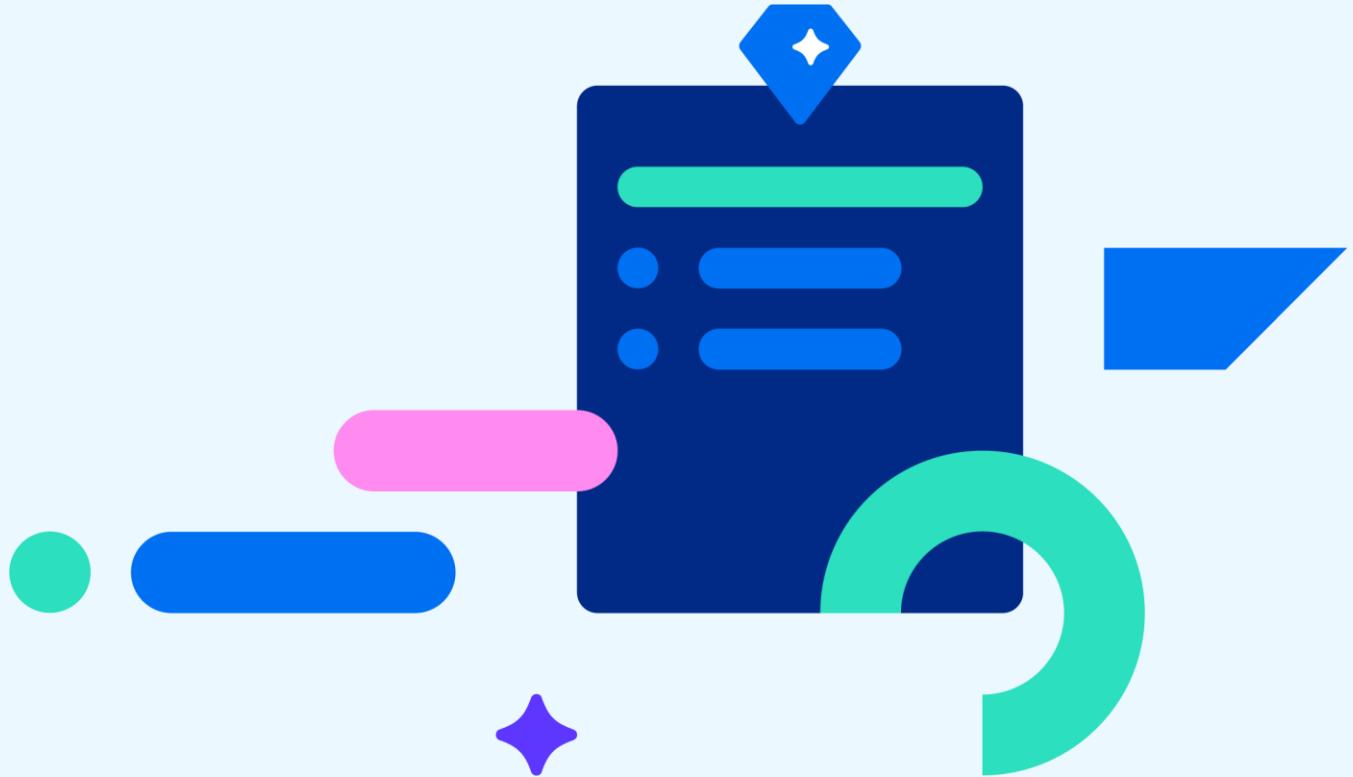


DT260 – Modernize classic extensions for clean core in SAP Cloud ERP Private

Ingo Braeuninger, Olga Dolinskaja,
Thomas Fiedler, Markus Göbel, SAP

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Agenda

Introduction

Exercise 1

- Modernize the Flight Evaluation application with ABAP Cloud

Exercise 2

- Create Fiori app for Flight Evaluation with ABAP Cloud and RAP

Exercise 3

- Analyze the Customer Dashboard application for clean core

Get Started



Introduction



What you will do in this hands-on workshop

Modernize legacy Flight Evaluation application with ABAP Cloud



ABAP Program

Airline	Connection	Booking	Customer	Customer Name	Meal	Flight	Service
LH	400	00000164	27	16.02.2025 SAP Canada Inc.	4	3	1
LH	400	00000167	656	16.02.2025 Georg Columbo	2	3	1
LH	400	00000280	2358	16.02.2025 Anna Barth	5	4	2
LH	400	00000364	Enter Evaluation of Passenger				0
LH	400	00000071					0
LH	400	00000072					0
LH	400	00000083					0
LH	400	00000086					0
LH	400	00000091					0
LH	400	00000112					0
LH	400	00000118					0
LH	400	00000119					0
LH	400	00000125					0
LH	400	00000153	4293	16.02.2025 Annemarie Vrsic	0	0	0
LH	400	00000157	4353	16.02.2025 Jean-Luc Vrsic	0	0	0
LH	400	00000158	3841	16.02.2025 Thilo Benjamin	0	0	0
LH	400	00000162	3472	16.02.2025 Anna Prinz	0	0	0
LH	400	00000166	707	16.02.2025 Florian Goeleke	0	0	0



Standard

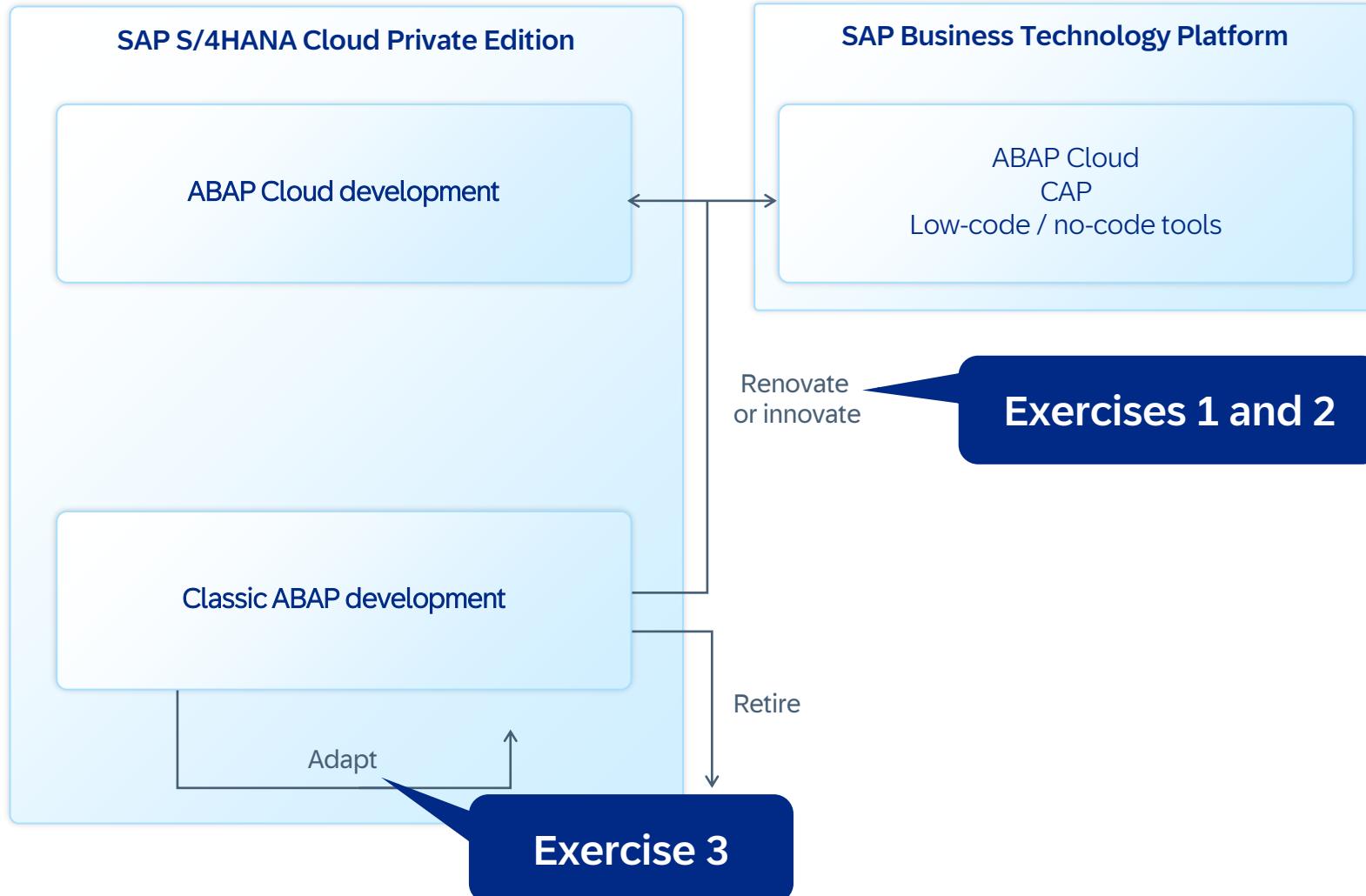
Editing Status: All Airline:

FlightEvals (434)

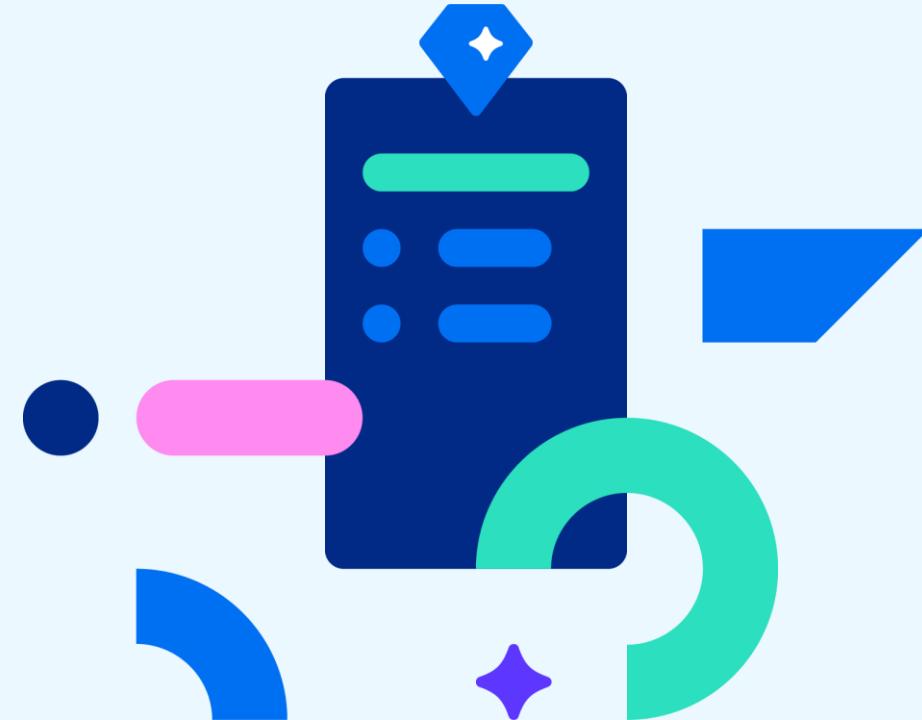
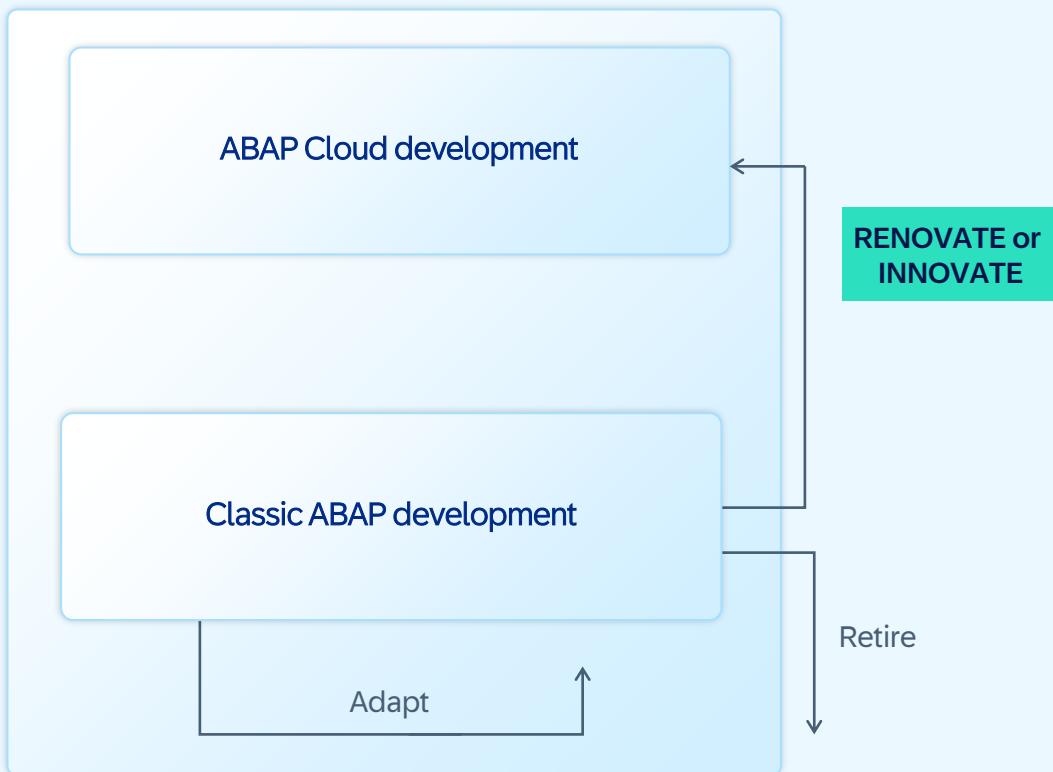
Airline	Connection	Fldate	Booking	Customer	Cust. Name	Meal Rating	Flight Rating	Service Rating
AA	17	Feb 13, 2025	00000001	4461	Hendrik Buehler	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000002	4512	Jean Pratt	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000003	1417	Jean-Luc Miguel	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000004	1417	Christine Domenech	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000005	1417	Meal Rating: ★★★★☆	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000006	1417	Flight Rating: ★★★★★	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000007	1417	Service Rating: ★★★★☆	★★★★★	★★★★★	★★★★★
AA	17	Feb 13, 2025	00000008	1417	Draft updated	Save	Discard	★★★★★

Clean core extensibility for SAP Cloud ERP Private

Stepwise cloud transformation



Exercise 1



How to adapt custom code for ABAP Cloud in SAP Cloud ERP Private

Use ABAP development tools for Eclipse for custom code analysis and adaptation

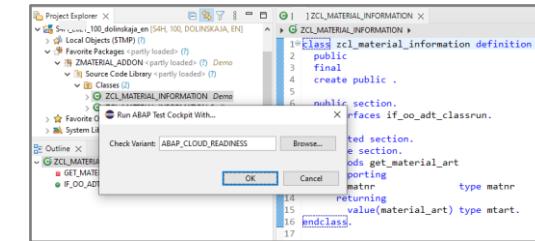
Run ABAP Test Cockpit with ABAP_CLOUD_READINESS check variant

Adapt to ABAP Cloud usage

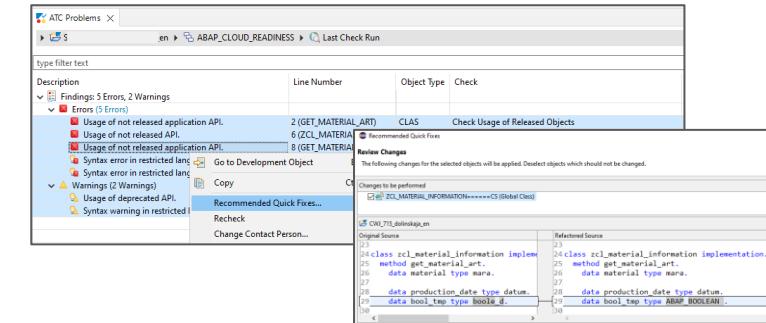
- Use mass-enabled Quick Fixes in ABAP development tools for Eclipse
- Use released objects and object types
- Use successor released SAP APIs displayed in the details of ATC analysis results
- For missing released APIs implement your custom wrappers

/ Check out [How to make your custom code cloud-ready and upgrade-stable](#)

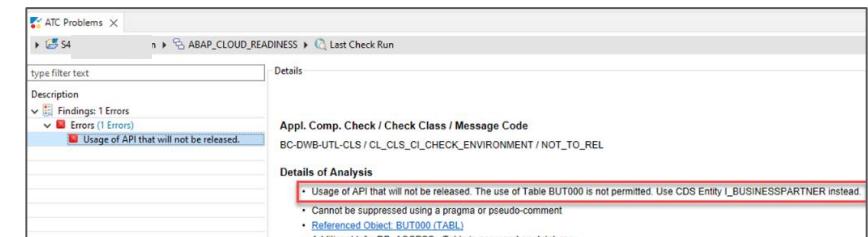
Run ATC with ABAP_CLOUD_READINESS



Apply quick fixes

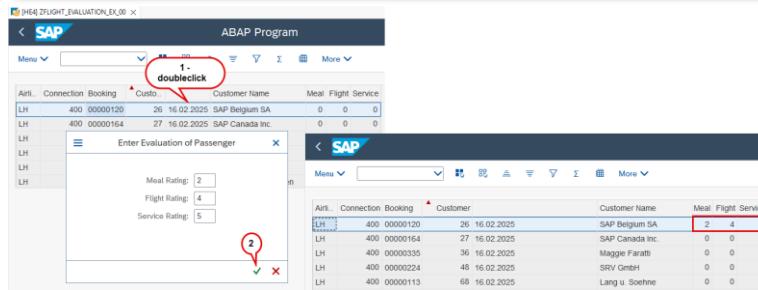


Use successor released SAP API

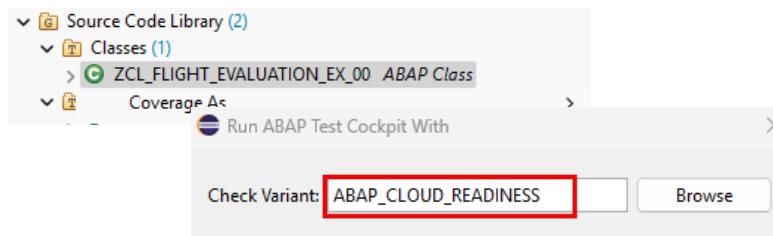


Exercise 1: Modernize the Flight Evaluation application with ABAP Cloud

1 - Get to know Flight Evaluation application



2 - Check application logic for ABAP Cloud with ABAP test cockpit

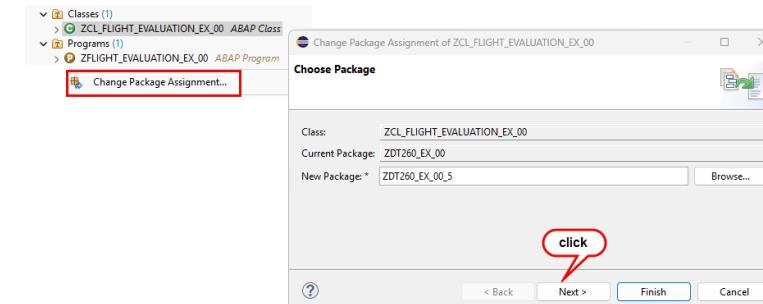


3 – Adjust ABAP Cloud related issues

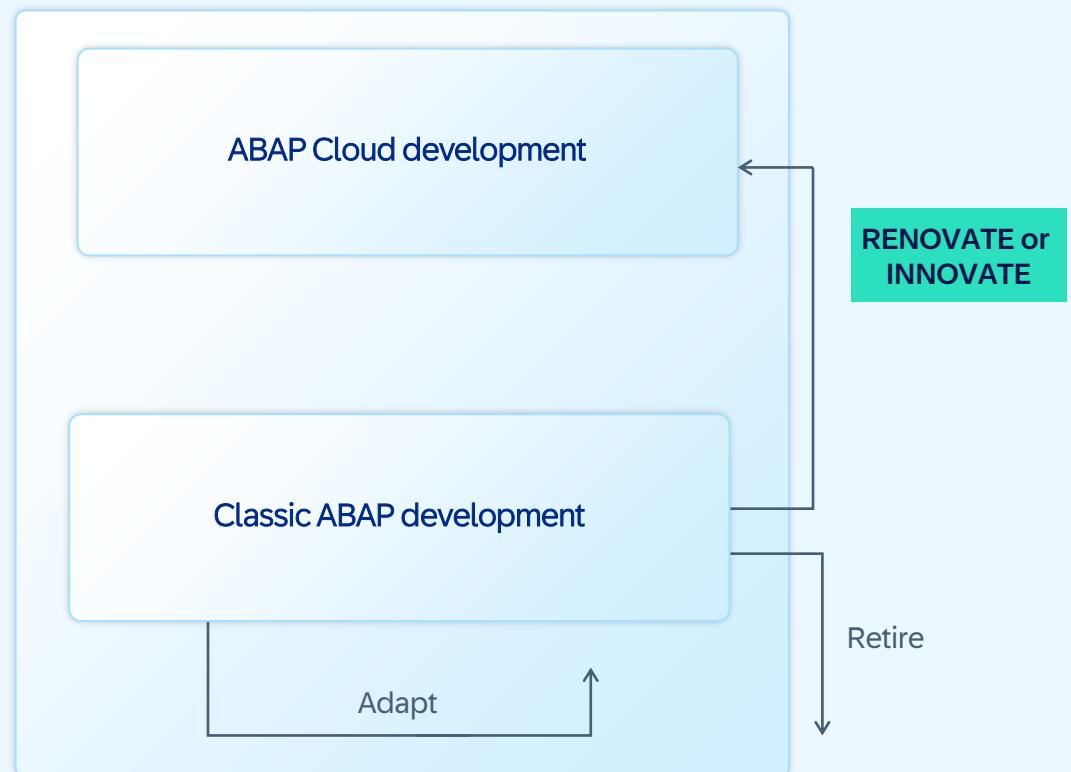
The screenshot shows the ATC Problems interface. It displays a table of findings with columns: Description, Lin..., Obj..., Package, and Object Name. The table lists 10 errors and 4 warnings. A green callout box highlights the 'Findings: 10 Errors, 4 Warnings' section. Another green callout box lists four specific actions: 'Apply quick fixes', 'Replace with released Data Element', 'Use successor released SAP APIs', and 'Create custom CDS view to fix direct access to SAP tables'.

Description	Lin...	Obj...	Package	Object Name
Findings: 10 Errors, 4 Warnings				
Errors (10 Errors)				
Syntax error in restricted language scope	2 (GET	CLAS	ZDT260_EX_00	ZCL_FLIGHT_EVALUATION_EX_00
Usage of API that will not be released.	2 (CRE	CLAS	ZDT260_EX_00	ZCL_FLIGHT_EVALUATION_EX_00
Syntax error in restricted language scope (Op)				
Syntax error in restricted language scope (Op)				
Syntax error in restricted language scope (Op)				
Syntax error in restricted language scope (Op)				
Usage of not released ABAP Platform APIs.				
Usage of not released ABAP Platform APIs.				
Syntax error in restricted language scope (Op)				
Usage of not released ABAP Platform APIs.				
Warnings (4 Warnings)				
Usage of deprecated API.	11 (ZC	CLAS	ZDT260_EX_00	ZCL_FLIGHT_EVALUATION_EX_00
Usage of deprecated API.	21	CLAS	ZDT260_EX_00	ZCL_FLIGHT_EVALUATION_EX_00
Usage of deprecated API.	22	CLAS	ZDT260_EX_00	ZCL_FLIGHT_EVALUATION_EX_00
Usage of deprecated API.	49	CLAS	ZDT260_EX_00	ZCL_FLIGHT_EVALUATION_EX_00

4 – Switch ABAP language version to ABAP Cloud and move the code to ABAP Cloud development package



Exercise 2



Exercise 2: Create SAP Fiori application for Flight Evaluation with ABAP Cloud and RAP

1 – Generate RAP application for Flight Evaluation

Generate ABAP Repository Objects

Select Generator

Generate multiple repository objects.

Project: * HE4_400_dt260-00_en

Filter by: TABL (Data)

type filter text

Standard ▾

Editing Status: All

FlightEvals (808)

Airline	Connection	Fidate	Booking	Customer	Cust. Name	Meal Rating	Flight Rating	Service Rat...
AZ	555	Feb 13, 2025	00000001	2527	Peter Matthaeus	0	0	0 >
AZ	555	Feb 13, 2025	00000002	3597	Ruth Jacqmain	0	0	0 >
AZ	555	Feb 13, 2025	00000003	2919	Gisela Eichbaum	0	0	0 >
AZ	555	Feb 13, 2025	00000004	4579	Claire Cesari	0	0	0 >
AZ	555	Feb 13, 2025	00000005	3179	Sophie Heller	0	0	0 >
AZ	555	Feb 13, 2025	00000006	459	Alien Hoffen	0	0	0 >

Create Delete

2 – Add the functionality to enter flight rating for a customer

```
5 define behavior for ZR_FLEVAL_EX_00 alias FlightEval
6 persistent table zfleval_ex_00
7 draft table ZFLEVAL_EX_00_D
8 with unmanaged save
9 etag [It is not possible to specify both "unmanaged save" and "persistent table" at the same time.
10 lock master total etag Lastchangedat
11 authorization master( global )

5 define behavior for ZR_FLEVAL_EX_00 a 2 - comment out
6 //persistent table zfleval_ex_00
7 draft table ZFLEVAL_EX_00_D
8 with unmanaged save
9 etag master Locallastchangedat
10 lock master total etag Lastchangedat
11 authorization master( global )

5 define behavior for ZR_FLEVAL_EX_00 alias FlightEval
6 //persistent table zfleval_ex_00
7 draft table ZFLEVAL_EX_00_D
8 with unmanaged save
9 etag master Locallastchangedat
10 lock master total etag Lastchangedat
11 authorization master( global )
Add required method save_modified in new local saver class
3 - use quick fix Ctrl + 1
Add missing method save_modified in n
zbp_fleval_ex_00.
```

3 – Add the functionality to add new flight evaluation data

Standard

Editing Status:
All

FlightEval (809)

Create Flight Eval Data Create Delete

Flight	Booking	Customer	Cust. Name
AZ 555	Feb 15, 2025	Airline: AA	Flieger
AZ 555	Feb 15, 2025	Flight Date: Feb 15, 2025	Rain
AZ 555	Feb 15, 2025	Connection: 64	baum
AZ 555	Feb 15, 2025	Flight Date: Feb 15, 2025	Wetter
AZ 555	Feb 15, 2025	Flight Date: Feb 15, 2025	Standard
AZ 555	Feb 13, 2025	00000008	Cindy
AZ 555	Feb 13, 2025	00000009	Hend

Editing Status:
All

FlightEval (1,622)

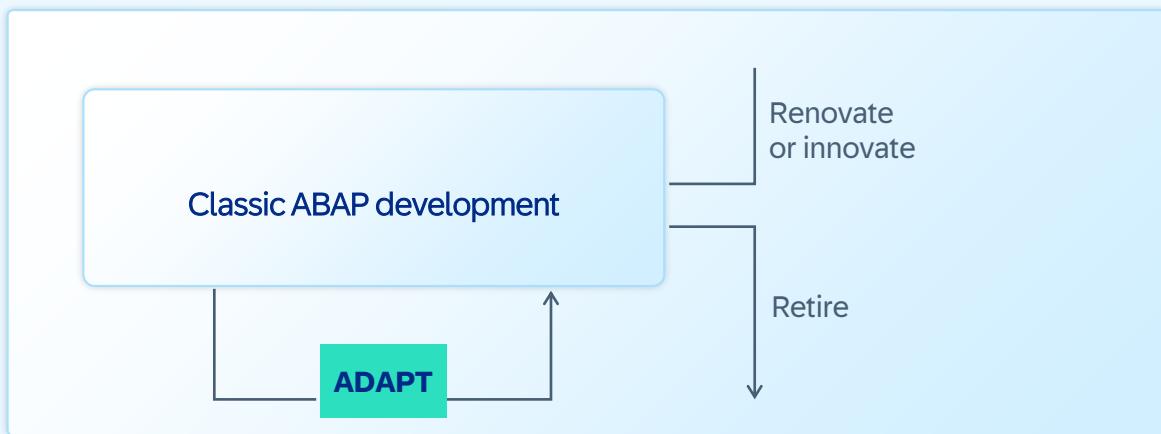
Create Flight Eval Data Create Delete

Flight	Booking	Customer	Cust. Name
AA 17	Feb 13, 2025	00000001	4461 Hendrik Buehler
AA 17	Feb 13, 2025	00000002	4512 Jean Pratt
AA 17	Feb 13, 2025	00000003	1417 Jean-Luc Mgwai
AA 17	Feb 13, 2025	00000004	2223 Anna Deschgraeber
AA 17	Feb 13, 2025	00000005	3236 Christine Domenech
AA 17	Feb 13, 2025	00000006	2673 Anna Mechler
AA 17	Feb 13, 2025	00000007	3067 Hendrik Benjamin
AA 17	Feb 13, 2025	00000008	3793 Walter Buchholz

4 – Change visualisation to star rating of flights

FlightEvals (1,622)										Create Flight Eval Data	Create	Delete
	Airline	Connection	Fidate	Booking	Customer	Cust. Name	Meal Rating	Flight Rating	Service Rating			
<input type="checkbox"/>	AA	17	Feb 13, 2025	00000001			★★★☆☆	★★★★★	★★★☆☆			
<input type="checkbox"/>	AA	17	Feb 13, 2025	00000002	4512	Jean Pratt	★★★★★	★★★★★	★★★★★			
<input type="checkbox"/>	AA	17	Feb 13, 2025	00000003	1417	Jean-Luc Miguel	★★★★★	★★★★★	★★★★★			
<input type="checkbox"/>	AA	17	Feb 13, 2025	00000004	2223	Anna Deichgraeben	★★★★★	★★★★★	★★★★★			
<input type="checkbox"/>	AA	17	Feb 13, 2025	00000005	3236	Christine Domenech	★★★★★	★★★★★	★★★★★			

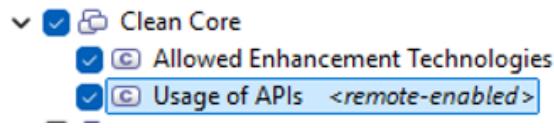
Exercise 3



How to adapt custom code for clean core in SAP Cloud ERP Private

Use ABAP development tools for Eclipse for custom code analysis and adaptation

Run ABAP Test Cockpit with check variant including clean core checks



Usage of APIs check

- is based on usage guidelines for SAP APIs
- uses [classic APIs](#) (e.g., CL_SALV_TABLE) provided as JSON file on GitHub

/ Learn more : [ATC recommendations for governance of clean core development](#)

Cloudification Repository Viewer: Classic APIs list

The screenshot shows the SAP Cloudification Repository Viewer interface. The main area displays a table titled 'SAP Cloud ERP Private Latest + Classic APIs (7711)' with columns for Application Component, Object Key, Object Type, and State. One row is highlighted for 'CL_SALV_TABLE'. A detailed view of this object is shown in a modal window:
Object Key: CL_SALV_TABLE
Object Type: CLAS
State: Classic API
Application Component: BC-SRV-ALV
Software Component: SAP_BASIS
Main Object Name: CL_SALV_TABLE
Main Object Type: CLAS
Object Type: CLAS

Usage of APIs: Check behavior

- No ATC finding
Usage of released API
- Priority 3 (Info)
Usage of classic API
- Priority 2 (Warning)
Usage of internal APIs (not classified API)
SQL read access to SAP database table
SUBMIT statement on programs
- Priority 1 (Error)
Usage of "no API" (with successor if available)
SQL write access to SAP database table
PERFORM statements on external subroutines

Exercise 3: Analyze the Customer Dashboard application for clean core

1 – Analyze Customer Dashboard application for ABAP Cloud

The screenshot shows the ATC Problems interface with the following details:

- Project: HE4_400_dt260-00_en > ABAP_CLOUD_READINESS > Last Check Run
- Description: Findings: 16 Errors
- Check: Usage of Released APIs
- Details:
 - Appl. Comp. Check / Check Class / Message Code: BC-DWB-CEX / CL_CLS_CI_CHECK_ENVIRONMENT / 1
 - Details of Analysis:
 - Usage of not released ABAP Platform APIs. The use of Class CL_SALV_TABLE is not permitted.
 - Cannot be suppressed using a pragma or pseudo-comment
 - Referenced Object: CL_SALV_TABLE (CLAS)
 - Referenced Application Component: BC-SRV-ALV
 - Referenced Package: SALV_OM_OBJECTS
 - Referenced Software Component: SAP_BASIS

2 – Analyze Customer Dashboard application for clean core

The screenshot shows the ATC Problems interface with the following details:

- Project: HE4_400_dt260-00_en > ZDT260_CLEAN_CORE_DEVELOPMENT > Last Check Run
- Description: Findings: 2 Errors, 2 Warnings, 3 Infos
- Check:
 - Usage of APIs (2 Errors): Updating DDIC database tables or DDIC table views is not allowed, Usage of API that must not be used
 - Usage of APIs (2 Warnings): Reading from DDIC database tables or DDIC table views is not recommended, Usage of internal API
 - Usage of APIs (3 Infos): Usage of classic API
- Package: ZDT260_FLIGHT_EVALUATION

3 – Get to know Cloudfication Repository Viewer

The screenshot shows the Cloudfication Repository Viewer interface with the following details:

- SAP Product: SAP Cloud ERP Private
- Release: Latest
- Partner Namespace: Select Partner Namespaces
- Object Type: Class API
- Software Component: SAP_BASIS
- Application Component: BC-SRV-ALV
- Object Key: CL_SALV_TABLE
- Object Type: CLAS
- State: Class API

The interface displays a list of related objects under "SAP Cloud ERP Private Latest – Classic APIs (79)" and shows the "CL_SALV_TABLE" object in detail.

4 – Understand clean core checks

The screenshot shows a code editor with several annotations explaining clean core violations:

- Read access to SAP table not recommended (highlighted in yellow):

```
data scouter type ref to cl_salv_table.
try:
    cl_salv_tablefactory(
        r_salv_table
    )->create(
        t_table = customer_evaluations
    );
    exit.
endif.
```
- Usages of classic APIs (highlighted in blue):

```
data alv_table type ref to cl_salv_table.
try:
    cl_salv_tablefactory(
        r_salv_table
    )->create(
        t_table = customer_evaluations
    );
    caten salv_msg.
    exit.
endif.
```
- Updates of SAP tables are not allowed (highlighted in red):

```
method set_discount_for_customer.
    data scouter type ref to cl_salv_table.
    update scouter set discount = @discount where id = @customer.
```
- Usage of internal API is not recommended (highlighted in red):

```
method read_split.
    call function 'READ_SPLIT_INTO_TABLE'.
    exporting
        i_file = 'I'.
    exceptions
        max_lines = 1
        others = 2.
    if sy-subrc > 0.
        exit.
    endif.
```
- Usage of API which must not be used (highlighted in red):

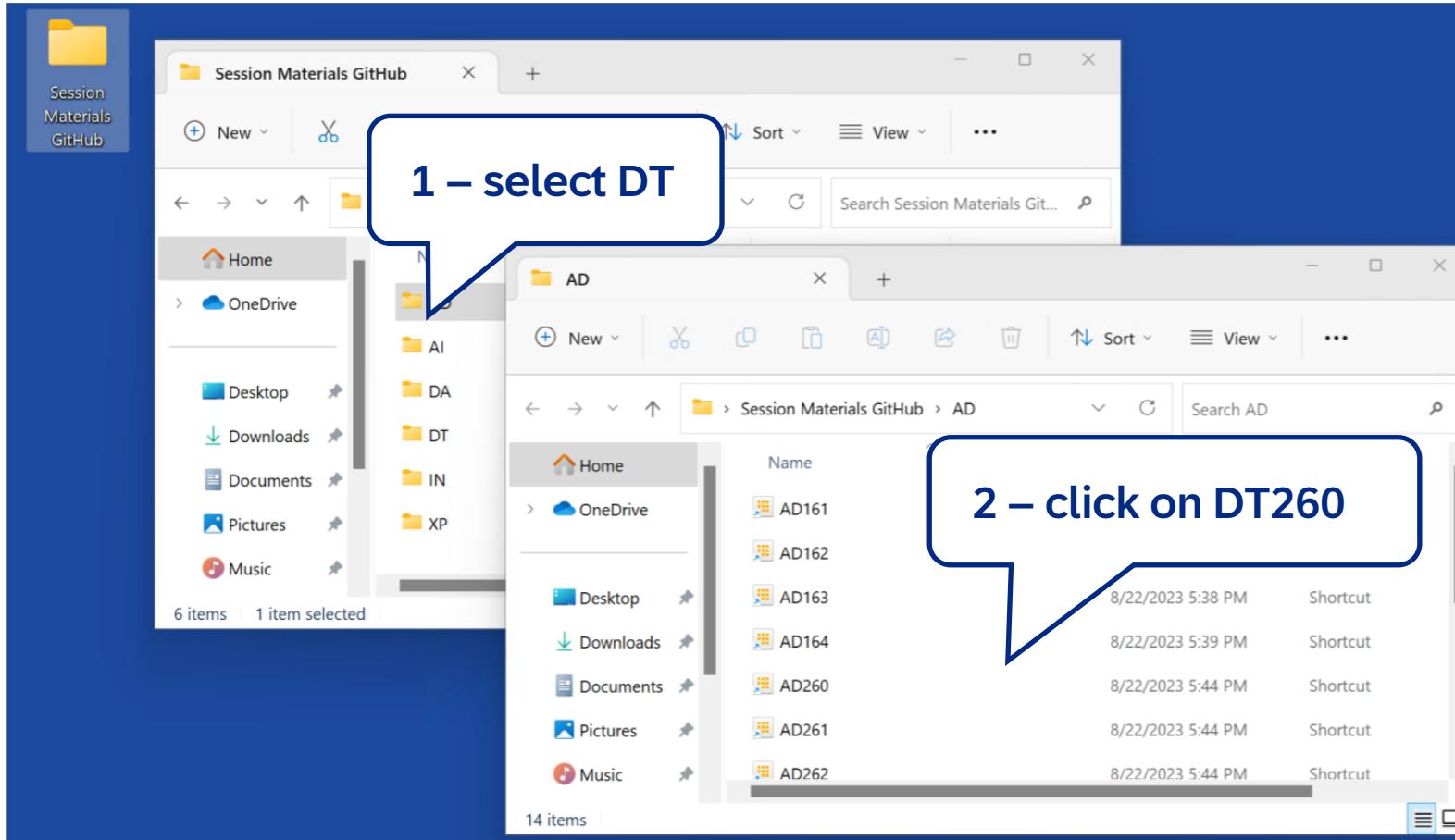
```
method read_data_from_remote_system.
    call function 'RFC_READ_TABLE'.
endif.
```

Get started



How to access session materials

GitHub access from SAP TechEd client



Get Started

ABAP development tools for Eclipse	Accessible via the Desktop Shortcut („Eclipse“)
ABAP system access	System: HE4 (already configured in SAP Logon) Client: 400 User: DT260-## (## is your group number) Password: Welcome1!
ABAP packages	ZDT260_EX_## (Standard ABAP) ZDT260_EX_##_5 (ABAP Cloud) ZDT260_FLIGHT_EVALUATION
Solution ABAP package	ZDT260_SOLUTION_5

Ingo Braeuninger
ingo.braeuninger@sap.com

Olga Dolinskaja
olga.dolinskaja@sap.com

Thomas Fiedler
thomas.fiedler@sap.com

Markus Goebel
markus.goebel@sap.com

Thank you!



SAP Bring out your best.