

Debug like a Pro

APEX Debugger edition

APEX Debug like a pro

Giliam Breems



QUALOGY



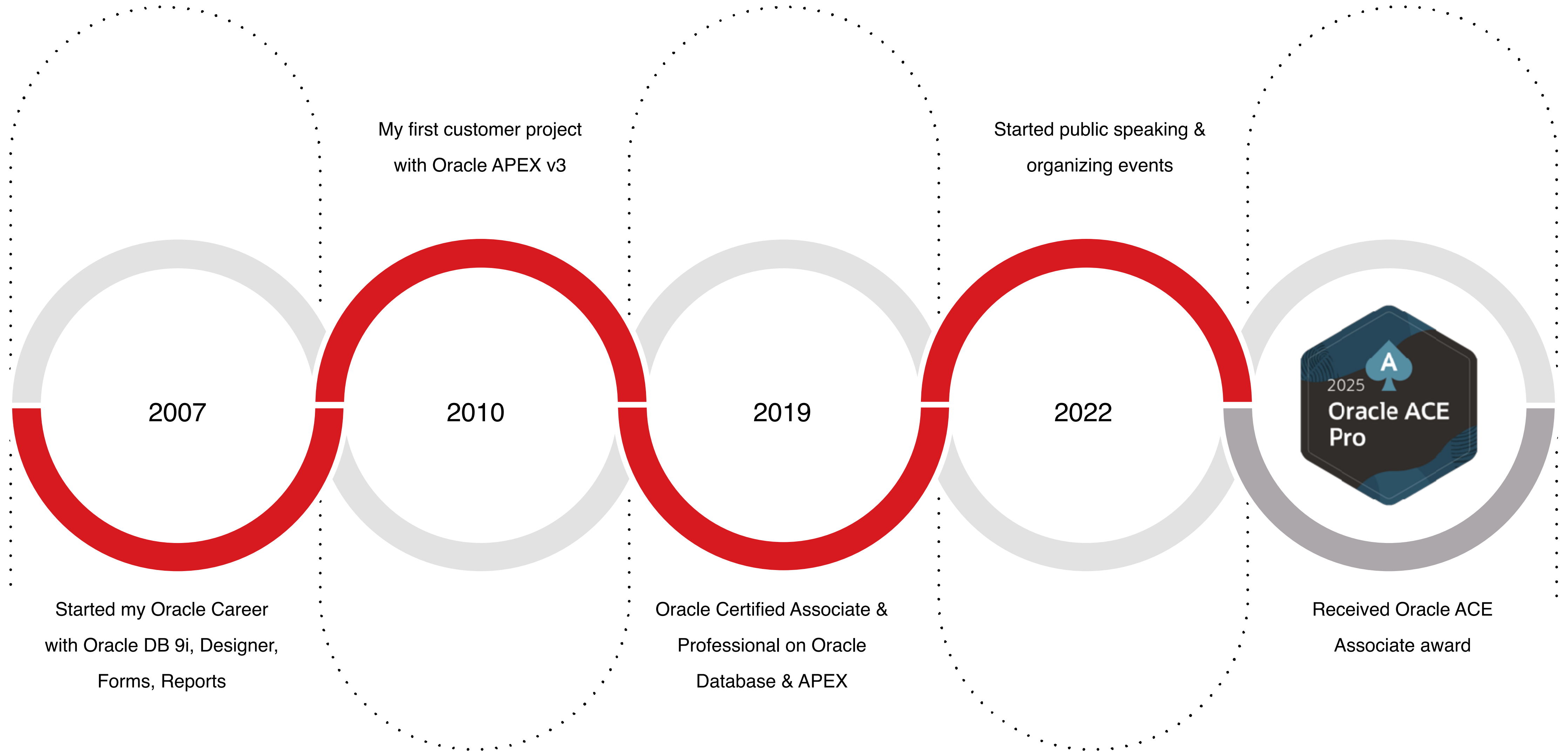
Giliam Breems
Gouda, Netherlands



Senior APEX Consultant



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gbreems@qualogy.com





The Oracle ACE Program

400+ technical experts helping peers globally



- The Oracle ACE Program recognizes and rewards community members for their technical and community contributions to the Oracle community
- 3 membership levels: Director, Pro, and Associate
- Nominate yourself or a colleague at ace.oracle.com/nominate
- Learn more at ace.oracle.com



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Exclusive Content

Exclusive **monthly virtual meetings** with product development teams + engaging guest speakers



Direct Access to Product Management

Multiple **direct communication channels** to product management and fellow ACEs



Networking

In-person & virtual networking opportunities for ACEs to **connect with product development** and each other.



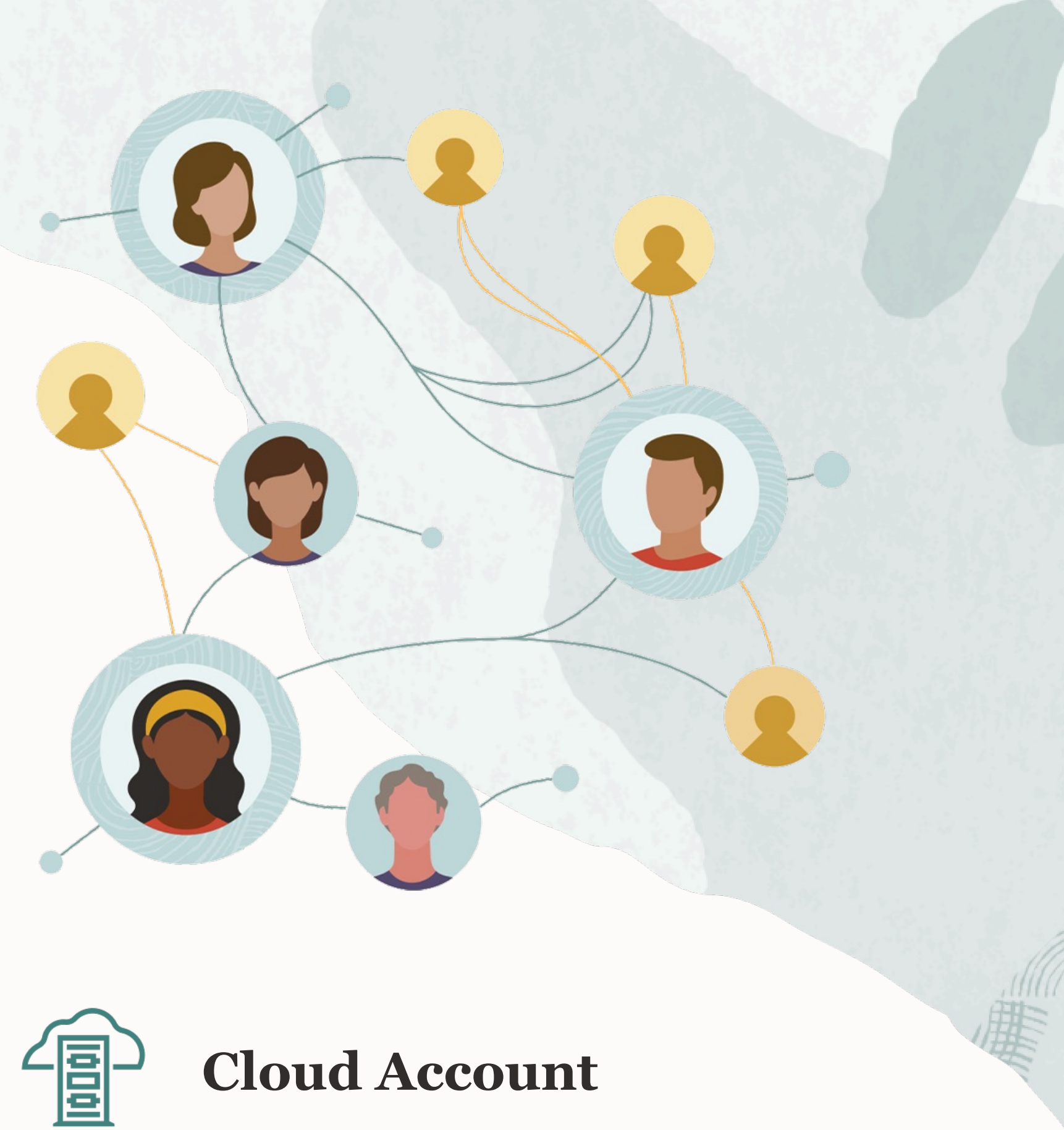
Cloud Account

\$5k USD Cloud account*



Travel Support

ACE Directors are eligible for travel support to give presentations or lead workshops at conferences globally



... Smile

**... You're on
camera**



What is debugging?

What is Debugging?

Identify Error

Identify the Error Location



Analyze Error

Prove the Analysis

Cover Lateral Damage

“... is the process of
identifying (and fixing)
the cause of an
unexpected behaviour”

Employees

	Employee Name	Job	Manager
	SMITH	CLERK	FORD
	ALLEN	SALESMAN	BLAKE
	WARD	SALESMAN	BLAKE
	JONES	MANAGER	KING
	MARTIN	SALESMAN	BLAKE
	BLAKE	MANAGER	KING
	CLARK	MANAGER	KING
	SCOTT	ANALYST	JONES
	KING	PRESIDENT	
	TURNER	SALESMAN	BLAKE
	ADAMS	CLERK	SCOTT
	JAMES	CLERK	BLAKE
	FORD	ANALYST	JONES
	MILLER	CLERK	CLARK



ORA-01403: no data found

Contact your application administrator. Details about this incident are available via debug id "1584789823".

Technical Info (only available for developers)

- 1. is_internal_error: false
- 2. ora_sqlcode: 100
- 3. ora_sqlerrm: ORA-01403: no data found

ORA-06512: at "APEX_230100.WWV_FLOW_PROCESS_NATIVE", line 55
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC_PLSQL", line 126
ORA-06512: at "APEX_230100.WWV_FLOW_DYNAMIC_EXEC", line 2643
ORA-06512: at line 1
ORA-06512: at "SYS.DBMS_SYS_SQL", line 2120
ORA-06512: at "SYS.WWV_DBMS_SQL_APEX_230100", line 806
ORA-06512: at "APEX_230100.WWV_FLOW_DYNAMIC_EXEC", line 2603
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC_PLSQL", line 97
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC_PLSQL", line 430
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC", line 614
ORA-06512: at "APEX_230100.WWV_FLOW_EXEC_LOCAL", line 3101
ORA-06512: at "APEX_230100.WWV_FLOW_EXEC", line 2657
ORA-06512: at "APEX_230100.WWV_FLOW_EXEC", line 2693
ORA-06512: at "APEX_230100.WWV_FLOW_PROCESS_NATIVE", line 34
ORA-06512: at "APEX_230100.WWV_FLOW_PROCESS_NATIVE", line 1265
ORA-06512: at "APEX_230100.WWV_FLOW_PLUGIN", line 3443
- 4. component.type: APEX_APPLICATION_PAGE_PROCESS
- 5. component.id: 72224525411054994010
- 6. component.name: No data found

Employees

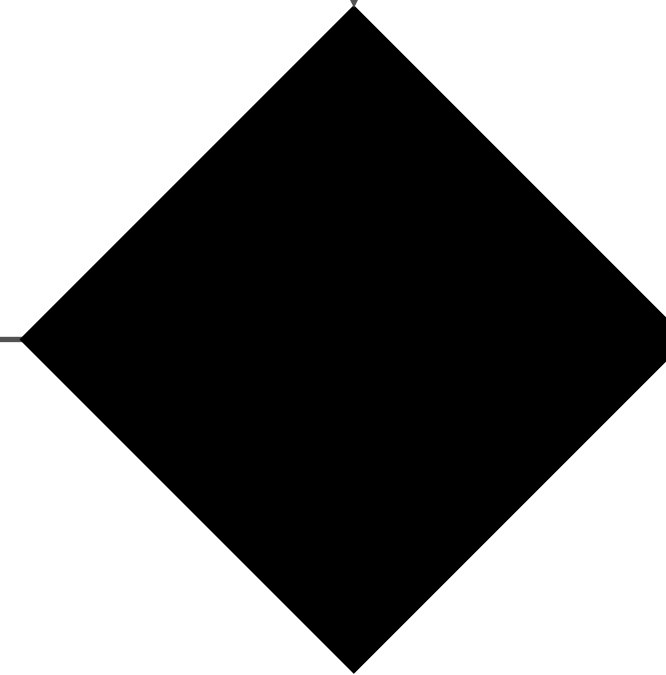
Job
MANAGER ▾

Order By
Ename ▾

FO FORD 12/3/1981	SC SCOTT 12/9/1982
ANALYST	ANALYST



**Common/usual
workflow**



**Very special occasion,
when right clicking in a
specific area and current
time is between 1pm and
2pm**



Why debugging?



How do we find a bug?



Worksheet

Query Builder

create or replace package debugging
is

procedure abc
begin

log ('Logging start');

log ('Yooohoo, I am here');

—code;

log ('Yooohoo, I am now here');

—some_logic;

log ('Yooohoo, still in the game');

—even_more_code;

log ('Yooohoo, will it go wrong here?');

—null;

log ('Hmmm, I am at the end.. Hopefully I am having some more information now...');

log ('Logging end');

end;

begin

null;

end;

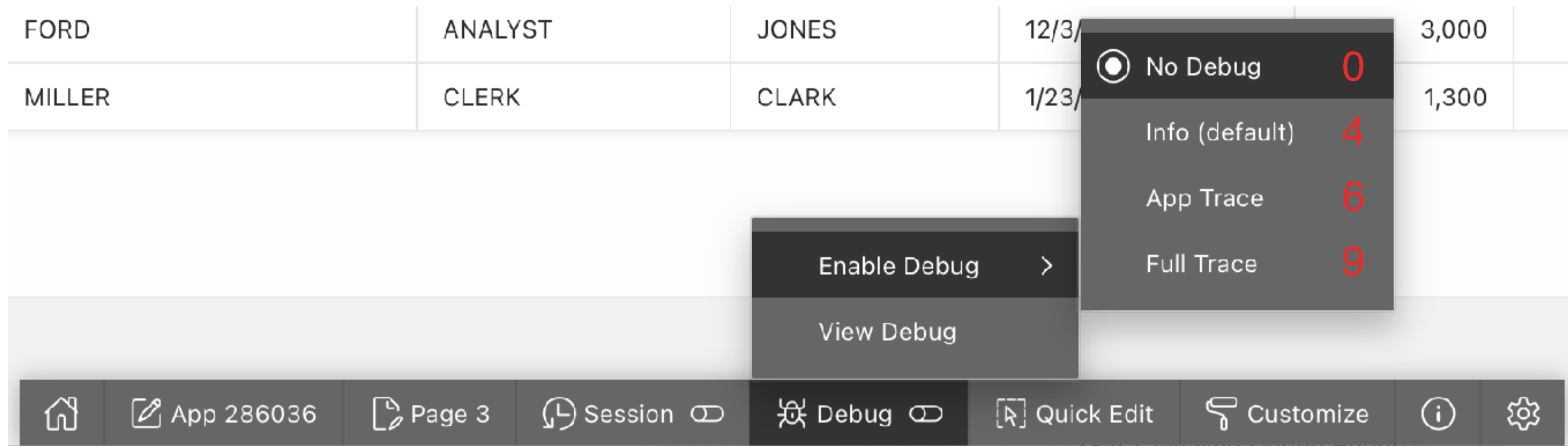
/

Debug mode and levels

Debug Mode	Level	Menu Item	Syn	Message Detail	URL “&debug=...”
Off	0	No Debug	NO	None	LEVEL0
Error	1			Error	LEVEL1
Warning	2			Warning	LEVEL2
<i>(APEX only)</i>	<i>3</i>			<i>Section head & footer</i>	<i>LEVEL3</i>
Info	4	Info (default)	YES	Information / Debug	LEVEL4
App Enter	5			Custom Procedure/Function Enter	LEVEL5
App Trace	6	App Trace		Custom Procedure/Function Trace	LEVEL6
APEX Engine Enter	8			APEX Procedure/Function Enter	LEVEL8
APEX Engine Trace	9	Full Trace		APEX Procedure/Function Trace	LEVEL9

How can we activate them?

APEX Developer Toolbar



APEX 22.1



Browser URL

breems_demo/apex-debug-like-a-pro/no-data-found?session=11313219018341



breems_demo/apex-debug-like-a-pro/no-data-found?debug=YES&session=11313219018341



Debug Mode	Level	Menu Item	Syn	Message Detail	URL “&debug=...”
Off	0	No Debug	NO	None	LEVEL0
Error	1			Error	LEVEL1
Warning	2			Warning	LEVEL2
<i>(APEX only)</i>	<i>3</i>			<i>Section head & footer?</i>	<i>LEVEL3</i>
Info	4	Info (default)	YES	Information / Debug	LEVEL4
App Enter	5			Custom Procedure/Function Enter	LEVEL5
App Trace	6	App Trace		Custom Procedure/Function Trace	LEVEL6
APEX Engine Enter	8			APEX Procedure/Function Enter	LEVEL8
APEX Engine Trace	9	Full Trace		APEX Procedure/Function Trace	LEVEL9

Browser URL

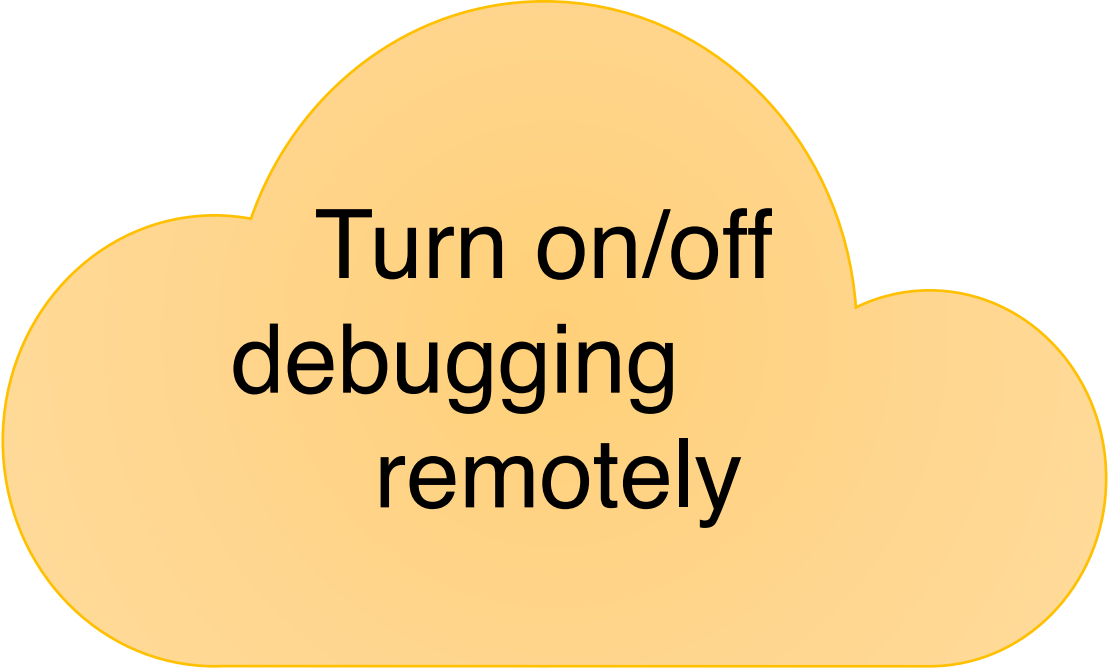
🔒 breems_demo/apex-debug-like-a-pro/no-data-found?session=11313219018341 📄 ☆

🔒 breems_demo/apex-debug-like-a-pro/no-data-found?debug=YES&session=11313219018341 📄 ☆

🔒 breems_demo/apex-debug-like-a-pro/no-data-found?debug=LEVEL4&session=11313219018341 📄 ☆

🔒 breems_demo/apex-debug-like-a-pro/no-data-found?debug=LEVEL9&session=11313219018341 📄 ☆

Database PL/SQL



Turn on/off
debugging
remotely

APEX_DEBUG.ENABLE(1)

APEX_SESSION.SET_DEBUG
(session_id , debug_level)

APEX_DEBUG.ENABLE(2)

...

APEX_SESSION.ATTACH
(app_id , page_id , session_id)

APEX_DEBUG.ENABLE(9)

APEX_DEBUG.DISABLE



Debug
active session
LIVE

APEX Builder

Administration -> Monitor Activity ->
Active sessions

How can we see those messages?

APEX Developer Toolbar

FORD	ANALYST	JONES	12/3/1981	3,000	
MILLER	CLERK	CLARK	1/23/1982	1,300	

Enable Debug >

View Debug

 App 286036  Page 3  Session  Debug  Quick Edit  Customize  



ItemsPagesQueriesTablesPL/SQLDebugSessionErrors							
Q Go Actions Reset							
✓ Application = 286036 × ✓ Page = 5 ×							
View Identifier	Session Id	User	Application	Page	Path Info	Entries	Seconds
1586559383	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	761	4.9075
1586555705	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	480	0.1418
1586555684	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	62	0.1356
1586555676	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	62	0.1396
1586555657	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	7	0.1303
1586555632	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	7	0.1287
1586555621	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	employees-ndf?p5_empno=7788&session=11313219018341PB6xcn8QiHsQVlvYuxnzEqpNevNbOG2_FeOB0KL7YQ533kVTp	5	0.0964

Employees

	Employee Name	Job	Manager
	SMITH	CLERK	FORD
	ALLEN	SALESMAN	BLAKE
	WARD	SALESMAN	BLAKE
	JONES	MANAGER	KING
	MARTIN	SALESMAN	BLAKE
	BLAKE	MANAGER	KING
	CLARK	MANAGER	KING
	SCOTT	ANALYST	JONES
	KING	PRESIDENT	
	TURNER	SALESMAN	BLAKE
	ADAMS	CLERK	SCOTT
	JAMES	CLERK	BLAKE
	FORD	ANALYST	JONES
	MILLER	CLERK	CLARK



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ORA-06512: at "SYS.WWV_DBMS_SQL_APEX_230100", line 806
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ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC_PLSQL", line 430
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC", line 614
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ItemsPagesQueriesTablesPL/SQLDebugSessionErrors								
Q Go Actions Reset								
✓ Application = 286036 × ✓ Page = 5 ×								
View Identifier	Session Id	User	Application	Page	Path Info	Entries	Seconds	
1586559383	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	9	761	4.9075
1586555705	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	8	480	0.1418
1586555684	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	6	62	0.1356
1586555676	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	show	4	62	0.1396
1586555657	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	2	7	0.1303
1586555632	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	1	7	0.1287
1586555621	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	employees-ndf?p5_empno=7788&session=1131321901834'PB6xcn8QiHsQVlvYuxnzEqpNevNbOG2_FeOB0KL7YQ533kVTp	0	5	0.0964

ItemsPagesQueriesTablesPL/SQLDebugSessionErrors

Q

Go

Actions

Reset

✓

Application = 286036

×

✓

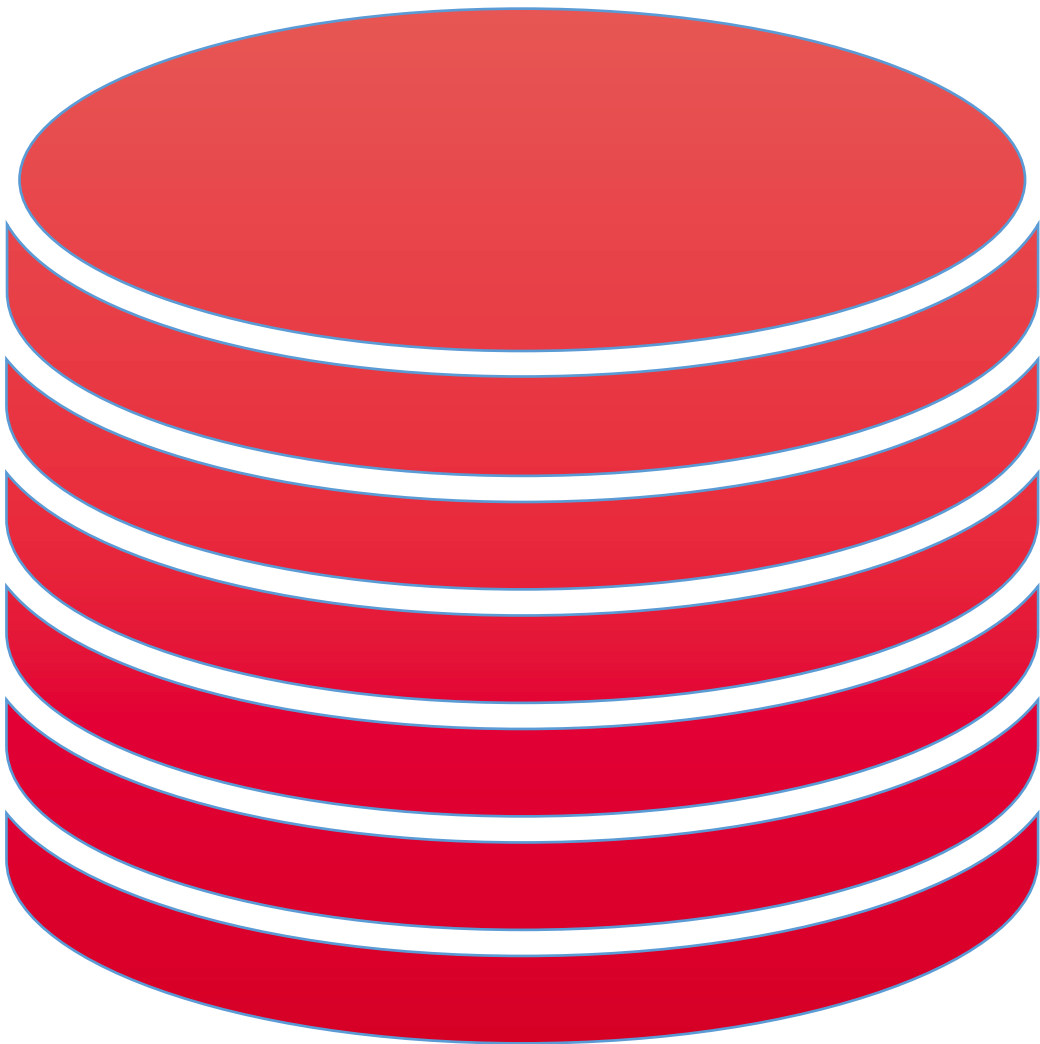
Page in 3, 5

×

View Identifier	Session Id	User	Application	Page	Path Info	Entries	Timestamp	Seconds
1586739893	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	5	accept SAVE	368	9 minutes ago	0.1345
1586739890	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	5	show	1,017	9 minutes ago	0.2528
1586740666	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	3	ajax plugin	150	9 minutes ago	0.0774
1586740665	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	3	ajax plugin	151	9 minutes ago	0.0684
1586740662	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	3	show	1,687	9 minutes ago	0.2825

1 - 5

Oracle Database



Page Load



Plugins



AJAX Calls



Page Submit



Client



ItemsPagesQueriesTablesPL/SQLDebugSessionErrors

Q

Go

Actions

Reset

✓

Application = 286036

×

✓

Page in 3, 5

×

View Identifier	Session Id	User	Application	Page	Path Info	Entries	Timestamp	Seconds
1586739893	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	5	accept SAVE	368	9 minutes ago	0.1345
1586739890	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	5	show	1,017	9 minutes ago	0.2528
1586740666	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	3	ajax plugin	150	9 minutes ago	0.0774
1586740665	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	3	ajax plugin	151	9 minutes ago	0.0684
1586740662	4030209980049	GILIAM.BREEMS@GMAIL.COM	286036	3	show	1,687	9 minutes ago	0.2825
								1 - 5



APEX_DEBUG_MESSAGES

APEX View

```
select page_view_id,
       case
         when min(case when session_id > 0 then session_id end)<>max(session_id)
         then min(case when session_id > 0 then session_id end)||'-'
         end||
       max(session_id) session_id,
       max(apex_user) apex_user,
       max(application_id) application_id,
       max(page_id) page_id,
       substr (
         max(case
           when message like 'R E Q U E S T accept%' then '4'||substr(message, 15)
           when message like 'R E Q U E S T %' then '3'||substr(message, 15)
           when message = 'CGI: PATH_INFO = /f' then '2show'
           when message like 'CGI: PATH_INFO =%' then '1'||substr(message, 19)
           end),
         2 ) path_info,
       count(*) debug_entries,
       min(message_timestamp) message_timestamp,
       max(elapsed_time) elapsed
  from apex_debug_messages
 where application_id = 286036
    and page_id = 5
    and session_id = 11313219018341
    and page_view_id between 1586555621 and 1586559383
 group by page_view_id
 order by page_view_id desc
```

APEX View

Results	Explain	Describe	Saved SQL	History
---------	---------	----------	-----------	---------

PAGE_VIEW_ID	SESSION_ID	APEX_USER	APPLICATION_ID	PAGE_ID	PATH_INFO	DEBUG_ENTRIES	ELAPSED
1586559383	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	746	4.907512
1586555705	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	471	.141779
1586555684	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	57	.135645
1586555676	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	57	.139569
1586555657	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	7	.130262
1586555632	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	-	7	.128724
1586555621	11313219018341	GILIAM.BREEMS@GMAIL.COM	286036	5	employees-ndf? p5_empno=7788&session=11313219018341&cs=3Z0nn5IEjzXy5IKGrgG mqsfMtKsjL2fb34V1UDAv6lpGv1wGCr5e8Thzhrrz4oCliXHDhdPknhRJ29h_1f95k93g &dialogCs=IPB6xtfzF83EL8gLBeHf- cn8QiHsQVlvYuxnzEqpNevNbOG2_FeOBOKL7YQ533kVTpJh4eZMtHcCxlb4Aa5ISg	5	.096379

7 rows returned in 0.05 seconds [Download](#)

Now let's solve the error

Employees

	Employee Name	Job	Manager
	SMITH	CLERK	FORD
	ALLEN	SALESMAN	BLAKE
	WARD	SALESMAN	BLAKE
	JONES	MANAGER	KING
	MARTIN	SALESMAN	BLAKE
	BLAKE	MANAGER	KING
	CLARK	MANAGER	KING
	SCOTT	ANALYST	JONES
	KING	PRESIDENT	
	TURNER	SALESMAN	BLAKE
	ADAMS	CLERK	SCOTT
	JAMES	CLERK	BLAKE
	FORD	ANALYST	JONES
	MILLER	CLERK	CLARK



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ORA-06512: at line 1
ORA-06512: at "SYS.DBMS_SYS_SQL", line 2120
ORA-06512: at "SYS.WWV_DBMS_SQL_APEX_230100", line 806
ORA-06512: at "APEX_230100.WWV_FLOW_DYNAMIC_EXEC", line 2603
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC_PLSQL", line 97
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC_PLSQL", line 430
ORA-06512: at "APEX_230100.WWV_FLOW_CODE_EXEC", line 614
ORA-06512: at "APEX_230100.WWV_FLOW_EXEC_LOCAL", line 3101
ORA-06512: at "APEX_230100.WWV_FLOW_EXEC", line 2657
ORA-06512: at "APEX_230100.WWV_FLOW_EXEC", line 2693
ORA-06512: at "APEX_230100.WWV_FLOW_PROCESS_NATIVE", line 34
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- 4. component.type: APEX_APPLICATION_PAGE_PROCESS
- 5. component.id: 72224525411054994010
- 6. component.name: No data found

Page View Identifier

1586784030

?

Set

Select Page View Identifier

Reset

Application:

286036

?

Page:

5

?

Elapsed Time:

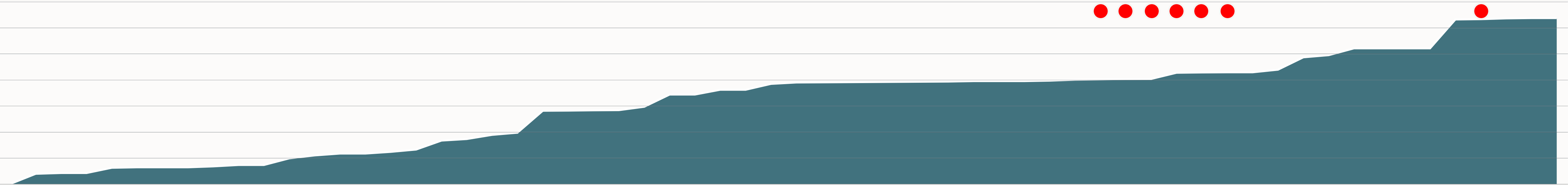
0.13485

?

Maximum Execution Time

0.02223

?



Q

Go

Actions

Elapsed	Execution	Message	Level	Graph
0.00734	0.00018	Reset NLS settings	4	
0.00752	0.00774	alter session set NLS_LANGUAGE='AMERICAN' NLS_TERRITORY='AMERICA' NLS_SORT='BINARY' NLS_COMP='BINARY' NLS_CALENDAR='GREGORIAN'	4	
0.01526	0.00060	...NLS: date_format=DD-MON-RR timestamp_format=DD-MON-RR HH.MI.SSXFF AM timestamp_tz_format=DD-MON-RR HH.MI.SSXFF AM TZR decimal separator=".", group separator=","	4	
0.01586	0.00006	...Setting session time_zone to +00:00	4	
0.01592	0.00397	R E Q U E S T show	3	
0.01988	0.00037	Language derived from: FLOW_PRIMARY_LANGUAGE, current browser language: en	4	



Page 5: Employees NDF



Pre-Rendering

Before Header

Processes

Initialize form Employees

Get additional data from Dept

After Header

Before Regions

Components

Dialog Header

Content Body

Employees

Region Body

P5_EMPNO

P5_ENAME

P5_JOB

P5_MGR

P5_HIREDATE

P5_SAL

P5_COMM

P5_DEPTNO

P5_DEPT_COLLEAGUES_CNT

P5_JOB_COLLEAGUES_CNT

Dialog Footer

Buttons



Identification

NameGet additional data from Dept

TypeExecute Code

Execution ChainNone

Editable Region- Select -

Source

LocationLocal Database

LanguagePL/SQL

PL/SQL Code

raise no_data_found;

Execution

Sequence20

PointBefore Header

Run ProcessOnce Per Page Visit (default)

Success Message

Success Message

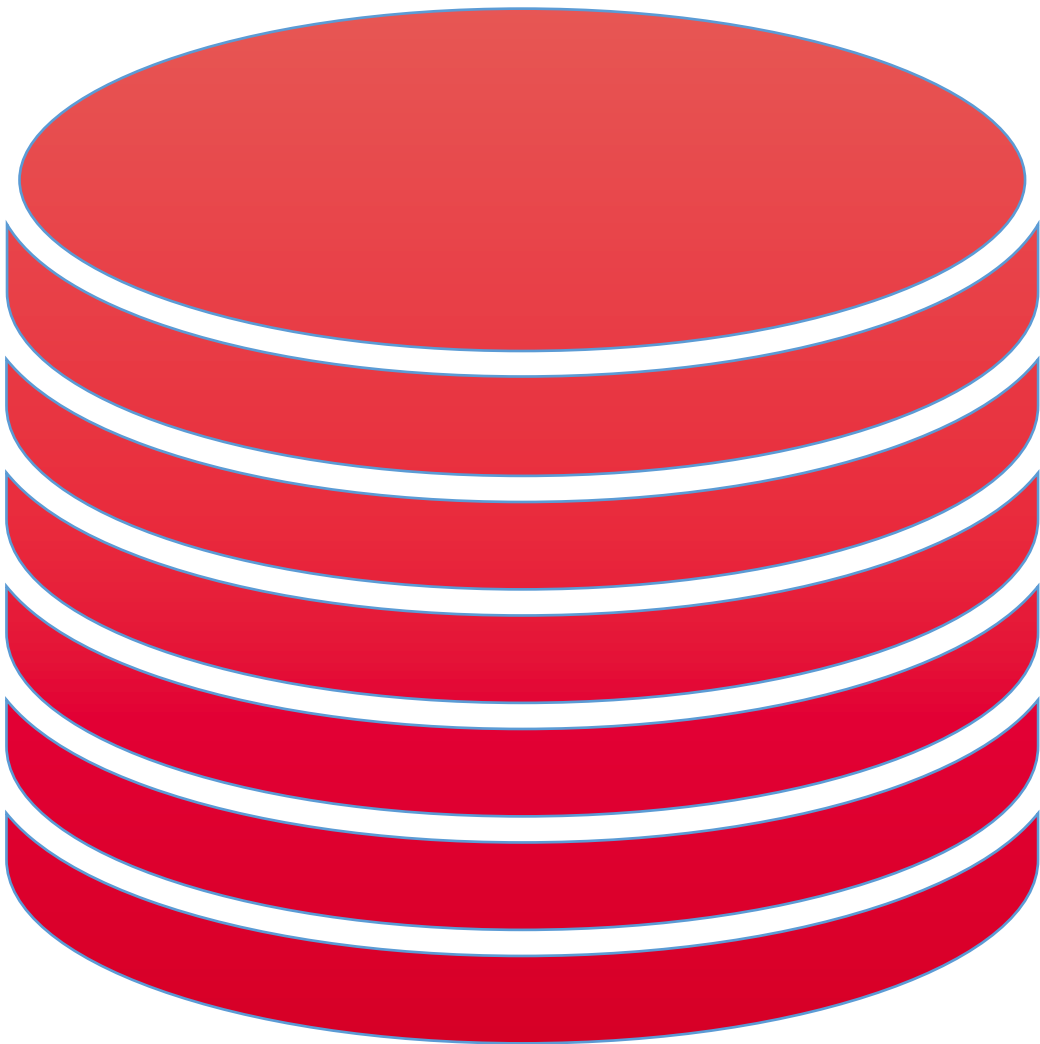


No components currently selected

Session State Management



Oracle Database



Page Load



AJAX Callbacks



Page Submit



Client



Employees

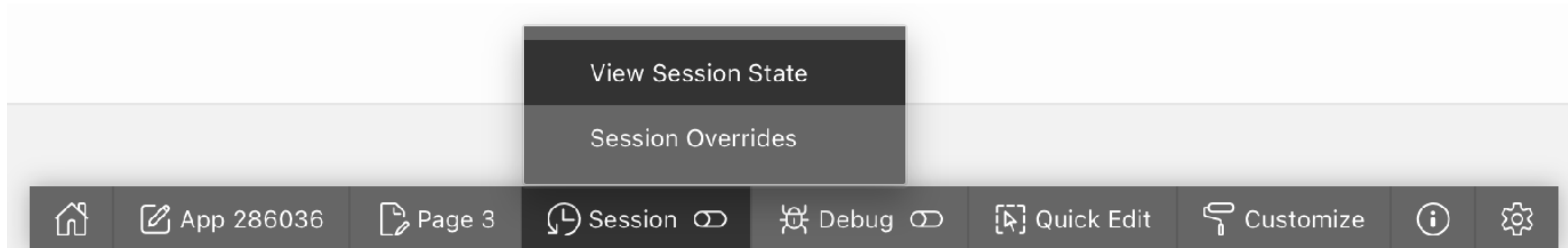
Job
MANAGER ▾

Order By
Ename ▾

FO FORD 12/3/1981	SC SCOTT 12/9/1982
ANALYST	ANALYST



Session State Monitor



Employees

Job
MANAGER ▾

Order By
Ename ▾

FO FORD 12/3/1981	SC SCOTT 12/9/1982
ANALYST	ANALYST



Items

Pages

Queries

Tables

PL/SQL

Debug

Session

Errors

Page

5

?

Find

?

Set

Rows

50

▼

?

View

Page Items

▼

?

Application:

286036 APEX Debug like a pro

?

Session

117104980612216

User

GILIAM.BREEMS@GMAIL.COM

Workspace

32046342440287962636

Browser Language

en

Page Items

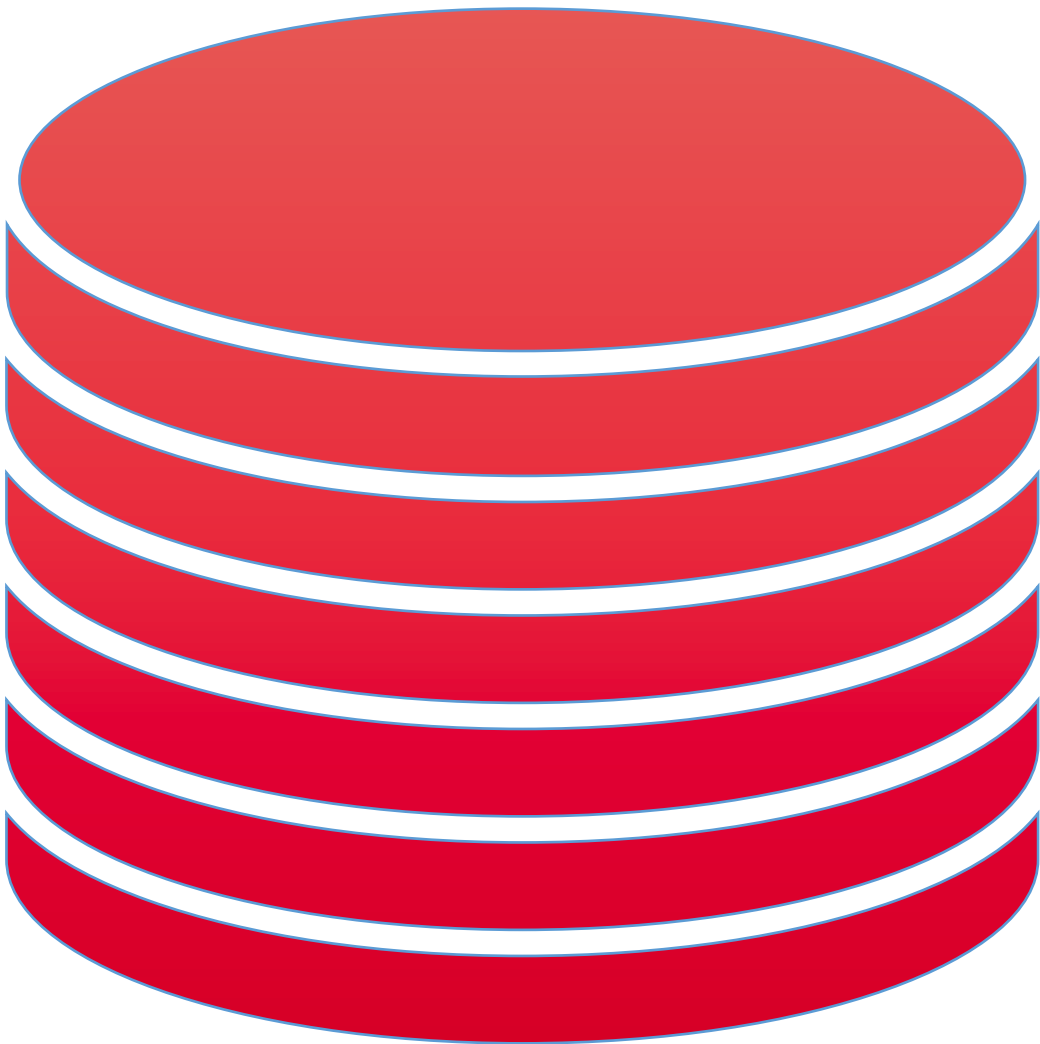
Page has no items.

✓ Per Request (Memory Only)

Per Session (Persistent)

Per User (Persistent)

Oracle Database



Page Load



Page Submit



Client



Employees

Job
MANAGER ▾

Order By
Ename ▾

FO

FORD

12/3/1981

ANALYST

SC

SCOTT

12/9/1982

ANALYST

Code Editor - SQL Query

↶ ↷ 🔍 ⚒ ⌨️ ✓

```
1  select EMPNO,  
2      ENAME,  
3      JOB,  
4      MGR,  
5      HIREDATE,  
6      SAL,  
7      COMM,  
8      DEPTNO,  
9      DNAME,  
10     LOC  
11  from EMP_DEPT_V  
12  where JOB = nvl( :P10_JOB, JOB)  
13  
14
```



Page Items to Submit

Enter page or application items to be set into session state when the region is refreshed by a partial page refresh. For multiple items, separate each item name with a comma. You can type in the name or pick from the list of available items. If you pick from the list and there is already text entered, then a comma is placed at the end of the existing text, followed by the item name returned from the list.

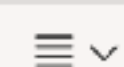
The region can be refreshed with partial page refresh either during pagination, if *Enable Partial Page Refresh* is set to **On**, or with the Refresh action within a Dynamic Action.

These page items can then be used in the *where condition* of the Region Source SQL Query to restrict the query result.

Additional Information

- Type: Item (Separate multiple values with a comma)

Page 10: Employees



Pre-Rendering

Before Header

After Header

Before Regions

Components

Breadcrumb Bar

Breadcrumb

Body

Filter

Region Body

P10_JOB

Dynamic Actions

onChange

True

Set JOB to Session State

Execute JavaScript Code

Refresh

False

P10_ORDER_BY

Employees

Actions

Post-Rendering



Identification

Title
EmployeesType
Cards

Source

Location
Local DatabaseType
Table / ViewTable Owner
Parsing SchemaTable Name
EMP_DEPT_VInclude ROWID
Column

Where Clause

JOB = nvl(:P10_JOB, JOB)

Page Items to
Submit

Order By

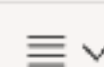
Type
Item

Item

P10_ORDER_BY, 3 Order Bys

Layout

Sequence
30Parent Region
No Parent

 Page 10: Employees 

▾ Pre-Rendering

- Before Header
- After Header
- Before Regions

▾ Components

- ▾ Breadcrumb Bar
 -  Breadcrumb
- ▾ Body
 - ▾  Filter
 - ▾ Region Body
 - >  P10_JOB
 -  P10_ORDER_BY
 -  Employees
 - Actions

> Post-Rendering



warn on Unsaved Changes ▾

▾ **Source**

Form Region ▾ 

Type ▾ 

Used ▾

▾ **Default**

Type ▾

▾ **Session State**

Storage ▾

▾ **Quick Picks**

Show Quick Picks

☒ Per Request (Memory Only)
☐ Per Session (Persistent)
☐ Per User (Persistent)

▾ **Server-side Condition**

Type ▾ 

▾ **Read Only**

Type ▾ 

▾ **Security**

Authorization Scheme ▾ 

Session State Protection ▾

Storage

Select how session state is maintained.

Available options include:

Per Request (Memory Only)

Do not save state in the database. State is only available when processing the current request. When AJAX requests need to use an item, make sure to pass the item name via "Page Items To Submit".

Per Session (Persistent)

Maintain for each session by storing the value in the database, to access it across requests.

Per User (Persistent)

Maintain for a user by storing the value in the database, to access it across sessions.

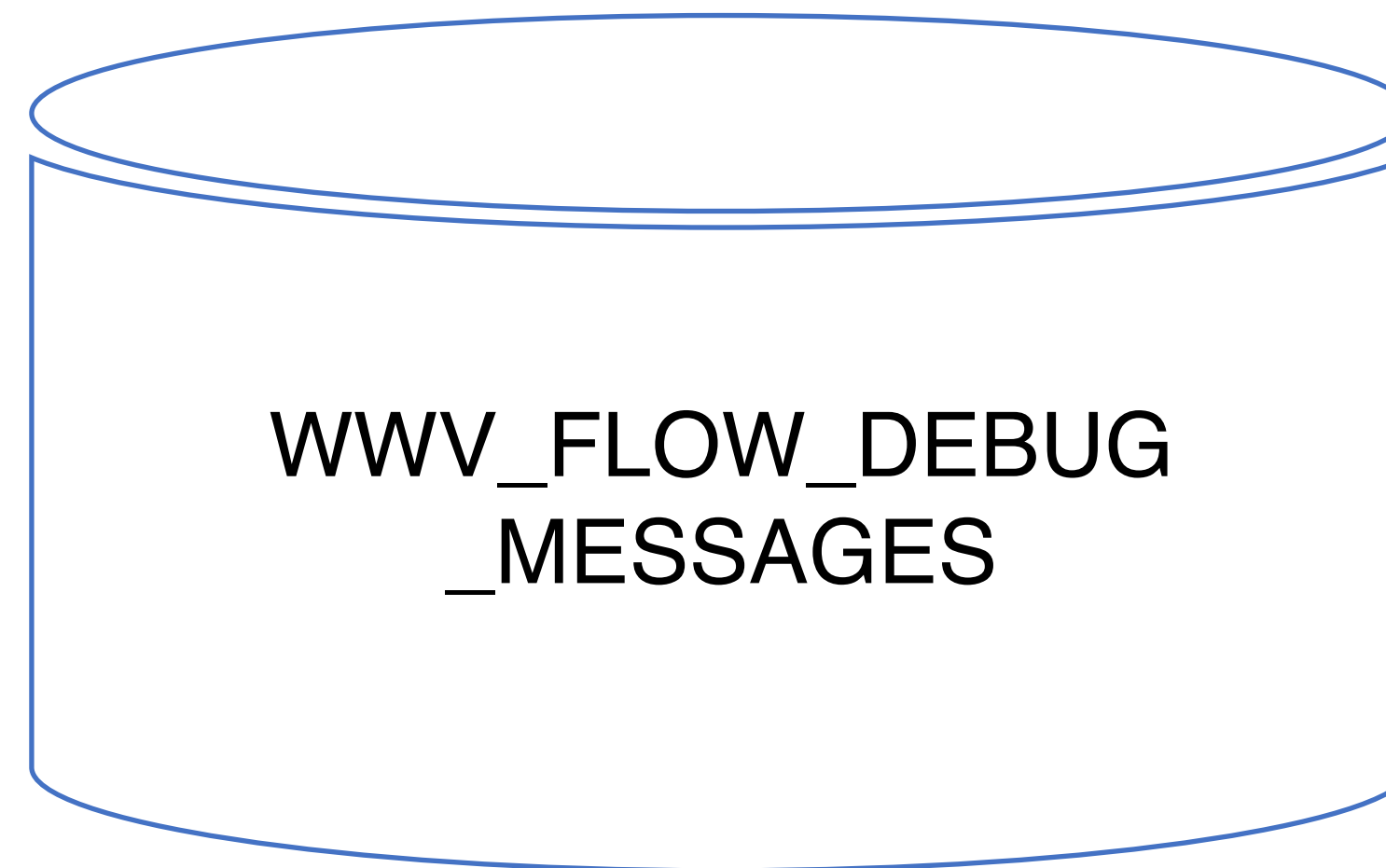
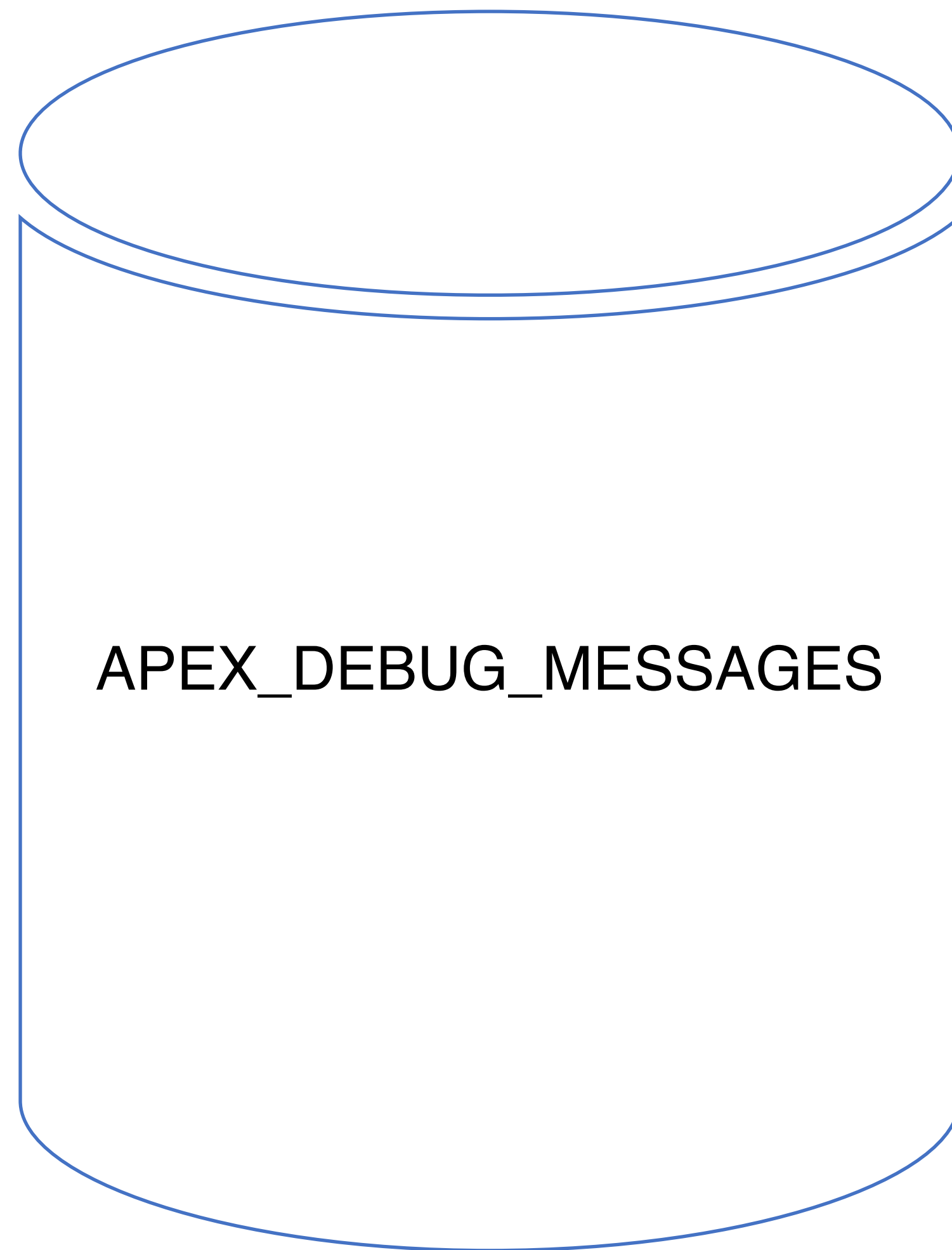
- ✓ Per Request (Memory Only)
- Per Session (Persistent)
- Per User (Persistent)

0.94412	0.00129	Access to undefined Per Request (Memory Only) variable P10_JOB	2	
1.00772	0.00154	Item P10_JOB not found in cache	9	

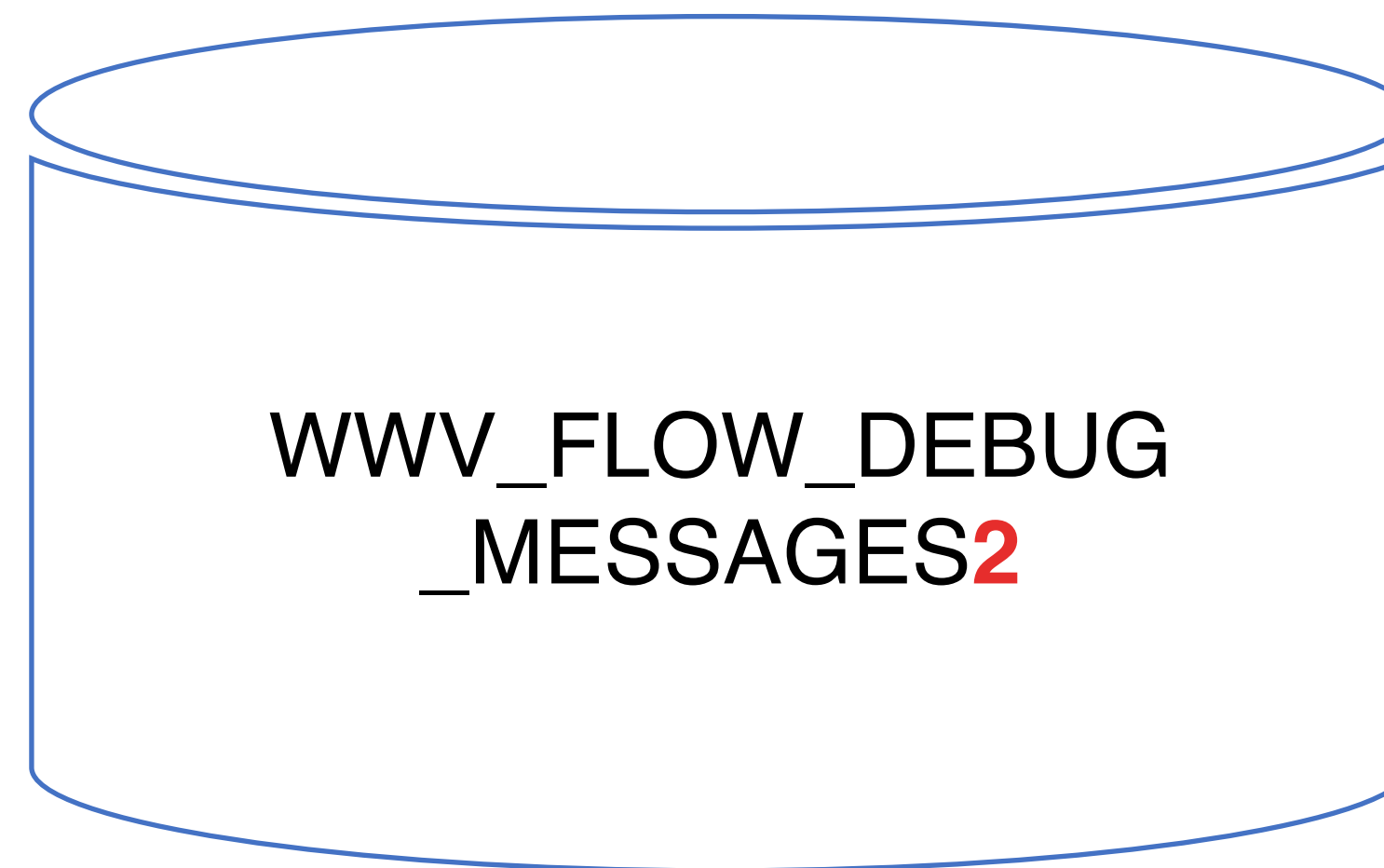
1.12499	0.00075	Item P10_JOB found in cache: idx=2 type=VARCHAR2 filter=false value=***	9	
---------	---------	---	---	----------------------

1.12331	0.00051	<pre>select /*+qb_name(apex\$286036_10)*/ from(select a.*,row_number()over(order by null)apx\$rownum from(select * from(select /*+ qb_name(apex\$inner) */ from(select x.* from "EMP_DEPT_V" x where(JOB = nvl(:P10_JOB, JOB))d)i order by "ENAME" asc)a)where apx\$rownum<=:p\$_max_rows</pre>	9																																																																														
1.12381	0.00118	parse_as_user p_cursor=>1101815118,p_username=>WKSP_BREEMSDemo,p_lfflg=>>false,p_use_roles=>>false	8																																																																														
1.12499	0.00075	Item P10_JOB found in cache: idx=2 type=VARCHAR2 filter=false value=***	9																																																																														
1.12574	0.00041	re_execute_query	8																																																																														
1.12615	0.00059	execute	8																																																																														
1.12674	2.84971	determining execution plan	9																																																																														
3.97645	0.00106	SQL_ID 7u8xvffhy12n3, child number 1 ----- select /*+qb_name(apex\$286036_10)*/ from(select a.*,row_number()over(order by null)apx\$rownum from(select * from(select /*+ qb_name(apex\$inner) */ from(select x.* from "EMP_DEPT_V" x where(JOB = nvl(:P10_JOB, JOB)))d)i order by "ENAME" asc)a)where apx\$rownum<=:p\$_max_rows Plan hash value: 3894992122 <table><tr><th>Id</th><th>Operation</th><th>Name</th><th>Rows</th><th>Bytes</th><th>Cost (%CPU)</th><th>Time</th></tr><tr><td>0</td><td>SELECT STATEMENT</td><td></td><td></td><td></td><td>8 (100)</td><td></td></tr><tr><td>1</td><td>TABLE ACCESS BY INDEX ROWID</td><td>EMP</td><td>1</td><td>10</td><td>1 (0)</td><td>00:00:01</td></tr><tr><td>* 2</td><td>INDEX UNIQUE SCAN</td><td>EMP_PK</td><td>1</td><td></td><td>0 (0)</td><td></td></tr><tr><td>* 3</td><td>VIEW</td><td></td><td>3</td><td>627</td><td>8 (13)</td><td>00:00:01</td></tr><tr><td>* 4</td><td>WINDOW NOSORT STOPKEY</td><td></td><td>3</td><td>588</td><td>8 (13)</td><td>00:00:01</td></tr><tr><td>5</td><td>VIEW</td><td></td><td>3</td><td>588</td><td>8 (13)</td><td>00:00:01</td></tr><tr><td>6</td><td>SORT ORDER BY</td><td></td><td>3</td><td>174</td><td>8 (13)</td><td>00:00:01</td></tr><tr><td>* 7</td><td>HASH JOIN OUTER</td><td></td><td>3</td><td>174</td><td>6 (0)</td><td>00:00:01</td></tr><tr><td>* 8</td><td>TABLE ACCESS STORAGE FULL</td><td>EMP</td><td>3</td><td>114</td><td>3 (0)</td><td>00:00:01</td></tr><tr><td>9</td><td>TABLE ACCESS STORAGE FULL</td><td>DEPT</td><td>1</td><td>20</td><td>1 (0)</td><td>00:00:01</td></tr></table> Predicate Information (identified by operation id): -----	Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time	0	SELECT STATEMENT				8 (100)		1	TABLE ACCESS BY INDEX ROWID	EMP	1	10	1 (0)	00:00:01	* 2	INDEX UNIQUE SCAN	EMP_PK	1		0 (0)		* 3	VIEW		3	627	8 (13)	00:00:01	* 4	WINDOW NOSORT STOPKEY		3	588	8 (13)	00:00:01	5	VIEW		3	588	8 (13)	00:00:01	6	SORT ORDER BY		3	174	8 (13)	00:00:01	* 7	HASH JOIN OUTER		3	174	6 (0)	00:00:01	* 8	TABLE ACCESS STORAGE FULL	EMP	3	114	3 (0)	00:00:01	9	TABLE ACCESS STORAGE FULL	DEPT	1	20	1 (0)	00:00:01	9	
Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time																																																																											
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Debug logging maintenance



2 weeks of data
/ 1 cloud



2 weeks of data
/ 1 cloud



Questions?

Please fill in your
evaluations



