



Sreehari V Pillai

October 1, 2014 | 2 minute read

Lets explore AMDP – What is happening ?

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Introduction

AMDP(ABAP managed database procedures) enables coding SQL Script inside an ABAP Class method directly. OK, we are writing it inside the class methods, but where it is getting executed ? Answer is HANA Database for sure. How it is happening ? Let us explore.

Create a AMDP enabled class

Here I created a AMDP enabled class and wrote necessary implementation as below(Please don't look into the logic. Its all weird).

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```
▶ ZCL_HANA_AMDP ▶ GET_MATERIAL_DESC

class ZCL_HANA_AMDP definition
    public
    final
    create public .

    public section.
    interfaces : if_amdp_marker_hdb.
    methods : get_material_desc
                exporting value(outvar) type ZIF_TYPES=>matdesc
                        value(outvar2) type zif_types=>material.

    protected section.
    private section.
ENDCLASS.

CLASS ZCL_HANA_AMDP IMPLEMENTATION.

METHOD GET_MATERIAL_DESC BY database procedure
    for hdb
    language sqlscript
    using MAKT MARA.

    test_var = SELECT MATNR,
                  MAKTX
                from MAKT
                where
                  SPRAS = 'E';

    outvar = select * from :test_var;
    outvar2 = select MATNR from MARA;
ENDMETHOD.

ENDCLASS.
```

Now I activated the class and executed the method GET_MATERIAL_DESC.

For each of the exporting variables specified, it created SQL Views in the ABAP Schema .

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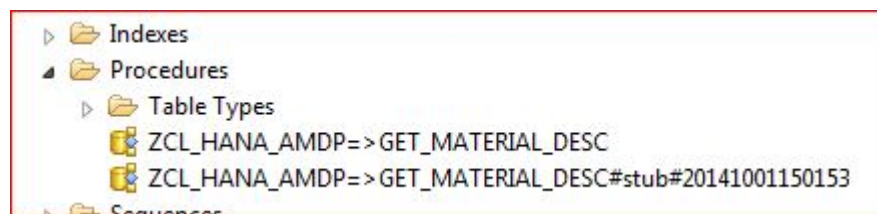
```
View Name:
ZCL_HANA_AMDP=>MAKT#covw

Columns Create Statement
CREATE VIEW "SAPERS"."ZCL_HANA_AMDP=>MAKT#covw" ( "MANDT",
"MATNR",
"SPRAS",
"MAKTX",
"MAKTG" ) AS select
"MANDT",
"MATNR",
"SPRAS",
"MAKTX",
"MAKTG"
from "MAKT"
```

(Did you notice the View name)

For each of the methods we are creating in the AMDP class, it will create 2 database procedures in the HANA DB. Both the view creation and procedures creation will be done when the class method is used first.(That is when it is executed for the first time – This make sense. Now it is so easy to transport the developments to Quality or Production system. We don't need to bother about the HANA here) .

Lets go the procedures created by it.



1.CLASSNAME=>METHODNAME Procedure

This procedure will contain the actual logic which we have written inside the AMDP Class method. Only difference is, it will replace the objects specified in the USING clause with the view name.

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SQLScript

```
create procedure
  "ZCL_HANA_AMDP=>GET_MATERIAL_DESC"
(
  out  "OUTVAR" "ZCL_HANA_AMDP=>GET_MATERIAL_DESC=>OUTVAR#tft",
  out  "OUTVAR2" "ZCL_HANA_AMDP=>GET_MATERIAL_DESC=>OUTVAR2#tft"
)
language sqlscript sql security invoker as begin

  test_var = SELECT MATNR,
                  MAKTX
                from "ZCL_HANA_AMDP=>MAKT#covw"
                where
                  SPRAS = 'E';

  outvar = select * from :TEST_VAR;
  outvar2 = select MATNR from "ZCL_HANA_AMDP=>MARA#covw";

end;
```

2.CLASSNAME=>METHODNAME#stub#timestamp procedure

This procedure is a wrapper procedure for the real one created . This procedure will call the first procedure and project the returned result set.

SQLScript

```
create procedure
  "ZCL_HANA_AMDP=>GET_MATERIAL_DESC#stub#20141001150153"
(
)
language sqlscript sql security invoker as begin

  call "ZCL_HANA_AMDP=>GET_MATERIAL_DESC" (
    "OUTVAR" => :OUTVAR ,
    "OUTVAR2" => :OUTVAR2
  );
  select * from :OUTVAR;
  select * from :OUTVAR2;

end;
```

Limitations of AMDP – Why is it so ?

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Below are some key limitations of AMDP classes. Let us see, why it is so.

- 1.Methods with returning parameters cannot be implemented as AMDPs : A Procedure does not return anything. Which exports multiple outputs.
- 2.Method parameters have to be tables or scalar types – No Single line concept here in procedure returns.
- 3.Method parameters have to be passed as values : Well, how you will pass it by reference from ABAP to HANA SQL Script ? 😊

Regards

Sreehari

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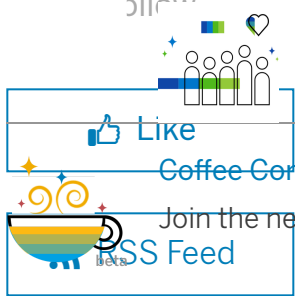
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Prashanth P

October 1, 2014 at 10:40 am

Wow...good one!

Very informative!

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October 1, 2014 at 8:03 pm

Hello Sreehari,

Indeed a very informative post! I have two small questions:

1. If you change the coding in the method, will the database view adjust accordingly? And also not just the code, maybe the signature as well or the used tables.
2. If you delete the AMDP class, will the hdb view also be deleted?

Thanks, keep up the good work!

Tudor

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Sreehari V Pillai | Blog Post Author

October 7, 2014 at 3:56 am

Hi Tudor,

Thanks.

1. Changing code in the method will alter the procedure code, and any change we make in the method signature will alter the view. No tables will be directly used in the procedure, but will create views correspondingly(may be to avoid update operations directly SAP tables)
2. No, If we delete the AMDP class, the methods will not be deleted automatically.

Sree

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Former Member

October 13, 2014 at 6:48 am

Good one ... Really helpful and  nformative.

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Former Member

October 27, 2014 at 6:59 am

Good one .

Jhansi.

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Sreehari V Pillai | Blog Post Author

January 5, 2015 at 10:28 am

Thanks Jhansi 😊

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Hyuk Joo Lee

January 13, 2015 at 9:30 am

Hello Sreehari,

It's good article to understand AMDP lifecycle 😊

BTW, could you please let me know why 2nd procedure, "CLASSNAME=>METHODNAME#stub#timestamp procedure"?

It seems the 1st one , "CLASSNAME=>METHODNAME" is already good enough..

Best Regards,

Hyukjoo

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Sreehari V Pillai | Blog Post Author

January 28, 2015 at 8:34 am

Hi Lee,

Sorry for the late reply. As you said, CLASSNAME=>METHOD name is good enough. In my understanding, #stub is a wrapper to the actual procedure definition. Reason for this could be to isolate the definition and variable mapping parts.

Sree

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Hyuk Joo Lee

January 29, 2015 at 12:29 pm

Hi Sree,

Thank you for your helpful answer~!!

BR,

Hyukjoo

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Former Member

January 27, 2015 at 4:46 pm

Hi Carine,

I saw your video and also I have been looking at the documentation in SQL script. I wonder if there is any possibility to do an AMDP that can include in its first query a range variable (WHERE f1 IN r_var) or something similar to a for all entries?

I appreciate any help you can provide.

Cheers,

David

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Tudor Riscutia

January 28, 2015 at 7:45 am

Hi Jose,

You can create an instance of class CL_LIB_SELTAB and it's method SQL_WHERE_CONDITION to generate a native-compliant SQL statement from your select-option before actually calling your procedure.

Tudor

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Sreehari V Pillai | Blog Post Author

January 28, 2015 at 8:54 am

one more option. Using the range variable, I will get a list of key values(for ebeln range, I issue a select ebeln from ekko, to get the list) first from the abap context. Then this list is passed directly into the AMDP procedure. From the procedure, I'll issue the IN statement or in case of information models, I will serialize the list to make a comma separated list .

Sree

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Former Member

March 18, 2015 at 11:36 am

very nice , giving clear picture about AMDP 😊

Thanks u so much 😊

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Sreehari V Pillai | Blog Post Author

March 18, 2015 at 12:35 pm

Thanks Atul 😊

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Megha Goel

December 4, 2015 at 11:26 am

Hi,

how to consume amdp procedures in CDS views and table functions?

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Sreehari V Pillai | Blog Post Author

May 27, 2016 at 9:12 pm

its been a long time i checked scn notifs. Did you resolve these ?

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Avinash D M

May 3, 2016 at 3:39 pm

Very usefull information 😊

Like 1 | Share



Former Member

July 22, 2016 at 2:17 pm

Hello Sreehari,

Very nice blog. thanks for that. Well could you please help me to understand that when to use CDS view and When to AMDP. I have read that for performance always use CDS so when AMDP best to use ??

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Sreehari V Pillai | Blog Post Author

October 19, 2017 at 10:49 am

I know its late to reply !

There are situations where you need to use many core features of HANA which can not be done through CDS - Say, you need to do a predictive analysis on a set of data. Writing it in CDS will be difficult (possible still) -

SH

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