
6 define view zst7i_item1
7   as select from zst7_sales_item1
8
9 {
10
11   key itm_key,
12     parentkey,
13     mat_num,
14     mat_grp,
15     itm_type,
16     @Semantics.amount.currencyCode : 'zst7_sales_item1.currency'
17     item_value,
18     currency
19 }
20
```

Then on the basis of interface CDS views transactional CDS views where created.
As we see in annotations options for CREATE,DELETE & UPDATE
are enabled in transactional views:

>  ZST7SALESITEMTP *sales item tp view*
>  ZST7_HDR1TP *Sales header TP*


 [S5M] ZST7SA... X  [S5M] ZST7_...  [S5M] ZST7_...  [S5M] ZST7L_...  [S5M] ZST7L_... »₂ Dictionary (14)


```
1 @AbapCatalog.sqlViewName: 'ZST7SALESITEMTP'
2 @AbapCatalog.compiler.compareFilter: true
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #CHECK
5 @EndUserText.label: 'sales item tp view'
6
7 @VDM.viewType: #TRANSACTIONAL
8 @ObjectModel.transactionalProcessingEnabled: true
9 @ObjectModel.writeActivePersistence: 'ZST7_SALES_ITEM1'
10 @ObjectModel.createEnabled: true
11 @ObjectModel.deleteEnabled: true
12 @ObjectModel.updateEnabled: true
13 @ObjectModel.usageType.dataClass: #TRANSACTIONAL
14 define view zst7salesitemtp
15
16   as select from zst7i_item1
17   association [1..1] to zst7_hdr1tp as _saleshdr on $projection.parentkey = _saleshdr.sd_key
18 {
19   key itm_key,
20   parentkey,
21   mat_num,
22   mat_grp,
23   itm_type,
24   @Semantics.amount.currencyCode: 'currency'
25   item_value,
26   currency,
27   @ObjectModel.association.type: [#TO_COMPOSITION_ROOT,#TO_COMPOSITION_PARENT]
28   _saleshdr
29
30 }
31
```


D [S5M] ZST7_HDR1TP X


```
1 @AbapCatalog.sqlViewName: 'ZST7ISALESHDRTP'
2 @AbapCatalog.compiler.compareFilter: true
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #CHECK
5 @EndUserText.label: 'Sales header TP'
6
7
8
9 @VDM.viewType: #TRANSACTIONAL
10 @ObjectModel.transactionalProcessingEnabled: true
11 @ObjectModel.writeActivePersistence: 'ZST7_SALES_HEAD1'
12 @ObjectModel.modelCategory: #BUSINESS_OBJECT
13 @ObjectModel.compositionRoot: true
14 @ObjectModel.createEnabled: true
15 @ObjectModel.deleteEnabled: true
16 @ObjectModel.updateEnabled: true
17 @ObjectModel.usageType.dataClass: #TRANSACTIONAL
18 define view zst7_hdr1tp as select from zst7i_sales_hdr1
19 association [1..*] to zst7salesitemtp as _salesitm on $projection.sd_key = _salesitm.parentkey
20 {
21     key sd_key,
22     doc_date,
23     name,
24     catg,
25     order_type,
26     order_reason,
27     @Semantics.amount.currencyCode: 'currency'
28     net_value,
29     currency,
30     @ObjectModel.association.type: [#TO_COMPOSITION_CHILD]
31     _salesitm
32 }
33
34
```



When TRANSACTIONAL CDS VIEWS were activated the new BOPF Business Object was created with sub node for sales item:

▼  ZST7_HANA_PROJ (25) *my HANA project*


▼  BOPF Business Objects (1)



▼  BOPF Business Objects (1)

 ZST7_HDR1TP

 ZST7_SALESITEMTP (6)

[S5M] ZST7_HDR1TP [S5M] ZST7_HDR1TP ×

▶  ZST7_HDR1TP ▶

 **Nodes**  //... ?

New... Add DO... Delete

type filter text

Name	Persistent Structure	Transient Structure	Combined Structure	Combined Table Ty
▼ ZST7_HDR1TP	ZSST7_HDR1TP_D		ZSST7_HDR1TP	ZTST7_HDR1TP
ZST7SALESITEMTP	ZSST7SALESITEMTP_D		ZSST7SALESITEMTP	ZTST7SALESITEMTP

Created BUSINESS OBJECT may be maintained in SAP system from transaction BOBT

Business Object Builder: Test

ZST7L_SALESHDRTP

Node Instances

- ▼ ZST7L_SALESHDRTP
 - ▶ ZST7L_SALESHDRTP

ZST7L_SALESHDRTP > ZST7L_SALESITEMTP

KEY	PARENT_K...	ROOT_KEY	MAT_NUM	MAT_G...	ITM_TYPE	ITEM_VALUE	CURRENCY
B...	B305724CE...	B305724C...					

Node Instance: Details

Attributes	Values
KEY	B305724CEDFD1EEF9CD126E0335CC398
PARENT_KEY	B305724CEDFD1EEF9CD121C6133A4398
ROOT_KEY	B305724CEDFD1EEF9CD121C6133A4398
MAT_NUM	
MAT_GRP	
ITM_TYPE	
ITEM_VALUE	0.00
CURRENCY	

Business Object Builder: Test

ZST7L_SALESHDRTP

Node Instances

- ▼ ZST7L_SALESHDRTP
 - ▶ ZST7L_SALESHDRTP

ZST7L_SALESHDRTP > ZST7L_SALESHDRTP

KEY	PARENT_K...	ROOT_KEY	DOC_DATE	NAME CATG	ORDER_TY...	ORDER_REASON	NET_VAL...	CURRENCY
B...	000000000...	B305724C...						

Node Instance: Details

Attributes	Values
KEY	B305724CEDFD1EEF9CD121C6133A4398
PARENT_KEY	00000000000000000000000000000000
ROOT_KEY	B305724CEDFD1EEF9CD121C6133A4398
DOC_DATE	00000000
NAME	
CATG	
ORDER_TYPE	
ORDER_REASON	
NET_VALUE	0.00
CURRENCY	

In transaction BOBT data may be entered into the business object & after that DATA MAY BE SEEN IN DATA DICTIONARY:

ZST7_SALES_HEAD1: Display of Entries Found

Search in Table: ZST7_SALES_HEAD1 Sales header table

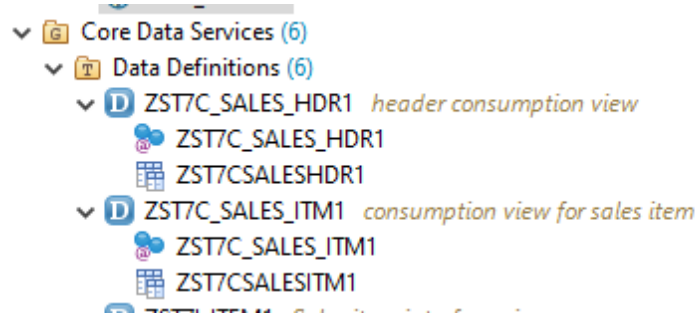
Number of hits: 2

Runtime: 0 Maximum no. of hits: 500

Insert Column:

Key	Date	Character Field of Length ...	Component of the Version Numb...	Undefined range (can be used for patc...	3-Byte fi...	Value (8)	Crcy
71397C6273AE1EEF93838B3EAE818395	07/25/2024	SD1	1	1	1	110.00	
71397C6273AE1EEF93847B0159A94395	07/26/2024	SD2	1	1	1	1,200.00	USD

Then CONSUMPTION CDS VIEWS where created for the TRANSACTION PROCESSING CDS VIEWS:



```
[D] [S5M] ZST7_HDR1TP  [S5M] ZST7_HDR1TP  [D] [S5M] ZST7C_SALES_HDR1 X
1 @AbapCatalog.sqlViewName: 'ZST7CSALESHDR1'
2 @AbapCatalog.compiler.compareFilter: true
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #NOT_REQUIRED
5 @EndUserText.label: 'header consumption view'
6
7 @VDM.viewType: #CONSUMPTION
8 @ObjectModel.createEnabled: true
9 @ObjectModel.updateEnabled: true
10 @ObjectModel.deleteEnabled: true
11 @ObjectModel.compositionRoot: true
12 @ObjectModel.transactionalProcessingDelegated: true
13
14 define view ZST7c_sales_hdr1 as select from ZST7_HDR1TP
15 association [1] to ZST7c_sales_itm1 as _salesitm on
16     $projection.sd_key = _salesitm.parentkey
17 {
18
19     key sd_key,
20     doc_date,
21     name,
22     catg,
23     order_type,
24     order_reason,
25     @Semantics.amount.currencyCode: 'currency'
26     net_value,
27     currency,
28     @ObjectModel.association.type: [#TO_COMPOSITION_CHILD]
29     _salesitm
30 }
31
```

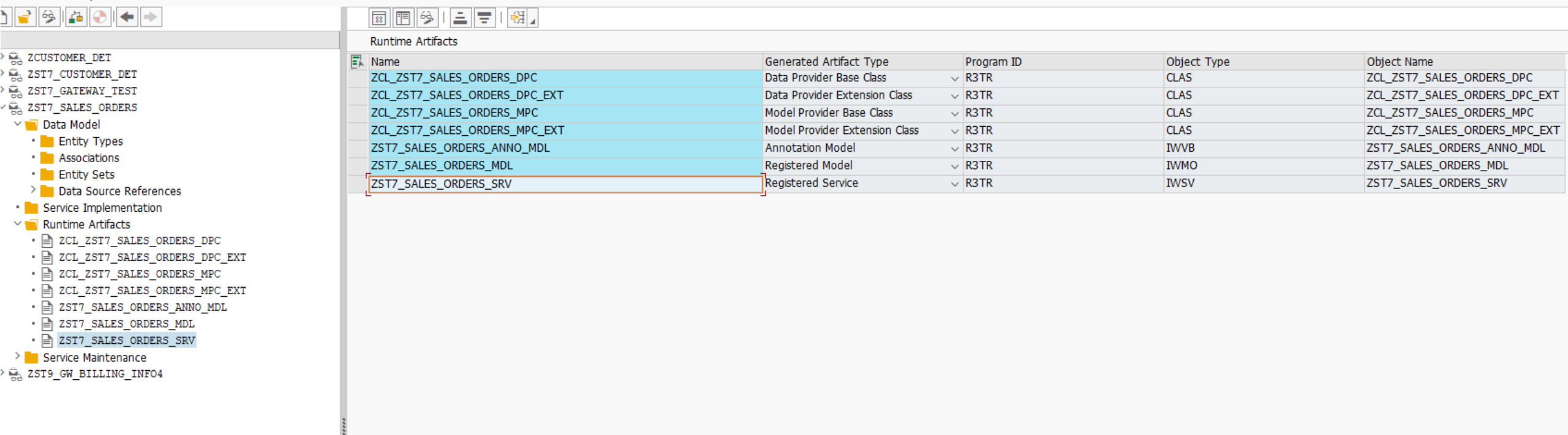

[S5M] ZST7_HDR1TP [S5M] ZST7_HDR1TP [S5M] ZST7C_SALES_HDR1 [S5M] ZST7C_SALES_ITM1 X

```
1 @AbapCatalog.sqlViewName: 'ZST7CSALESITM1'
2 @AbapCatalog.compiler.compareFilter: true
3 @AbapCatalog.preserveKey: true
4 @AccessControl.authorizationCheck: #NOT_REQUIRED
5 @EndUserText.label: 'consumption view for sales item'
6
7 @VDM.viewType: #CONSUMPTION
8 @ObjectModel.createEnabled: true
9 @ObjectModel.updateEnabled: true
10 @ObjectModel.deleteEnabled: true
11 @ObjectModel.transactionalProcessingDelegated: true
12
13 define view ZST7C_SALES_ITM1 as select from zst7salesitemtp
14
15 association [1..1] to ZST7c_sales_hdr1 as _saleshdr on
16 $projection.parentkey = _saleshdr.sd_key
17
18 {
19     key itm_key,
20     parentkey,
21     mat_num,
22     mat_grp,
23     itm_type,
24     @Semantics.amount.currencyCode: 'currency'
25     item_value,
26     currency,
27     @ObjectModel.association.type: [#TO_COMPOSITION_ROOT,#TO_COMPOSITION_PARENT]
28     _saleshdr
29 }
30
```

Once the consumption views where successfully activated, we are now ready to create the ODATA object & expose these as services to the outside world.

In transaction SEGW the ODATA service ZST7_SALES_ORDERS_SRV was created

SAP Gateway Service Builder



Runtime Artifacts					
Name	Generated Artifact Type	Program ID	Object Type	Object Name	
ZCL_ZST7_SALES_ORDERS_DPC	Data Provider Base Class	✓ R3TR	CLAS	ZCL_ZST7_SALES_ORDERS_DPC	
ZCL_ZST7_SALES_ORDERS_DPC_EXT	Data Provider Extension Class	✓ R3TR	CLAS	ZCL_ZST7_SALES_ORDERS_DPC_EXT	
ZCL_ZST7_SALES_ORDERS_MPC	Model Provider Base Class	✓ R3TR	CLAS	ZCL_ZST7_SALES_ORDERS_MPC	
ZCL_ZST7_SALES_ORDERS_MPC_EXT	Model Provider Extension Class	✓ R3TR	CLAS	ZCL_ZST7_SALES_ORDERS_MPC_EXT	
ZST7_SALES_ORDERS_ANNO_MDL	Annotation Model	✓ R3TR	IWVB	ZST7_SALES_ORDERS_ANNO_MDL	
ZST7_SALES_ORDERS_MDL	Registered Model	✓ R3TR	IWMO	ZST7_SALES_ORDERS_MDL	
ZST7_SALES_ORDERS_SRV	Registered Service	✓ R3TR	IWSV	ZST7_SALES_ORDERS_SRV	

The ODATA SERVICE ZST7_SALES_ORDERS1_SRV was successfully created.

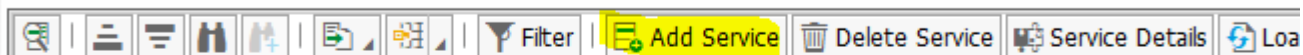
Now we must go to transaction

/IWFND/MAINT_SERVICE

in order to maintain the service.

First th service must be added :

Activate and Maintain Services



Service Catalog

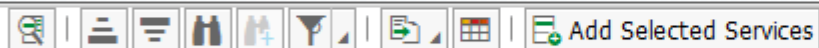
Type	Technical Service Name	^V...	Service Description	External
BEP	<u>ZABAP_REPOSITORY_SRV</u>	1	SAPUI5 ABAP Repository services via oData	ABAP_RI
BEP	<u>ZACCDDET</u>	1		ACCDDET
BEP	<u>ZACM_APPLWC</u>	1	ACM Application Workcenter	ACM_AP
BEP	<u>ZACM_CNTRCTAQ</u>	1	ACM Contract Approval Queue	ACM_CN
BEP	<u>ZACM_CNTRCTSNP</u>	1	Trading Contract Snapshot	ACM_CN
BEP	<u>ZACM_MNTNCONTR</u>	1	ACM Maintain Contract	ACM_MN
BEP	<u>ZACM_MNTNPRCNG</u>	1	ACM Maintain Pricing	ACM_MN

Add Selected Services

Get Services

Filter

System Alias	<input type="text"/>	<input type="checkbox"/> Co-Deployed
Technical Service Name	<input type="text"/>	Version
External Service Name	<input type="text" value="ZST7_SALES_ORDER1_SRV"/>	External Mapping ID




Select Backend Services

Type	Technical Service Name	^ Ver...	Service Description	External Se
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Service Catalog

Type	Technical Service Name	^V...	Service Description	External Service Name	^	Nsp.	OAut...	Soft State	Processing Mode
BEP	ZST12_CDS_OBJ_SO2_CDS	1		ZST12_CDS_OBJ_SO2_CDS			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST12_CDS_OBJP_SO_CDS	1		ZST12_CDS_OBJP_SO_CDS			<input checked="" type="checkbox"/>	Not Supported	Routing-based
BEP	ZST12_CDS_OBJP_SO1_CDS	1		ZST12_CDS_OBJP_SO1_CDS			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST12_FIORIELEMENTS_SRV	1		ZST12_FIORIELEMENTS_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST12_FLIGHT_V2_SRV	1		ZST12_FLIGHT_V2_SRV			<input checked="" type="checkbox"/>	Not Supported	Routing-based
BEP	ZST13_ODATA_TEST_SRV	1	test odata	ZST13_ODATA_TEST_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST13_OVP_TEST_SRV	1	ovp test	ZST13_OVP_TEST_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST16_PO_HEADER_CDS	1	Purchase Order Header	ZST16_PO_HEADER_CDS			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST1UI_MATVAL_O2	1	Matval o2	ZST1UI_MATVAL_O2			<input checked="" type="checkbox"/>		Co-deployed only
BEP	ZST5_TEST_SRV	1	ZST5_TEST	ZST5_TEST_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST7_CUSTOMER_DET_SRV	1	customer detailes	ZST7_CUSTOMER_DET_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST7_CUSTOMER_DETAILS_SRV	1	customer detailes	ZST7_CUSTOMER_DETAILS_SRV			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST7_SALES_ORDER1_SRV	1	Sales orders	ZST7_SALES_ORDER1_SRV			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST7_SALES_ORDERS_SRV	1	sales order	ZST7_SALES_ORDERS_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST7_SALES_ORDERS1_SRV	1	Sales orders	ZST7_SALES_ORDERS1_SRV			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST7_SALES_ORDERS2_SRV	1	Sales orders	ZST7_SALES_ORDERS2_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST7_SALES_ORDERS3_SRV	1	Sales order	ZST7_SALES_ORDERS3_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST7_SALES_ORDERS4_SRV	1	sales order	ZST7_SALES_ORDERS4_SRV			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST7_SALES_ORDERS5_SRV	1	sales orders	ZST7_SALES_ORDERS5_SRV			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZST9_GW_BILLING_INFO_SRV	1	Billing info service	ZST9_GW_BILLING_INFO_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST9_GW_BILLING_INFO2_SRV	1	Billing info	ZST9_GW_BILLING_INFO2_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST9_GW_BILLING_INFO3_SRV	1	Billing info	ZST9_GW_BILLING_INFO3_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST9_GW_BILLING_INFO4_SRV	1	Billing Info service	ZST9_GW_BILLING_INFO4_SRV			<input type="checkbox"/>	Not Supported	Routing-based
BEP	ZST9_PURORDERHDR_CDS	1	Purchase Order Header	ZST9_PURORDERHDR_CDS			<input type="checkbox"/>	Not Supported	Co-deployed only
BEP	ZUI_CERTIFICATE_ODATA_O2	1		ZUI_CERTIFICATE_ODATA_O2			<input checked="" type="checkbox"/>		Co-deployed only
BEP	ZUI_RAP_TRAVEL_O2	1	OData V2 UI service for SAP Fiori Travel App	ZUI_RAP_TRAVEL_O2			<input checked="" type="checkbox"/>		Co-deployed only

ICF Nodes

Status	ICF Node	Session Time-out	Soft State	Description
	ODATA	00:00:00		Standard Mode

System Aliases

SAP System Alias	Description
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Now we can go to the gateway client - transaction /IWFND/GW_CLIENT- & check if the metadata is loading successfully.

