SAP HANA — AMDP CRUD Operations — Heart of the HANA Development





In this blog, we are going to talk about one of the most important topic in the world of HANA development. AMDP's — so called ABAP Managed Database Procedure's are quite useful when dealing with big chunks of data.

Let's start with simple example.

In this scenario let's say you need to get massive amount of data from the db or delete it. But in the meantime you do not want to compromise from the performance. So we will create a class which manages the CRUD operations using AMDP's.

So I will use an old class that I've used one of my projects so you can see the possibilities while working with AMDP's.

```
1 CLASS zcl_cfsr_init_load_amdp DEFINITION
2 PUBLIC
3 FINAL
4 CREATE PUBLIC .
5 PUBLIC SECTION.
6 INTERFACES if_amdp_marker_hdb.
7
8
9 TYPES : tt_guid TYPE STANDARD TABLE OF guid,
10 tt_acccr TYPE STANDARD TABLE OF cfin_acccr.
11 CLASS_METHODS_copy_to_ztables_TMPORTING_VALUE(iy_bukes)_TYPE_bukes
```

```
ENDS HELHODS COPY TO ECOUTES THE ONITING VALUE (IV DUNIS). THE DUNIS
12
                                                    VALUE(iv awtyp) TYPE cfin accit-awtyp
13
                                                    VALUE(iv_logsys) TYPE logsystem
                                                    VALUE(iv where) TYPE string
14
15
                                          RAISING cx_amdp_error.
16
         CLASS-METHODS delete_std_tabs IMPORTING VALUE(iv_bukrs) TYPE bukrs
17
                                                  VALUE(iv awtyp) TYPE cfin accit-awtyp
                                                  VALUE(iv_logsys) TYPE logsystem
18
                                                  VALUE(iv where) TYPE string
19
                                        RAISING cx amdp error.
20
21
22
       PROTECTED SECTION.
23
       PRIVATE SECTION.
24
     ENDCLASS.
amdp_1.abap hosted with ♥ by GitHub
                                                                                              view raw
```

Most important part is here is, if you want to use any class with AMDP's, you have to implement 'if_amdp_marker_hdb' interface. So we have 2 static methods that we can access without creating an instance of the class. One of them copies data from one table to another and the other one just erases the data in tables.

So when you are writing the method of the class you have to add some keywords with which tables you are going to use, if not you cannot do any operations on these tables.

So we add both method declarations and table names to our methods.

BY DATABASE PROCEDURE FOR HDB LANGUAGE SQLSCRIPT

USING cfin_accit cfin_acchd cfin_accit_app cfin_accer cfin_accpa_char cfin_accfi cfin_acctx cfin_accit_wt cfin_accit_ccs cfin_accchg cfin_accchg cfin_accchg cfin_ausz_clr fins_cfin_mig_lg.



So as you see in the method below we can filter data's in the CFIN_ACCIT table with native HANA method 'APPLY_FILTER'.

Then we can select and get data from db. Also you can delete data from tables using DELETE keyword as we use in ABAP.

There are also fast alternatives like TRUNCATE but it is restricted for only local tables.

```
METHOD delete std tabs BY DATABASE PROCEDURE FOR HDB
                             LANGUAGE SQLSCRIPT
                             USING cfin accit cfin acchd cfin accit app cfin acccr cfin accpa char //
                                   cfin accfi cfin acctx cfin accit wt cfin accit ccs cfin accchg
                                   cfin_accchg cfin_ausz_clr fins_cfin_mig_lg.
 6
         lt accit = APPLY FILTER ( CFIN ACCIT, :iv where );
 7
8
         lt_accit_z = SELECT * FROM :lt_accit WHERE logsystem_sender = :iv_logsys
9
                                                                 AND bukrs = :iv bukrs
                                                                 AND awtyp = :iv awtyp;
10
11
         lt guid = SELECT acchd guid FROM :lt accit z;
12
13
14
         DELETE FROM cfin acchd
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
15
         DELETE FROM cfin accit
16
         DELETE FROM cfin_accit_app
                                         WHERE acchd_guid IN ( SELECT acchd_guid FROM :lt_guid );
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
17
         DELETE FROM cfin acccr
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
18
         DELETE FROM cfin accpa char
19
         DELETE FROM cfin accfi
                                         WHERE acchd_guid IN ( SELECT acchd_guid FROM :lt_guid );
20
         DELETE FROM cfin acctx
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
21
         DELETE FROM cfin accit wt
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
22
         DELETE FROM cfin accit ccs
                                         WHERE acchd_guid IN ( SELECT acchd_guid FROM :lt_guid );
23
         DELETE FROM cfin accchg
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
24
         DELETE FROM cfin ausz clr
                                         WHERE acchd guid IN ( SELECT acchd guid FROM : lt guid );
25
         DELETE FROM fins_cfin_mig_lg
                                         WHERE fi_acchd_guid IN ( SELECT acchd_guid FROM :lt_guid );
26
     ENDMETHOD.
```



For local variables you shouldn't forget the use ':' all the time.

So here below is the sample of create operation.

```
METHOD copy_to_ztables BY DATABASE PROCEDURE FOR HDB

LANGUAGE SQLSCRIPT USING

cfin_accit zcfin_accit cfin_acchd zcfin_acchd // Table Names

cfin_acccr zcfin_accfi zcfin_acccr cfin_accfi .

lt_accit = APPLY_FILTER ( CFIN_ACCIT, :iv_where );

lt_accit_z = SELECT * FROM :lt_accit where logsystem_sender = :iv_logsys

and bukrs = :iv bukrs
```

```
9
                                                                 and awtyp = :iv awtyp;
         INSERT INTO zcfin accit SELECT * FROM :lt accit z ;
10
11
12
13
         lt guid = SELECT acchd guid FROM :lt accit z;
14
16
         lt_acchd = SELECT * FROM cfin_acchd WHERE acchd_guid IN ( Select acchd_guid FROM :lt_guid );
17
18
         INSERT INTO zcfin acchd SELECT * FROM : lt acchd ;
         lt_acccr = SELECT * FROM cfin_acccr WHERE acchd_guid IN ( SELECT acchd_guid FROM :lt_guid )
19
         INSERT INTO zcfin acccr SELECT * FROM : lt acccr ;
20
21
         lt_accfi = SELECT * FROM cfin_accfi WHERE acchd_guid IN ( SELECT acchd_guid FROM :lt_guid );
         INSERT INTO zcfin accfi SELECT * FROM :lt accfi ;
22
     ENDMETHOD.
amdp_3.abap hosted with ♥ by GitHub
                                                                                             view raw
```

So what we do here is called as 'Code Pushdown'. We are decoupling db layer and ABAP layer from each other. And the CRUD operations on database level are blazing fast using AMDP's, thanks to HANA.





Here comes the pro tip!

So while working with HANA you will feel a little bit not-documented enough. And what I am going to show you is the best way to find example code in your own db.

In your HANA repository just open the schema named '_SYS_BIC'.



Table Types sap.ead.fnd.views/CA_CONTENT_FILES/proc sap.ead.fnd.views/CA_DASHBOARDS/proc 🥳 sap.ead.fnd.views/CA_DATASET/proc sap.ead.fnd.views/CA_KEYFIGURE_DEPENDENCIES/proc sap.ead.fnd.views/CA_MANUAL_KPI_DATA/proc sap.ead.fnd.views/CA_ROLES/proc sap.ead.fnd.views/CA_SCHEMAS/proc sap.ead.fnd.views/CA_SCHEMA_OBJECTS/proc sap.ead.fnd.views/CA_SEMANTICS/proc sap.ead.fnd.views/CA_STORIES/proc sap.ead.fnd.views/CA_STORY_GROUPS_TOPOLOGICAL_S sap.ead.fnd.views/CA_USERS/proc sap.hana-app.csan.common.internal/PR_VOICEOFCUST(sap.hana-app.cuan.ai.crm.internal/CA_AI_CRM_ACTIVIT 🔯 sap.hana-app.cuan.ai.crm.internal/CA_AI_CRM_CAMPAI 👺 sap.hana-app.cuan.ai.crm.internal/CA_AI_CRM_CAMPAI 🎼 sap.hana-app.cuan.ai.crm.internal/CA_AI_CRM_CAMP_E can bana ann cuan ai cros internal/CA AL CRM LEAD C

In this schema you can find lots of standard db procedures to reference for your developments.

It might look little bit different than AMDP's but in the end they all are written in SQLSCRIPT.

```
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           sap.hana-app.cuan.ai.internal/PR_AI_LOYALTY_FLL_S
                                                          SQLScript.
           tap.hana-app.cuan.ai.internal/PR_ALLOYALTY_STAT
                                                               reate procedure "_SYS_BIC". "sap.hana-app.cuan.contact.internal/CA_CONTACT_SCORING/proc" ( IN iv_contact_key VA A
           sap.hana-app.cuan.ai.internal/PR_AI_SEG_RANK_ASC
                                                                  lt_contact.
           tap hana-app cuan ai internal/PR AI SEG RANK DESC
                                                                      select
           (§ cap.hana-app.cuan.aunbemat/PK_ALSEU_RANK_L
                                                                                                                   · as contact key,
           sap.hana-app.cuan.al.internal/PR_AI_TOP_RECOMMENDA'
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           sap.hana-app.cuan.ai.internal/PR_CUST_LOWILTY
                                                                               validation_status,
                                                                               "VALIDATION_STATUS.description" www as validation_status_descr
          from "_SYS_BIC". "sap.hana-app.cuan.contact/AT_CE_CONTACT"
           sap.hana-app.cuan.ai/CA_Al_CUSTOMER_HIGH_CLV/proc.
                                                                      where db_key = : iv_contact_key;
           sap.hana-app.cuan.ai/CA_AI_TOP_RECOMMENDATINS_GLI
           tap.hana-app.cuan.ai/CA_SLS_CUSTOMER_SAT_CATEGOR!
                                                                   lt_recency_score--
           sap.hane-app.cuan.ai/CA_SLS_UNSATISFIED_CUSTOMERS/
                                                                      select
          tap.hana-app.cuan.hpln.v.internal/CA_MASTER_LIST_ITEN
           cap hana-app.cuan.common.com.internal/CA_CRM_RP_FR
                                                                              db keys
                                                                                                                  ····as contact key.
                                                                              recency_level
           sap.hana-app.cuan.common.com.internal/CA_CRM_USER_
                                                                       from "_SYS_BIC". "sap.hana-app.cuan.contact/AN_CONTACT_SCORING"
           sap.hana-app.cuan.common.com/CA_CRM_BP_REL_DURA
                                                                      where db key - : iv contact key;
           sap.hana-app.cuan.common.cnm/CA_CRM_CUSTOMER_R
           sap.hana-app.cuan.common.internal/CA_CRPM_FMD_CO
          sap.hana-app.cuan.common.internal/CA_CUAN_TG_QF_C
                                                                      select -- recency_level,
           sap.hana-app.cuan.common.internal/CA_CUSTOMER_TEA
                                                                               "RECENCY LEVEL.description"
           tap.hana-app.cuan.common.internal/CA_SEARCH_COPA_
                                                                       from "_SYS_BIC". "sap.hana-app.cuan.contact.internal/AT_RECENCY";
           sap.hana-app.cuan.common.internal/CA_SEARCH_COPA_
           sap.hara-app.cuan.common.internal/CA_SEARCH_COPA_
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                                                                      select-contact.contact_key» » » » » « "CONTACT_KEY",
           sap.hana-app.cuan.contact.internal/CA_CE_MARKETING_F
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           sap.hana-app.cuan.contact.internal/CA_CJL_RATH/proc
                                                                              contact.validation_status_description",
           sap.hana-app.cuan.contact.internal/CA_CJL_PATH_V2/proc
           FF sap hane-app cuan contact internal/CA CJI SPUT JA TVPE
                                                                              case-when-interactions.activity_score-is-null
           sap.hana-app.cuan.contact.internal/CA_CONSUMER_SALE
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           p cap.hana-app.cuan.contact.internal/CA_CONTACT_SCORE
           the sap.hana-app.cuan.contact.internal/CA_CRM_TG_MEMBER
                                                                              else-interactions.activity_score
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           sap.hana-app.cuan.contact.internal/CA_INTERACTION_SC
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          te sap.hana-app.cuan.contact.internal/PR_CLEANUP_IMPORT
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           sap.hane-app.cuan.contact.score.internal.datafoundation/
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Happy coding!

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