

# OBIEE: Going Down the Rabbit Hole

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Rittman Mead Blog



10 Years Experience in BI/Analytics



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Oracle ACE

# Christian Berg

- Owner of Dimensionality GmbH in Switzerland
- 17 years of Analytics and counting
- Oracle ACE Business Analytics 
- Speaker at OpenWorld, KScope, regional Oracle User Groups...
- Full-time IRC (*freenode* | *#obihackers*) and OTN participant
- Part-time blogger on Analytics, BI, DWH (<http://dimensionality.ch>)
- Oracle Analytics trainer for Oracle University since 10+ years

# About Rittman Mead

Rittman Mead is a **data and analytics company** who specialise in **data visualisation, predictive analytics, enterprise reporting and data engineering.**

We use our skill, experience and know-how to work with organisations across the world to interpret their data. We enable the business, the consumers, the data providers and IT to work towards a common goal, **delivering innovative and cost-effective solutions** based on our core values of thought leadership, hard work and honesty.

We work across **multiple verticals** on projects that range from mature, large scale implementations to proofs of concept and can provide skills in **development, architecture, delivery, training and support.**

# Imagine a New Car....





# Why Shouldn't You Accept Defaults?

- Speed
- Security
- Reliability
- Maintenance
- Lifecycle Management
- Acceptance
- Usability

# How Do You Achieve Them?

Configuration  
Administration  
Scripting  
Monitoring



# Chaos - Accepting Defaults

# OBIEE IS NOT WORKING!

Error Message: Contact Administrator!

How many Users are connected?

Who deleted my files?

What's happening at 11AM?

# Real Examples

- Where is the Company Logo?
- The Export is too Small!
- Why is my Analysis Slow?
- What is the RPD live in Prod?
- Passwords in Clear Text
- Who Can Access my Dashboard and my Data?
- How am I Administering the Platform?

# The “Easy” Parts



Corporate Security

Custom Style

Core Configuration

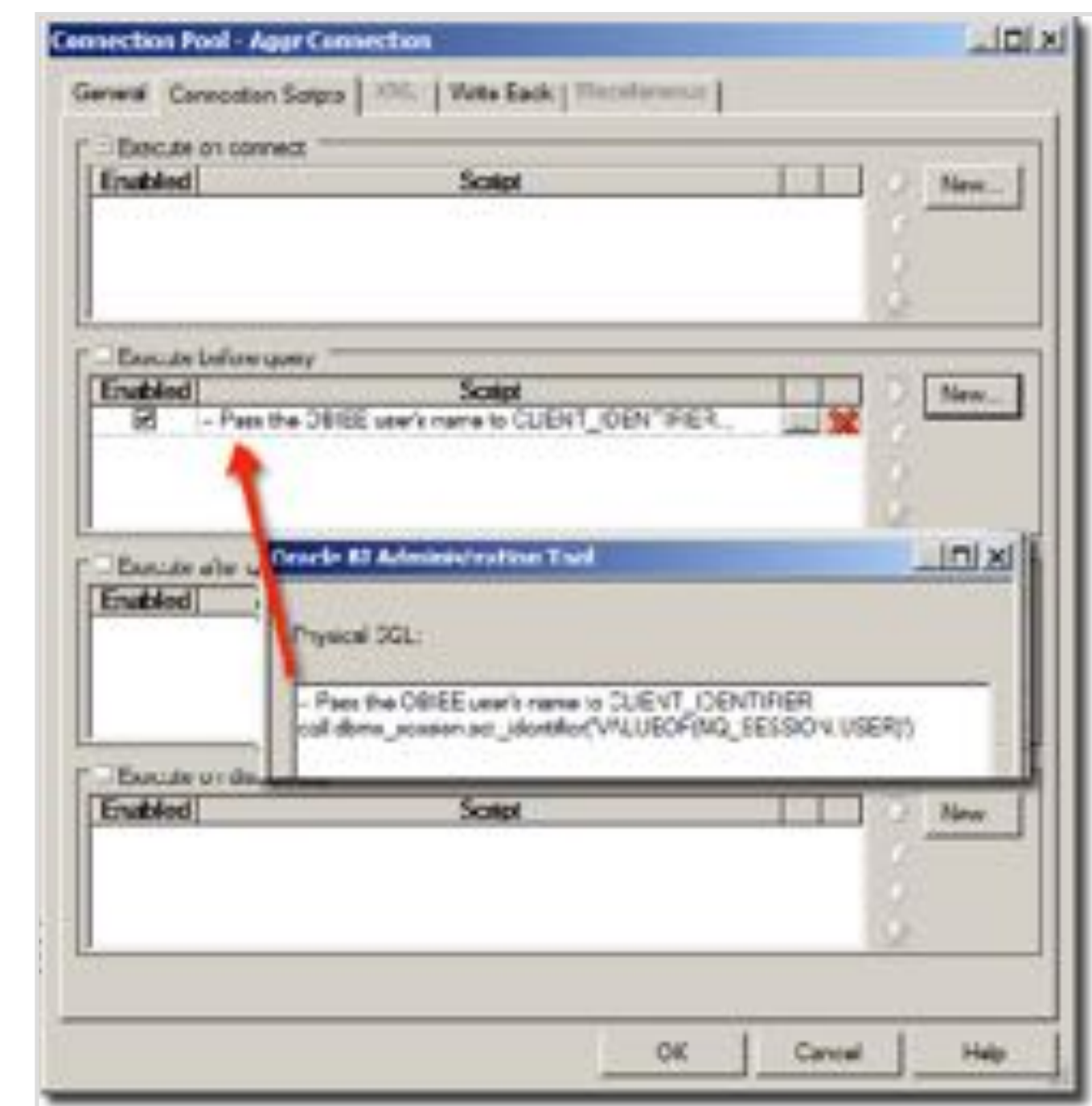
Backups

# Starting to get Control

# Starting to Get Control

- OBIEE logs
- OS monitoring
- DB monitoring
- Usage Tracking
- Instrumenting Database Connections

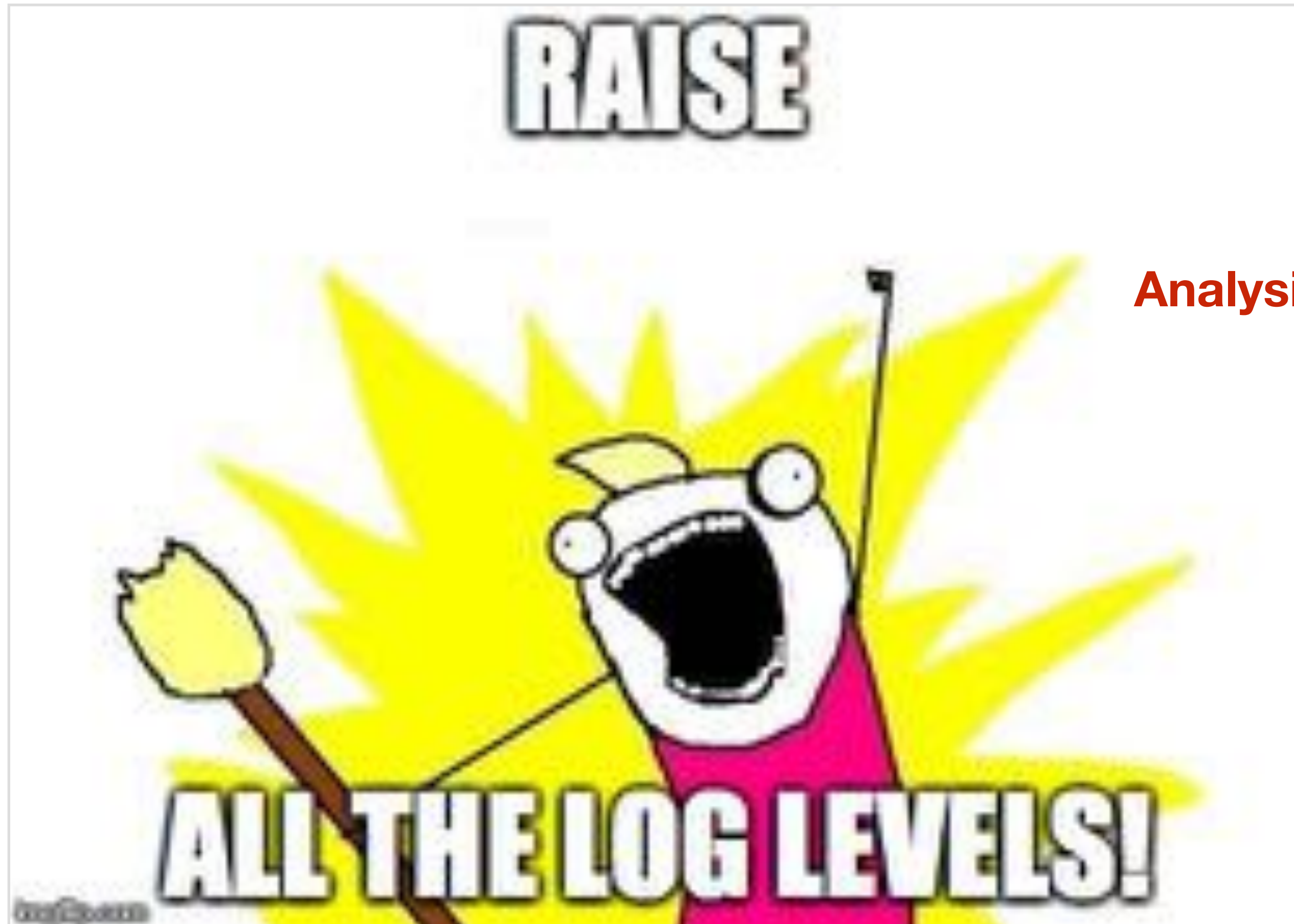
```
SELECT *  
FROM v$sql s join  
  biec_biplatform.s_nq_db_acct nq  
  on action=nq.physical_hash_id;
```



CLIENT_INFO	MODULE	ACTION	CPU_TIME	DISK_READS
		a17ff8e1	2999	1
		fe6abd92	1000	6
		a264593a	5999	2
		571fe814	5000	12
		63ea4181	7998	4

CLIENT_INFO	MODULE	ACTION	CPU_TIME	DISK_READS
06 Column Selector	GCBC Dashboard/Performan	a17ff8e1	2999	1
05 Table with condit	GCBC Dashboard/Performan	a264593a	5999	2
06 View Selector	GCBC Dashboard/Performan	571fe814	5000	12
05 Table with condit	GCBC Dashboard/Performan	63ea4181	7998	4
<unsaved analysis>	nqsserver@obi11-01	fe6abd92	1000	6
<unsaved analysis>	nqsserver@obi11-01	7b2fcb68	11999	5

# Log Levels



Analysis XML

```
[2014-11-10T07:19:32.000-00:00] [08IP5] [TRACE:1] [] [saw.catalog.local.writeObject] [ecid: 11d1def534ealbe0:15826b4a:14996b86fbb:-8000-000000000002efb,0:1] [tid: 2454759168] Succeeded with '/shared/Important stuff/Sales 01'
[]
File: localwebcatalog.cpp
Line: 1476
Location:
    saw.catalog.local.writeObject
    saw.httpserver.processrequest
    saw.rpc.server.responder
    saw.rpc.server
    saw.rpc.server.handleConnection
    saw.rpc.server.dispatch
    saw.threadpool.socketrpcserver
    saw.threads
Path: /shared/Important stuff/Sales 01
SessionID: p8n6ojs0vkh7tou0mkstmlc9me381hadn9o1fui
AuthProps: AuthSchema=UidPwd|Pwd=*****|UID=r.mellie|User=r.mellie
ecid: 11d1def534ealbe0:15826b4a:14996b86fbb:-8000-000000000002efb,0:1
ThreadID: 2454759168
HttpCommand: CatalogTreeModel
RemoteIP: 192.168.57.1
HttpArgs: path='/shared/Important stuff/Sales 01',action='wr',_scid='QR5zMd
HTI 31sW1b67P0e' rep1='r' follow links='t' charset='utf-8' modifiedTime='143
5600931000',data='<saw:report xmlns:saw="com.siebel.analytics.web/report/v1.1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" (http://www.w3.org/2001/XMLSchema-instance"); xmlns:xsd="http://www.w3.org/2001/XMLSchema" (http://www.w3.org/2001/XMLSchema"); xmlns:sawx="com.siebel.analytics.web/expression/v1.1" xmlVersion="201201160"><saw:criteria xsi:type="saw:simpleCriteria" subjectArea="&quot;A - Sample Sales&quot;" withinHierarchy="true"><saw:columns><saw:column xsi:type="saw:regularColumn" columnID="c1dff1637cbc77948"><saw:columnFormula><sawx:expr xsi:type="sawx:sqlExpression">"Time"."T05 Per Name Year"</sawx:expr></saw:columnFormula></saw:column></saw:columns></saw:criteria><saw:views currentView="0"><saw:view xsi:type="saw:compoundView" name="compoundView1"><saw:cvTable><saw:cvRow><saw:cvCell viewName="tableView1"><saw:displayFormat><saw:formatSpec/></saw:displayFormat></saw:cvCell></saw:cvRow><saw:cvRow><saw:cvCell viewName="tableView1"><saw:displayFormat><saw:formatSpec/></saw:displayFormat></saw:cvCell></saw:cvRow></saw:cvTable></saw:view><saw:view xsi:type="saw:tableView" name="tableView1" scrollingEnabled="false"><saw:edges><saw:edge axis="page" showColumnHeader="true"><saw:edge axis="section"/><saw:edge axis="row" showColumnHeader="true"><saw:edgeLayers><saw:edgeLayer type="column" columnID="c1dff1637cbc77948"/></saw:edgeLayers></saw:edge><saw:edge axis="column" showColumnHeader="rollover"/></saw:edges></saw:view></saw:views></saw:report>',sig='queryitem1'
]]
```



# Performance Analytics Dashboard



<https://www.rittmanmead.com/performance-analytics/>

# Version Control

- RPD
- Catalog
- Security
- Config Files
- Artifacts



**We're Only Getting Started!**

# System Presentation Variables

- session.locale
- session.language
- currency.symbol
- dashboard.currentPage
- report.currency.symbol

<http://host:9704/analytics/saw.dll?Dashboard&PortalPath=YourPath&locale=en-us&lang=en>

# System Session Variables

- DISPLAYNAME
- SKIN
- TIMEZONE
- USERLOCALE



```
New USER...
New USERGUID...
New GROUP...
New ROLES...
New ROLEGUIDS...
New PERMISSIONS...
New PROXY...
New TENANTGUID...
New TENANTNAME...
New SERVICENAME...
New TENANTSERVICE...
New SUBJECTTOKEN...
New WEBGROUPS...
New OBIS_DB_MAXROWS...
New OBIS_DB_MAXEXEETIME...
New DISPLAYNAME...
New DESCRIPTION...
New USERLOCALE...
New DISABLE_CACHE_HIT...
New DISABLE_CACHE_SEED...
New DISABLE_SUBREQUEST_CACHE...
New SELECTPHYSICAL...
New DISABLE_PLAN_CACHE_HIT...
New DISABLE_PLAN_CACHE_SEED...
New TIMEZONE...
New WEBLANGUAGE...
New AUTHINITBLOCKSONLY...
New REQUESTKEY...
New SKIN...
New RUNAS...
New OBIS_BULKINSERT_BUFFER_SIZE...
New OBIS_LOGICAL_MAXEXEETIME...
New SERVICEINSTANCEKEY...
```

# Facilitate Diagnostics

Variable Overview Home Catalog

System Variables	System Session Variables	General	System Presentation Variables	Currency
<b>USER</b>	weblogic	<b>dashboard.currentPage:</b>		<b>analysis.report.currency.name:</b>
<b>DISPLAYNAME</b>	weblogic	<b>dashboard.author:</b>		<b>analysis.report.currency.symbol:</b>
<b>USERLOCALE</b>	en	<b>dashboard.caption:</b>		<b>analysis.report.currency.userPreference:</b>
<b>USERGARD</b>	weblogic	<b>dashboard.description:</b>		<b>dashboard.currentPage.currency.name:</b>
<b>ROLES</b>	BIConsumer, BIServiceAdministrator, BIContentAuthor, AuthenticatedUser	<b>dashboard.location:</b> Dashboard		<b>dashboard.currentPage.currency.userPreference:</b>
	oracle.bi.presentation.catalogmanager.manageCatalog	<b>dashboard.name:</b>		<b>dashboard.currentPage.currency.symbol:</b>
	oracle.bi.publisher.accessReportOutput	<b>dashboard.path:</b>		<b>dashboard.currentPage.currency.symbol.name:</b>
	oracle.bi.publisher.developDataModel *	<b>reportName:</b> Variable Overview		<b>dashboard.currentPage.currency.symbol.path:</b>
	oracle.bi.server.manageRepositories	<b>reportPath:</b> /users/weblogic		<b>dashboard.currency.name:</b>
	oracle.bi.publisher.scheduleReport	<b>session.currentPage:</b> weblogic		<b>dashboard.currency.symbol:</b>
	oracle.bi.publisher.runReportOnline *	<b>session.language:</b> en		<b>dashboard.currency.userPreference:</b>
	oracle.bi.tech.viewanalyzer.generalAccess	<b>session.lastAccessTime:</b> 27.11.2017 18:12:43		<b>session.currency.name:</b>
	oracle.bi.publisher.accessExcelReportAnalyzer	<b>session.locale:</b>		<b>session.currency.symbol:</b>
	oracle.bi.scheduler.manageJobs	<b>session.loginTime:</b> 27.11.2017 18:10:29		<b>session.currency.userPreference:</b>
<b>PERMISSIONS</b>	oracle.bi.publisher.accessOnlineReportAnalyzer	<b>session.logoutTime:</b> 01.01.1970 01:00:00		
	oracle.bi.publisher.administerServer *	<b>session.url:</b> /bi		
		<b>session.timeZone:</b> (GMT+01:00): Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna		
		<b>session.timeZone.id:</b> (GMT+01:00): Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna		
		<b>session.timeZone.name:</b> (GMT+01:00): Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna		
		<b>session.timeZone.value:</b> (GMT+01:00): Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna		
		<b>system.productVersion:</b> 12.2.1.2.0		
		<b>user.displayName:</b> weblogic		
		<b>user.homeDirectory:</b> /users/weblogic		
		<b>userId:</b> weblogic		

# Safe Harbour Statement

**None of these settings are documented, and they should therefore be assumed to be completely unsupported by Oracle. This presentation is purely for geek interest. Using undocumented APIs leaves you at risk of the API changing at any time.**

# NQS Calls

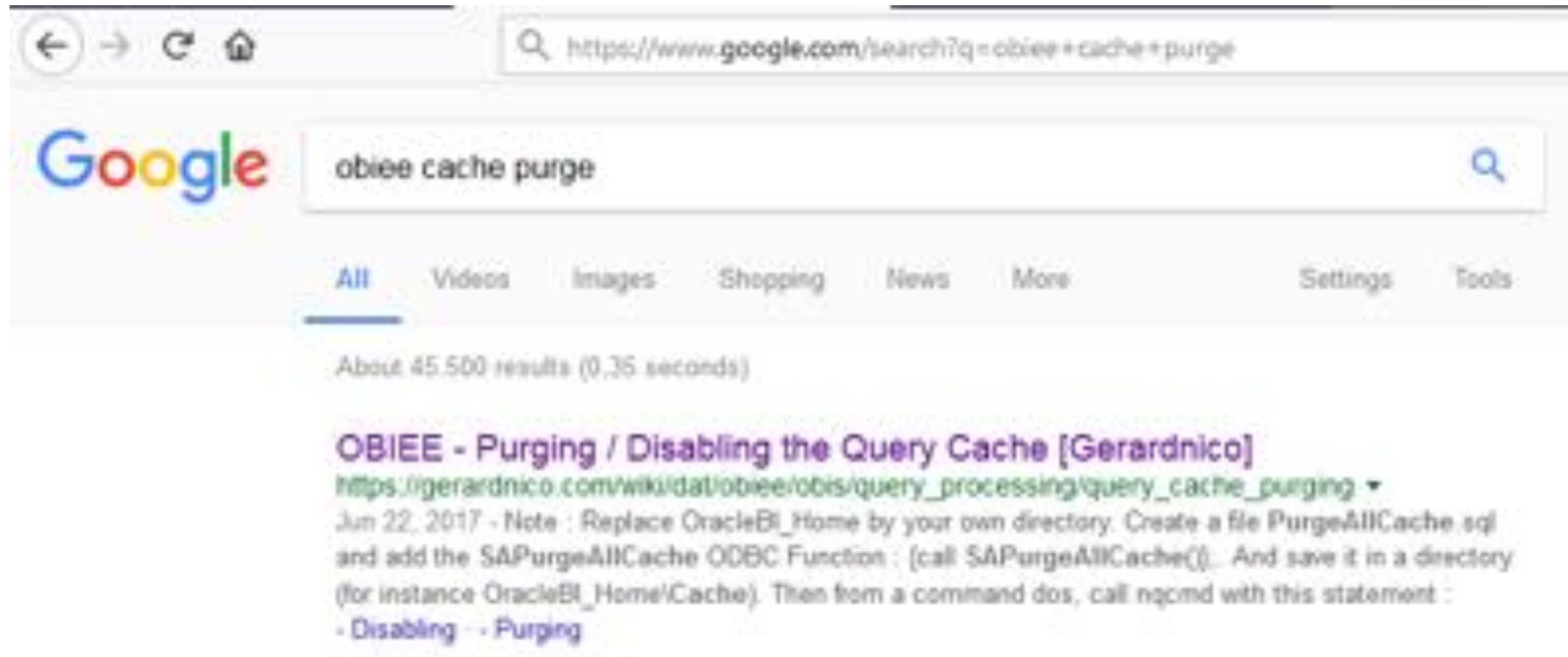
- ▶ Internal ODBC calls against the OBIS (usually via OBIPS)
- ▶ Normally emitted by OBIPS
- ▶ «Self-documenting»
  - call NQSGetSQLProcedures('%','%','%')
  - call NQSGetSQLProcedureColumns('%','%','%','%')
  - 120+ NQS Calls in 12c
- ▶ ..turn off «Issue SQL directly»

PROCEDURE_NAME	NUM_INPUT_PARAMS	NUM_OUTPUT_PARAMS	NUM_RESULT_SETS	REMARKS
varchar	Integer	Integer	Integer	varchar
NQSGetSQLCatalogs	0	2		Procedure for retrieving all the catalogs from the repository
NQSGetSQLSchemaNames	1	3		Procedure for retrieving schema names of catalogs
NQSGetSQLTables	2	5		Procedure for retrieving tables from catalog/schema hierarchy
NQSGetSQLColumns	2	12		Procedure for retrieving columns of tables
NQSGetSQLDataTypes	1	15		Procedure for retrieving data types supported in the server
NQSGetSQLPrimaryKeys	3	6		Procedure for retrieving primary key defined for tables
NQSGetSQLIndexes	3	13		Procedure for retrieving a list of columns and indices of a table
NQSGetSQLForeignKeys	6	13		Procedure for retrieving foreign key constraints defined for tables
NQSGetSQLSpecialColumns	6	8		Procedure for retrieving special columns in a table
NQSGetQueryLogExcerpt	2	1		Procedure for getting query log for a particular request
NQSGetSQLProcedures	3	7		Procedure for retrieving information on all the system procedures
NQSGetSQLProcedureColumns	4	13		Procedure for retrieving input and output column information from procedures
NQSGetTableType	3	4		Procedure for detecting if a table is a fact or dimension table
NQSGetLevelOfDetail	1	6		Procedure for drilling down into child dimension levels
NQSGetGridOfDetailQuery	0	2		Procedure for generating drill down query
NQSGetGridOfDetailInfo	1	4		Procedure to generate grid of detail information for a query
NQSGetUserOfDetailObject	1	6		Procedure for getting user id for permission object
NQSGetQueryColumnList	1	14		Procedure to get the information regarding projection columns
NQSGetColumnList	1	4		Procedure to get column names of tables
NQSGetColumnList	1	1		Procedure to get the values of a list of selected columns
varchar	Integer	1		Procedure to mask a specified SQL query
varchar	Integer	2		Procedure to judge table access associated with a specific SQL query
varchar	Integer	2		Procedure to judge table access associated with a specific physical table
varchar	Integer	2		Procedure to judge table access associated with a specific physical column



# Was this ever supported?

- The usual suspect



# Was this ever supported?

## 4 - Purging

### 4.1 - Via ODBC functions

Note : Replace OracleBI\_Home by your own directory.

Create a file PurgeAllCache.sql and add the **SAPurgeAllCache ODBC Function** :

```
{call SAPurgeAllCache()};
```

And save it in a directory (for instance OracleBI\_Home\Cache).

Then from a command dos, call **nqcmd** with this statement :

```
OracleBI_Home\server\Bin\nqcmd.exe -d AnalyticsWeb -u Administrator -p Password  
-s "OracleBI_Home\Cache\PurgeAllCache.sql" -o "OracleBI_Home\Cache\PurgeAllCache.log"
```

# Was this ever supported?

```
call SAPurgeAllCache ();  
call SAPurgeCacheByTable ( 'DbName', 'CatName', 'SchemaName', 'TableName' );  
call SAPurgeCacheByDatabase ( 'DbName' );  
call SAPurgeCacheByQuery ( 'SqlQuery' );
```

# Oh...and the «fabulous» documentation

- Exposes only a tiny subset of the actual ODBC functions

Oracle® Fusion Middleware Integrator's Guide for Oracle Business Intelligence Enterprise Edition



## 4 Using the Oracle Business Intelligence Server Metadata Web Service

This chapter introduces the Oracle Business Intelligence Server Metadata Web Service, and describes configuring the web service connection to Oracle BI Server, the methods used to call the web service, securing the web service, and using Oracle BI Server ISM, procedures.

This chapter includes the following sections:

- Overview of the Oracle BI Server Metadata Web Service
- Configuring the Oracle BI Server Metadata Web Service
- Calling the Oracle BI Server Metadata Web Service
- Using the Oracle BI Server ISM, Procedures

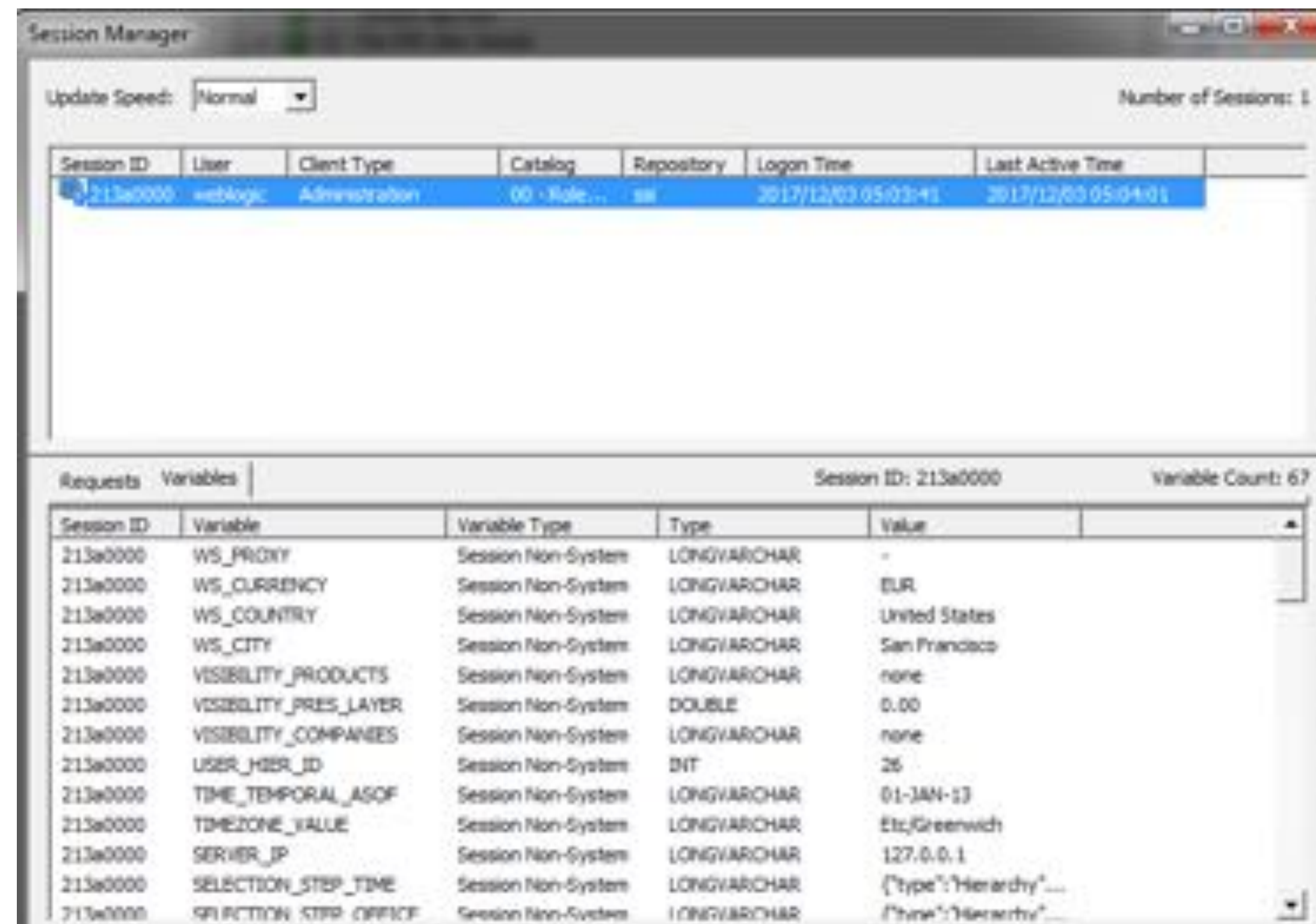
# What do we do with this?

- As little as possible
  - if you want to stay supported
- As much as conceivable
  - if you want to make your life easier



# Anything useful?

- NQSGetSessionValue – real-time variable querying



The screenshot shows the 'Session Manager' application window. At the top, there is a dropdown menu for 'Update Speed' set to 'Normal' and a label 'Number of Sessions: 1'. Below this is a table with columns: Session ID, User, Client Type, Catalog, Repository, Logon Time, and Last Active Time. The first row is highlighted in blue and contains the following data: 213a0000, weblogic, Administration, 00 - Role..., null, 2017/12/03 05:03:41, 2017/12/03 05:04:01.

Below the session table, there are two tabs: 'Requests' and 'Variables'. The 'Variables' tab is active, showing a table for Session ID: 213a0000 and Variable Count: 67. The table has columns: Session ID, Variable, Variable Type, Type, and Value. The visible rows are:

Session ID	Variable	Variable Type	Type	Value
213a0000	WS_PROXY	Session Non-System	LONGVARCHAR	-
213a0000	WS_CURRENCY	Session Non-System	LONGVARCHAR	EUR
213a0000	WS_COUNTRY	Session Non-System	LONGVARCHAR	United States
213a0000	WS_CITY	Session Non-System	LONGVARCHAR	San Francisco
213a0000	VISIBILITY_PRODUCTS	Session Non-System	LONGVARCHAR	none
213a0000	VISIBILITY_PRES_LAYER	Session Non-System	DOUBLE	0.00
213a0000	VISIBILITY_COMPANIES	Session Non-System	LONGVARCHAR	none
213a0000	USER_HIER_ID	Session Non-System	INT	25
213a0000	TIME_TEMPORAL_ASOF	Session Non-System	LONGVARCHAR	01-JAN-13
213a0000	TIMEZONE_VALUE	Session Non-System	LONGVARCHAR	Etc/Greenwich
213a0000	SERVER_IP	Session Non-System	LONGVARCHAR	127.0.0.1
213a0000	SELECTION_STEP_TIME	Session Non-System	LONGVARCHAR	{Type: 'Hierarchy'...
213a0000	OPERATION_STEP_TIME	Session Non-System	LONGVARCHAR	{Type: 'Hierarchy'...

# Anything useful?

- NQSGetSessionValue – real-time variable querying

Session Variables			
Name	Init Block	Var Type	Current Value
FRAGM_DATE_DW	"FRAGM_DATE_DW"	LONGVARCHAR	20-DEC-2012
SELECTION_STEP_TIME	"SELECTION_STEP_TIME_INIT"	LONGVARCHAR	[Type: "Hierarchy", column: [Tier Id: "Time Hierarchy", dim Id: "HO Time", table name: "Time", subject area: "A - Sample Sales"], members: [[level Id: "Month", values: [2010/02, 2010/03]], [level Id: "Day", values: [2010-01-01, 2010-01-02]]]
DB_FRQITEM_LO	"DB_FRQITEM_LO"	DOUBLE	2.00
DB_COL_STATS_COLUMN	"DB_COL_STATS_COLUMN"	LONGVARCHAR	REVENUE
TIMEZONE_VALUE	"TIMEZONE_EXAMPLE"	LONGVARCHAR	Etc/Greenwich
LAST_REFRESH_DT	"LAST_REFRESH_DT"	DATETIME	2015/12/31 00:00:00
PREFERRED_CURRENCY	"DUAL Currency (=USD)"	LONGVARCHAR	USD
ORE_PARAM1	"ORE_GRAPHICS_VARS_INIT"	LONGVARCHAR	cursor(select 10 n from dual)
DB_COL_STATS_TABLE	"DB_COL_STATS_TABLE"	LONGVARCHAR	SAMP_REVENUE_F
VISIBILITY_COMPANIES	"Custom Visibility Companies"	LONGVARCHAR	none
OG5_DIST_M	"DUAL GENERIC NUM VALUE =3"	INT	1000
OR_ARG1	"OR_ARGS"	DOUBLE	2008.00
PROXYLEVEL	"ProxyLevel"	NOT FOUND	
DB_COL_STATS_SCHEMA	"DB_COL_STATS_SCHEMA"	LONGVARCHAR	BISAMPLE
ODM_ARG_4	"ODM_ARG_4"	LONGVARCHAR	MONTHS_CONTACT
OR_PERSP_PHI	"OR_PERSP_INIT"	DOUBLE	30.00
N_TRAIL_PAST_MTHS	"DUAL GENERIC NUM VALUE =3"	INT	3
ESS_ALIAS	"ESS_ALIAS"	LONGVARCHAR	Default

# Anything Useful?

- NQSSetSessionValue
- Essbase integration
  - Writeback
  - Calc script execution
  - Automated cube spin-off (if you're very brave)
- Real-time metadata updates without Admin tool
  - If you're insane. Or me...







**IT'S A TRAP!**



**BITCH, THAT'S MY LINE!**

# OBIS\_DIAGNOSTICS\_ENABLED

## NQS\_GETCurrentActivitiesProcedure()

Enter a SQL statement to issue directly against the Oracle BI Server. This page is for testing the Oracle BI Server only. Results are returned with no formatting, and it is not possible to turn the SQL code that you enter here into an Oracle BI analysis.

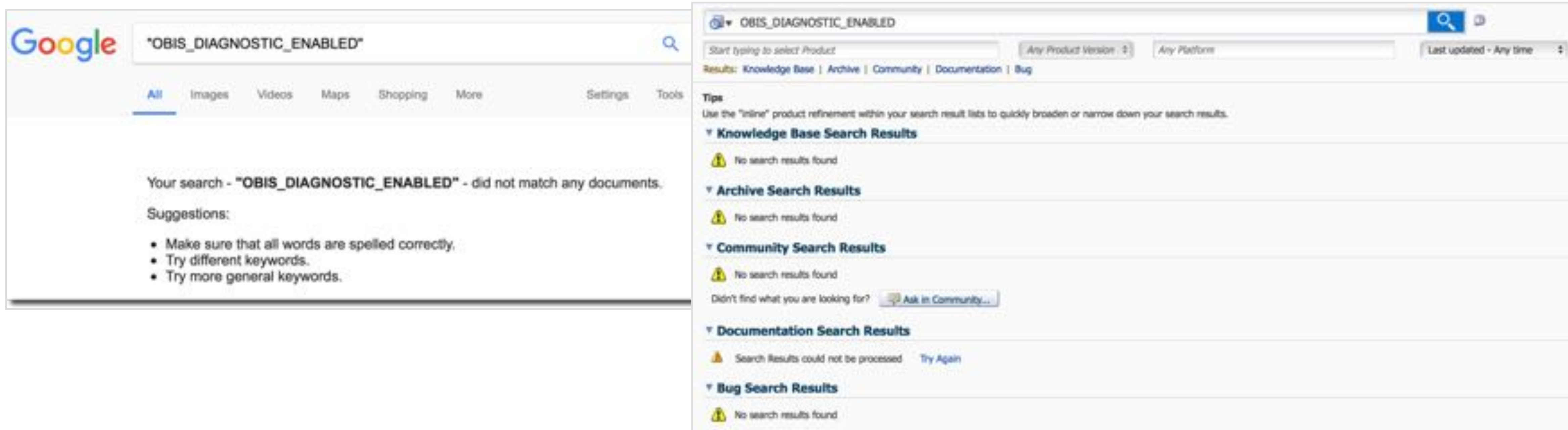
```
sql NQS_GetCurrentActivitiesProcedure()
```

Issue SQL: Oracle BI Server Logging Level: Default  Use Oracle BI Presentation Services Cache

**Error**  
Oracle driver returned an error (SQLExecDirect).

**Error Details**  
Error Codes: OPRADMBW/USMETAC/USMETAC/USMETAC/ODDUBSP  
State: HY000, Code: 10056, [NQSError: 10056] A general error has occurred. (HY000)  
State: HY000, Code: 43113, [NQSError: 43113] Message returned from DBS. (HY000)  
State: HY000, Code: 46043, [NQSError: 46043] Internal error: Diagnostics functionality is disabled. To enable it, set **OBIS\_DIAGNOSTICS\_ENABLED** environment variable. File server:\NQSNative\NQSSErvEntry\Source\SWADiagnosticsListStreams.cpp, line 302. (HY000)  
SQL issued: sql NQS\_GetCurrentActivitiesProcedure()

# OBIS\_DIAGNOSTICS\_ENABLED



The image shows two side-by-side screenshots. The left screenshot is a Google search result for the query "OBIS\_DIAGNOSTIC\_ENABLED". The search bar contains the query, and the results section shows "Your search - 'OBIS\_DIAGNOSTIC\_ENABLED' - did not match any documents." Below this, there are suggestions: "Make sure that all words are spelled correctly.", "Try different keywords.", and "Try more general keywords." The right screenshot is a search interface for "OBIS\_DIAGNOSTIC\_ENABLED". It features a search bar with the query, filters for "Any Product Version" and "Any Platform", and a "Last updated - Any time" dropdown. Below the search bar, there are tabs for "Knowledge Base", "Archive", "Community", "Documentation", and "Bug". The results are categorized into "Knowledge Base Search Results", "Archive Search Results", "Community Search Results", "Documentation Search Results", and "Bug Search Results". Each category shows "No search results found" or "Search Results could not be processed".

```
# .bashrc

# Source global definitions
if [ -f /etc/bashrc ]; then
    . /etc/bashrc
fi

# User specific aliases and functions
export OBIS_DIAGNOSTICS_ENABLED=true
```

# Check What's Happening

## NQS\_GETCurrentActivitiesProcedure

Enter a SQL statement to issue directly against the Oracle BI Server. This page is for testing the Oracle BI Server only. Results are returned with no formatting, and it is not possible to turn the SQL code that you enter here into an Oracle BI analysis.

```
call NQS_GETCurrentActivitiesProcedure(0)
```

Issue SQL Oracle BI Server Logging Level: Default Use Oracle BI Presentation Services Cache

Textstring  
varchar

\*\*\*\*\* Thread: 1140R1100R Task: 1. Running for (ms): 217884337 cfe1a7d1-55ee-4e0a-b907-740c94c6d17e-0000E7E0\_01925 \*\*\*\*\*

Description: Execute Query  
Repository Name: aii  
Catalog: Y13 - Sports Demo  
Tenant:  
Tenant ID: aii  
Service Name:  
User: weblogic  
Session ID: 0x74ce0000  
Request ID: 0x71ee0046  
Logical SQL Hash: 0x29231

Logical SQL: SET AFFINABLE QUERY\_SPC\_CD=Report,'SAW\_DAS-BOARD'/'shard02\_Visualizations/\_ports/2.18 Vanilla and Configured Visuals/SAW\_DAS-BOARD\_PG-Travel Airlines 1,SAW\_SRC\_FACTS/'shard02\_Visualizations/Report Views/Travel/Airlines Delay Performance Matrix/PREFERRED\_CURRENCY='USD'; SELECT

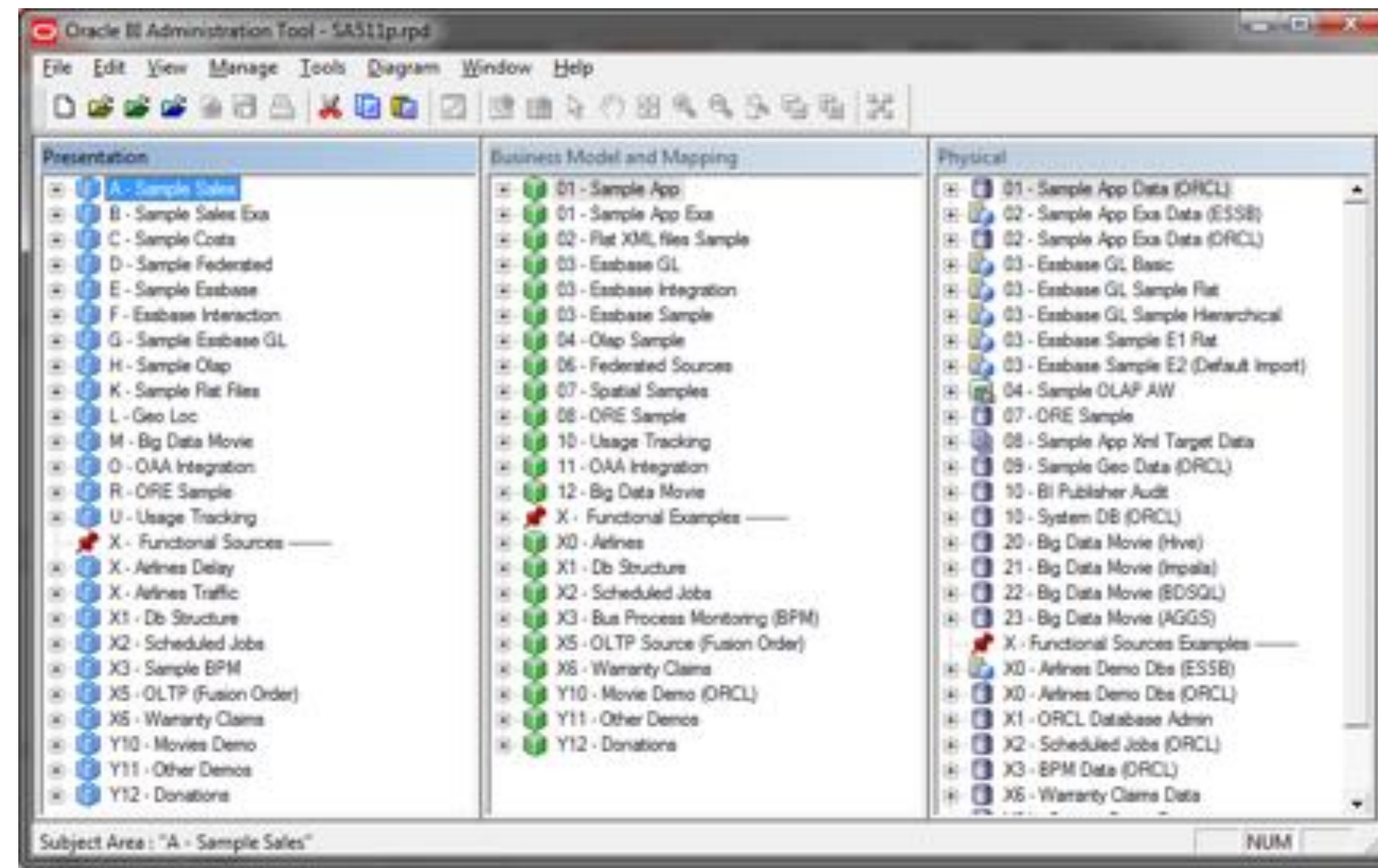
0 s\_3,  
"X - Airlines Delay"."Carrier"."Carrier Short" s\_1,  
"X - Airlines Delay"."Route"."Distance Class" s\_2,  
"X - Airlines Delay"."Schedule"."Dep Time Gro" s\_3,  
"X - Airlines Delay"."Delay Facts"."Delay Fact % (0=OnTime >0=Late)" s\_4,

- DbGateway Prepare - DB Connection
- Executing Query
  - Logical Hash of SQL
  - SQL Sent
  - Source Analysis
- Post Aggregation

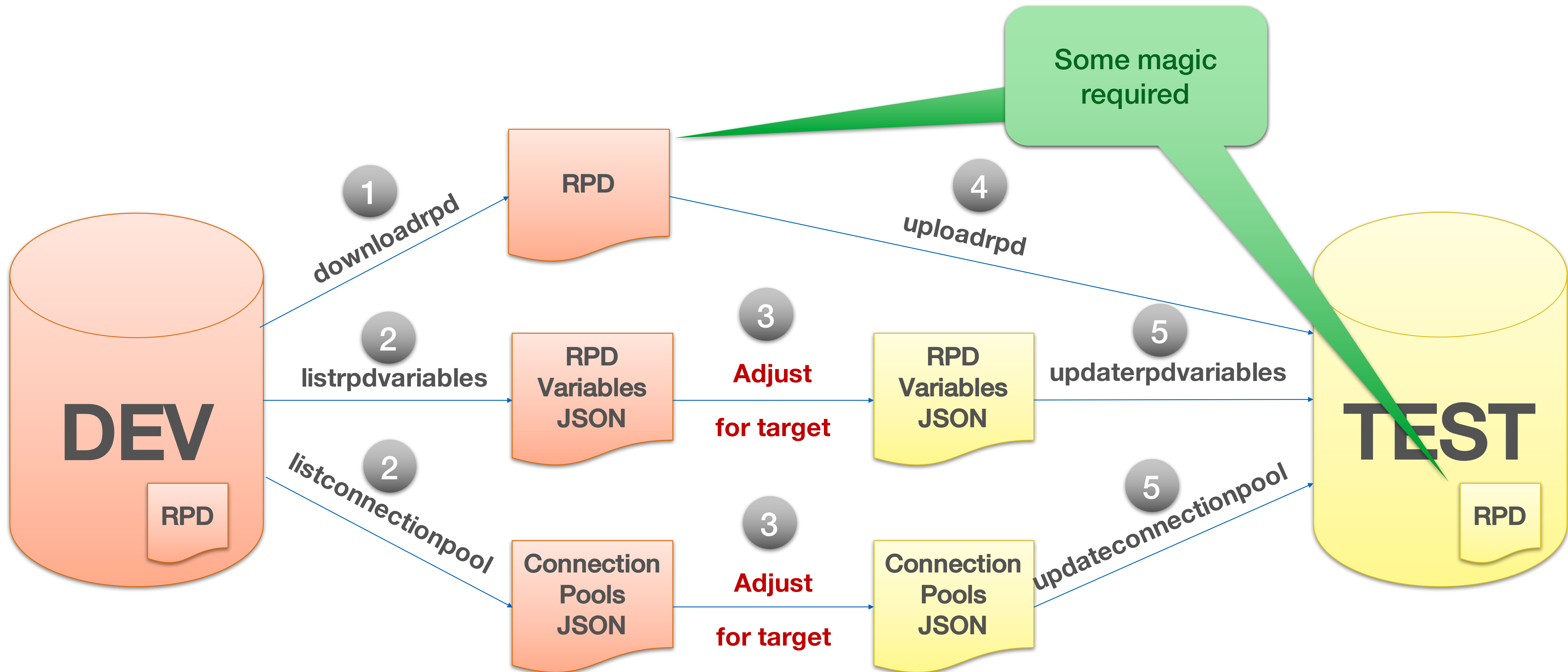
# Even More Command Line!

# Once upon a time they wrote an AdminTool

- Nice, but...
- ...deployment processes with human intervention?!



# A Normal RPD Deployment

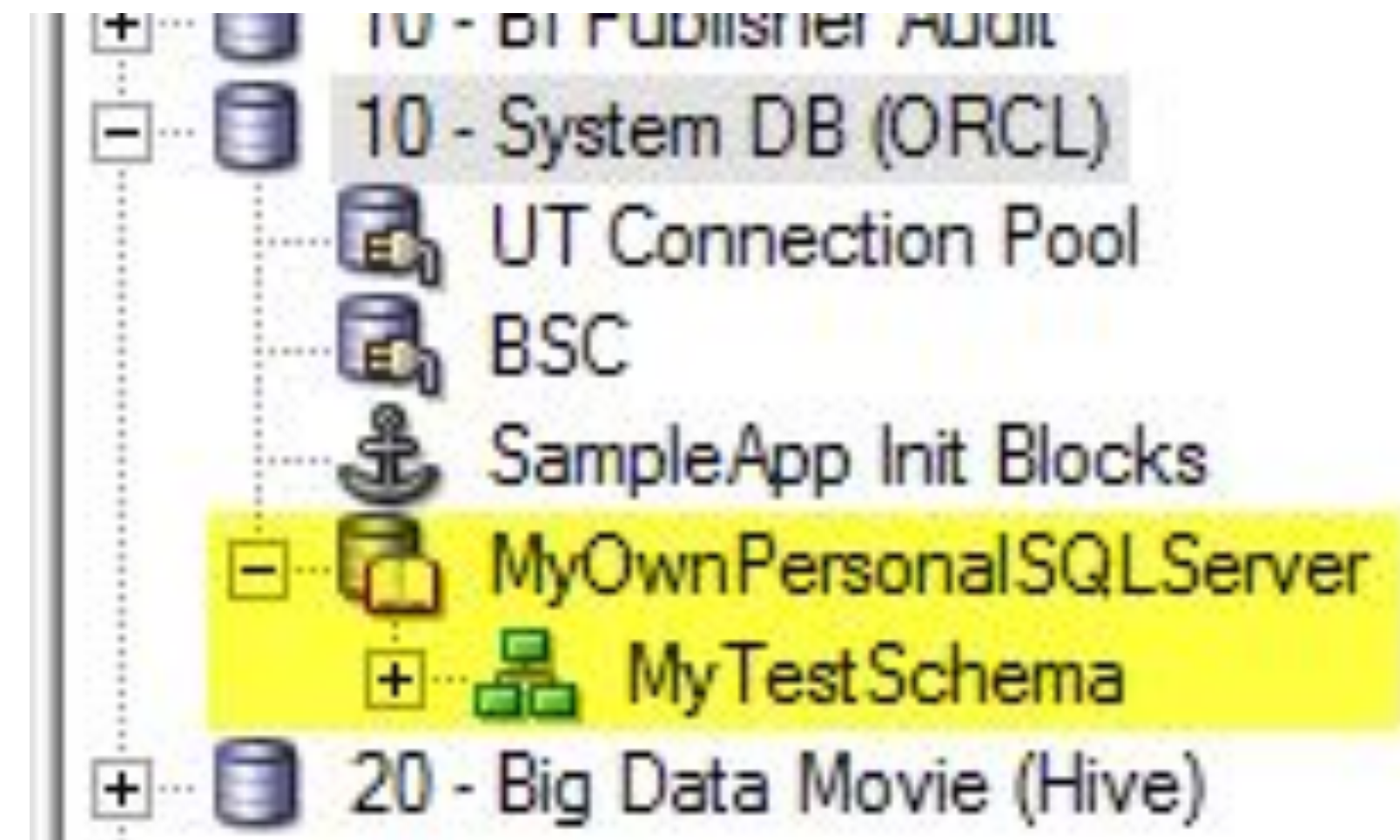


# Deployment quirks

This is easy



This not so much





# Automating the necessary bits

- ...that just doesn't exist according to Oracle

## Offline

*Hide*

```
Open "G:\Sourcedata\dev.rpd" "" "RPDpassword"
```

```
SetProperty "Physical Schema" "10 - System DB (ORCL)". "MyOwnPersonalSQLServer". "MyTestSchema" "Name" "DestinationSchema"
```

```
SetProperty "Physical Catalog" "10 - System DB (ORCL)". "MyOwnPersonalSQLServer" "Name" "DestinationServer"
```

*Save*

*Exit*

## Online

*Hide*

```
OpenOnline "dev_rpd" "weblogic" "weblogicpassword"
```

```
SetProperty "Physical Schema" "10 - System DB (ORCL)". "MyOwnPersonalSQLServer". "MyTestSchema" "Name" "DestinationSchema"
```

```
SetProperty "Physical Catalog" "10 - System DB (ORCL)". "MyOwnPersonalSQLServer" "Name" "DestinationServer"
```

*Save*

*Exit*

# Automating the bells and whistles

- LSQL execution
- Metadata dictionary generation
- String externalization
- Rowcount updated
- Init block testing

# Re-introducing Chaos into Order

- Update physical layer
- Import from other RPD
- Literally change any property of any object
- ...

HACKERMAN

What if I Want to Know More?



Who deleted my Analysis?

# Custom Log Filters for Presentation Catalog

## Changes in instanceconfig.xml

### ▶ Writer

```
<Writer implementation="FileLogWriter" name="RM Presentation Catalog Audit" disableCentralControl="true"
writerClassId="6" dir="{%ORACLE_BIPS_INSTANCE_LOGDIR%}" filePrefix="rm_pres_cat_audit" maxFileSizeKb="10240"
filesN="10" fmtName="ODL-Text"/>
```

### ▶ WriterClassGroup

```
<WriterClassGroup name="RMLog">6</WriterClassGroup>
```

### ▶ Filter

```
<FilterRecord writerClassGroup="RMLog" disableCentralControl="true" path="saw.catalog.local.moveItem" information="32"
warning="32" error="32" trace="32" incident_error="32"/>
<FilterRecord writerClassGroup="RMLog" disableCentralControl="true" path="saw.catalog.local.deleteItem" information="32"
warning="32" error="32" trace="32" incident_error="32"/>
```

### ▶ sawserver -logsources

<https://www.rittmanmead.com/blog/2014/11/auditing-obiee-presentation-catalog-activity-with-custom-log-filters/>

# Move Object

```
(2017-05-17T09:16:28+02:00) (601PS) (NOTIFICATION:16) {} [saw.catalog.local.moveItem] [ecid: b3be77fa-4684-48f8-92c3-879488749a56-0000158e,0:1] [tid: 2018766648] [SI-Name: ] [IO-Name: ] [IOB-GUID: ] [userId: prodney] [File: NFS Used -- we did manage to create the unique link: file:/app/oracle/bde/user_projects/domains/b1/bidata/service_instances/s1/metadata/content/catalog/root/shared/rexdemo/test2.lock]]
File:filelock.cso
Line:261
Location:
  saw.catalog.local.moveItem
  saw.catalog.serviceinstance.moveItem
  saw.httpserver.processrequest
  saw.rpc.server.responder
  saw.rpc.server
  saw.rpc.server.handleConnection
  saw.rpc.server.dispatch
  saw.threadpool.socketrpcserver
  saw.thread
Path: /shared/RM Demo/Test, /shared/RM Demo/Test
HttpCommand: CatalogFreeModel
AuthProps: AuthSchema=OIDPwd|Pwd=*****|OID=Prodney|User=prodney|GUID=prodney
SessionID: 187.188.56.1.4.9c9fhe8
RemoteIP: 192.168.56.1
SIKey: 941
```

**New Analysis Name** → [test2.lock]]

**Action** → [saw.catalog.local.moveItem]

**Original Analysis Name** → [/shared/RM Demo/Test]

**User Details** → [OID=Prodney|User=prodney|GUID=prodney]

**IP Address** → [192.168.56.1]

# Deleted Object

```
[2017-09-13T09:34:23+02:00] [DIPS] [TRACE:1] [] [saw.catalog.local_deleteItem] [ocid: 93be77fa-4664-4d10-92c3-079400749a16-00001544,0:1] [cid: 2018760040] [SI-Name: ] [DD-Name: ] [DD-OCID: ] [userid: prodney] Succeeded with '/shared/RM Demo/My Demo'[]  
File: localwebcatalog.cpp  
Line: 748  
Location:  
  saw.catalog.local_deleteItem  
  saw.catalog.serviceinstance.deleteTree  
  saw.httpserver.procesrequest  
  saw.rpc.server.responder  
  saw.rpc.server  
  saw.rpc.server.handleConnection  
  saw.rpc.server.dispatch  
  saw.threadpool.socketrpcserver  
  saw.thread  
Path: /shared/RM Demo/My Demo  
HttpCommand: CatalogTreeModel  
HttpArgs: action='em',_ocid='LeSoraK-5ez8kxwTyECx',charset='utf-8',urlGenerator='qualified',path='/shared/RM Demo/My Demo'  
AuthProps: AuthScheme=UicPwd|Pwd=#####|UID=Prodney|User=prodney|SID=prodney  
SessionID: 192.168.16.1.8.9p9thp8  
RemoteIP: 192.168.16.1  
SIDKey: 55
```

Action

Original Analysis Name

User Details

IP Address

- Push to DB
- Expose
- Review



# Did You Say Catalog Problems?



I can't access  
my folder

# Catalog Validation

- Check of Catalog Corruptions
  - Pre-Upgrade, Post-Upgrade or on Daily Basis
  - ValidateAccounts
  - ValidateHomes
  - ValidateItems
  - ValidateLinks

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!-- Oracle Business Intelligence Presentation Services Configuration File -->
<WebConfig xmlns="oracle.bi.presentation.services/config/v1.1">
  <ServerInstance>
    [...]
    <Catalog>
      <Validate>OnStartupAndExit</Validate>
      <ValidateAccounts>Clean</ValidateAccounts>
      <ValidateHomes>Report</ValidateHomes>
      <ValidateItems>Clean</ValidateItems>
      <ValidateLinks>Clean</ValidateLinks>
    </Catalog>
    [...]
  </ServerInstance>
</WebConfig>
```

**OBIEE 12c: Catalog Validation "OBIPS startup catalog validate is not supported/deprecated." (Doc ID 2199938.1)**

<https://www.rittmanmead.com/blog/2016/11/performing-a-catalog-validation/>

# And in 12c?

- [Doc ID 2199938.1](#)
- `runcat.sh -cmd validate`

```
./runcat.sh -cmd validate -items Report -links Report -accounts Report  
-homes Report -offline <path_to_catalog> > cat_validation.log
```

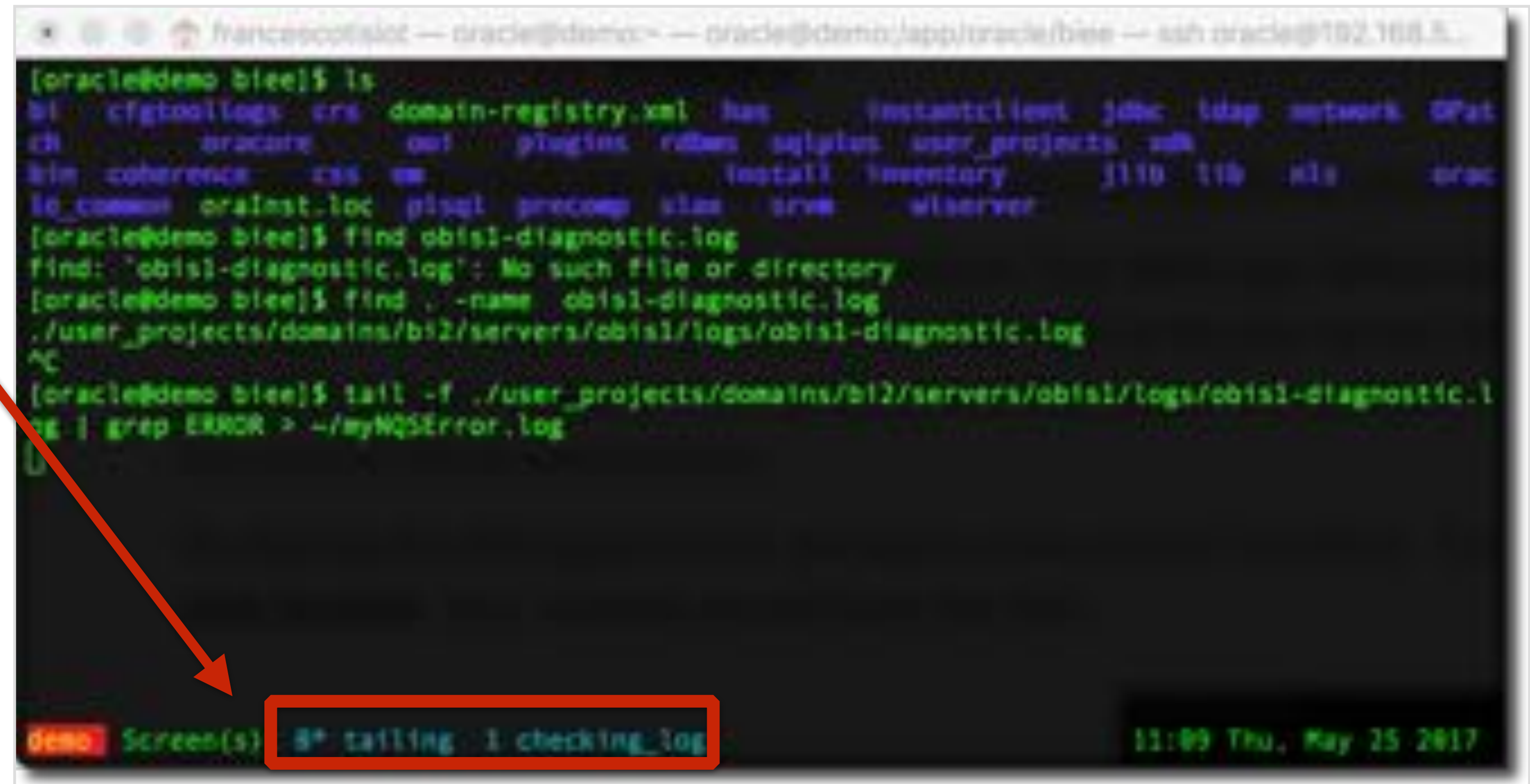
# SSH?

# SSH Sessions



# Screen

- Session Persistence
- Multiple Sessions
- Scrollback history



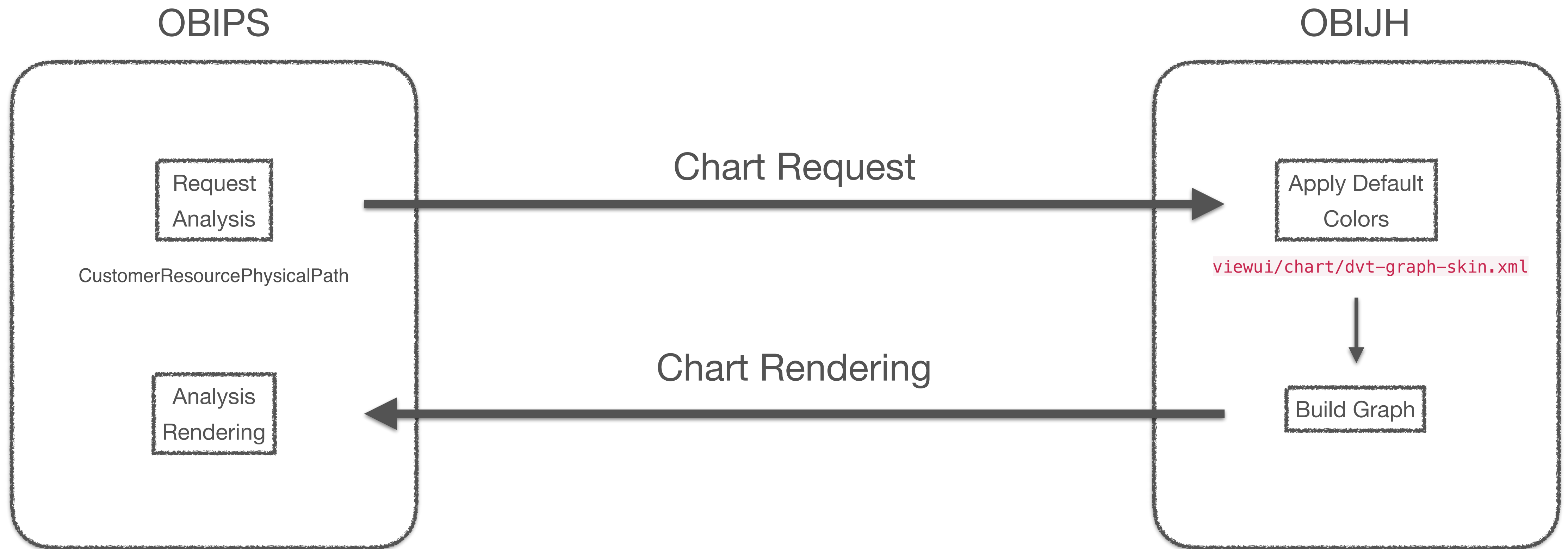
```
[oracle@demo blee]$ ls
bl  cfgtoollogs  crs  domain-registry.xml  has  installclient  jdbc  ldap  network  OPAt
ch  oracle      out  plugins  rdbms  sqlplus  user_projects  xdk
bin  coherence  css  ew  install  inventory  j110  j110  xls  orac
lc  common  oraInst.loc  psql  precomp  sqls  srv  wlsrver
[oracle@demo blee]$ find obis1-diagnostic.log
find: 'obis1-diagnostic.log': No such file or directory
[oracle@demo blee]$ find . -name obis1-diagnostic.log
./user_projects/domains/b12/servers/obis1/logs/obis1-diagnostic.log
^C
[oracle@demo blee]$ tail -f ./user_projects/domains/b12/servers/obis1/logs/obis1-diagnostic.l
og | grep ERROR > ~/myNQSError.log
[
```

demo Screen(s) 8\* tailing 1 checking\_log 11:09 Thu, May 25 2017

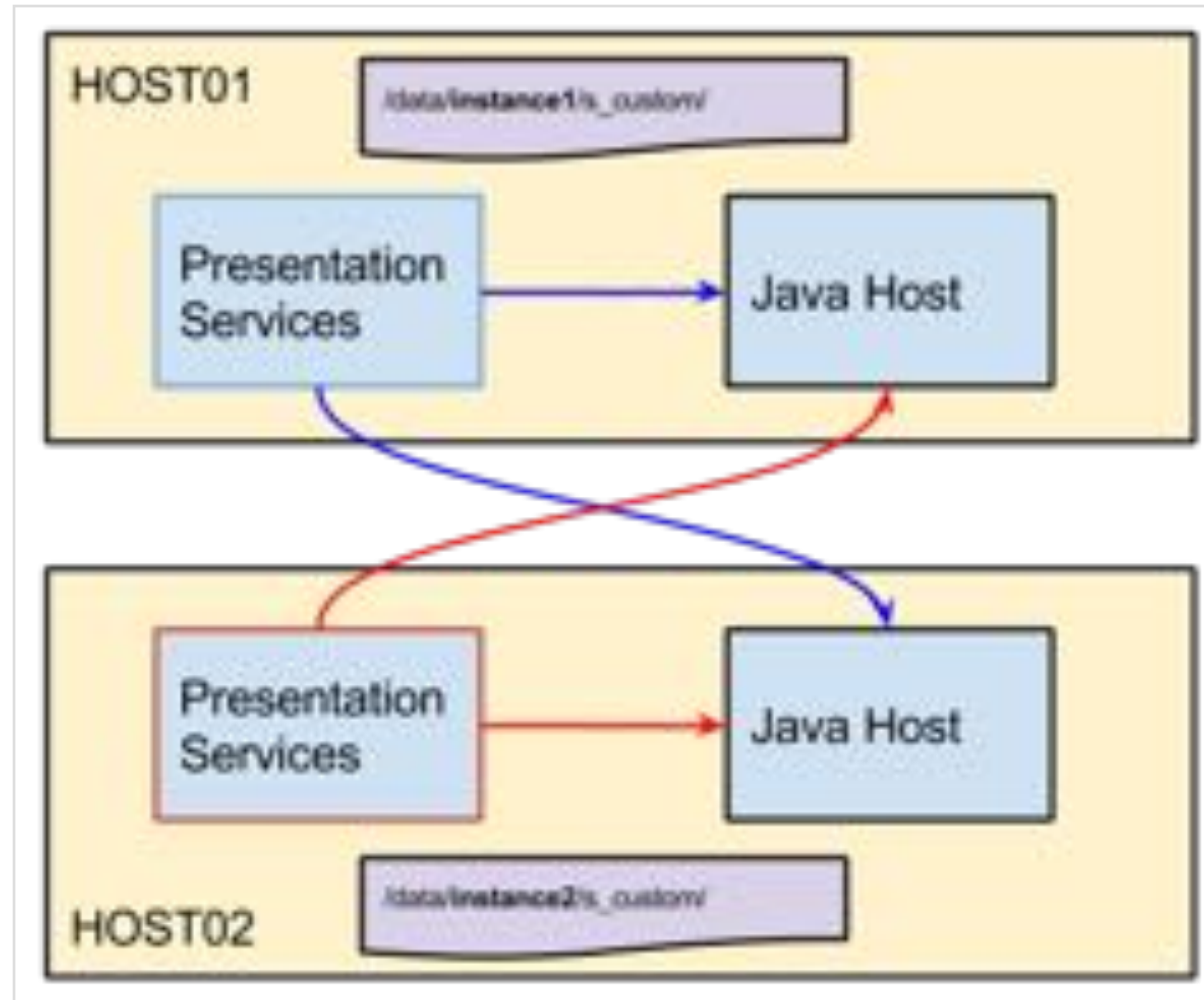
# Analysis Tools



# Problem: Default Colours for Graphs not Working



# Cluster



# Analysing Traffic

## Tcpdump

- ▶ Analysis of TCP Packets
- ▶ Intra Components Traffic
  - OBIPS to JavaHost

```
$ sudo tcpdump -i venet0 -i lo -nna 'port 9810'
```

- port 9810: JavaHost
- Flag A: ASCII representation of the packet



# Analysing Traffic

## Tcpdump

- ▶ Analysis of TCP Packets
- ▶ Intra Components Traffic
  - OBIPS to JavaHost

```
$ sudo tcpdump -i venet0 -i lo -nna 'port 9810'
```

- port 9810: JavaHost
- Flag A: ASCII representation of the packet



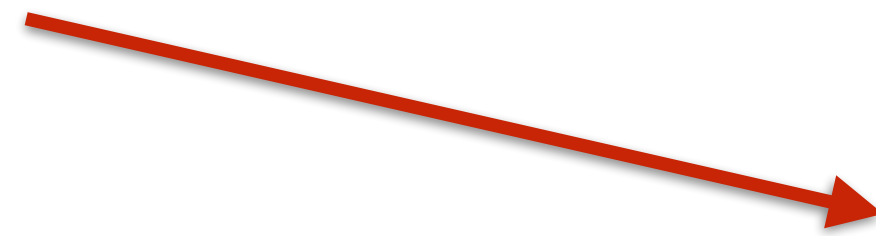
```
..... 18.00.....FormatSpecId.....@111dvtchart:3550020000.....P...
..... 89.00.....FormatSpecId.....@111dvtchart:3550020000.....0000dvtchart:3550060000.....01
@111dvtchart:3550020000.....1000dvtchart:3550060000.....
...spec_22x26.....Flash.....online..
.....en-us0...Time plots require exactly one date or timestamp column on the horizontal axis.J...Insu
fficient number of measures. This graph requires at least one measure.K...Insufficient number of measur
es. This graph requires at least two measures.M...Insufficient number of measures. This graph requires
at least three measures.X.../ent/dota2/nas/shared/obi01/skin/custom_skin_node01/s_rn/viewui/chart/dvt-g
raph-skin.xml.....chartfall.....J...
13:48:04.933707 IP 192.168.10.152.9810 > 192.168.10.152.38566: Flags [P.], seq 1:2245, ack 3419, win 38
4, options [nop,nop,TS val 4238501847 ecr 4238501823], length 2244
E.....0.0.....
...
..&R....'.J..6.....k.....
...@...@.....eJzE8FLz4jg0fp9foVkp0lgywF6JHlQxkLhwbqN0xLjFFkEBH6wscse0/ZxrF9L+he2MqPKJrX7POH
Yuh0ft1qto+ncy8HtZKj4Tc7rP00-r4tRr60yTJhnoXXzpv3K6jbcf5-rFSLlLnXoLkJe8M/AZ1MhrqnTpTX/Qv5w0z19PKfme2Uk/jc
.....
```



**This mostly looks normal... Are there more hacks?**

# OBIEE 12c vs OBIEE11g

- No more OPMN -> Node Manager
- Same black box protocols (sawserver, nqserver)
- Same old SOAP webservices
- **New REST-based webservices**



**None of these Web Services are documented, and they should therefore be assumed to be completely unsupported by Oracle. This presentation is purely for geek interest. Using undocumented APIs leaves you at risk of the API changing at any time.**

# Sysdig

- Open Source
- Linux system level exploration

```
sudo sysdig -s 2000 -A "fd.port=7780 and (evt.buffer contains GET or evt.buffer contains POST)"
```

- -A: Print ASCII, i.e. human-readable data
- fd.port=7780: Managed Server
- (evt.buffer contains GET or evt.buffer contains POST): GET or POST traffic only





# Sysdig Output

18168 17:40:42.202935645 0 java (7563) < read res=636 data=

GET /va/api/v1/dataset/limits HTTP/1.1

Host: 192.168.56.101:7780

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.12; rv:53.0) Gecko/20100101 Firefox/53.0

Accept: \*/\*

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate

Content-Type: application/x-www-form-urlencoded; charset=UTF-8

X-CSRF-Token: bZTrpHmsXqDhqj03HtW0G53dujUpavZrkLtraCpplxQyysJe

X-Requested-With: XMLHttpRequest

Referer: http://192.168.56.101:7780/va/?pageid=datasources

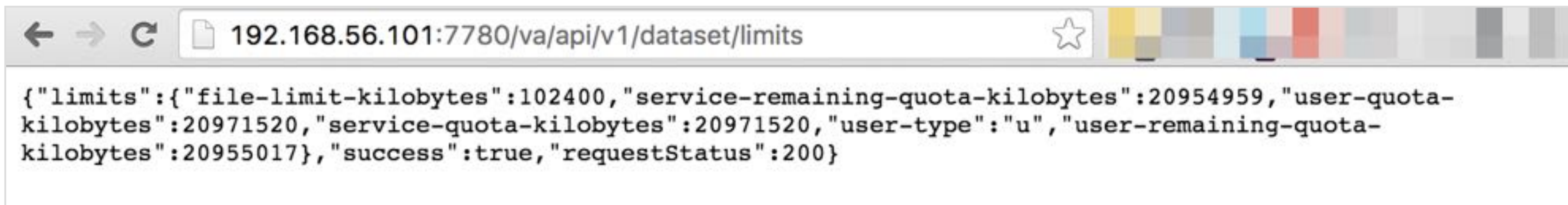
Cookie: JSESSIONID=6JUXECYd13o9Si7pFf8jYT\_fTu-u7jkTJLURXsPxzzoRCBlB51wV!-87768635;

ORA\_BIPS\_NQID=tkhrmqr1scmhkba6si8eg362i558136crprqo

gcia27beheg

Connection: keep-alive

Data Storage: 18.8MB of 20GB used, 0B selected



# From New Browser

The screenshot shows the Network tab in Chrome DevTools. The request URL is `http://192.168.56.101:7788/va/api/v1/dataset/limits`. The request method is GET. The status code is 302 Moved Temporarily, which is highlighted with a red box. The response headers show a date of Thu, 25 May 2017 14:24:29 GMT and a location of `http://192.168.56.101:7788/va/login.jsp`. The request headers show a cookie: `JSESSIONID=vkE_-a50P9R2gTkp_ABYXQCMsav6Z50vPT4nI237805061`.

## Missing Cookie?

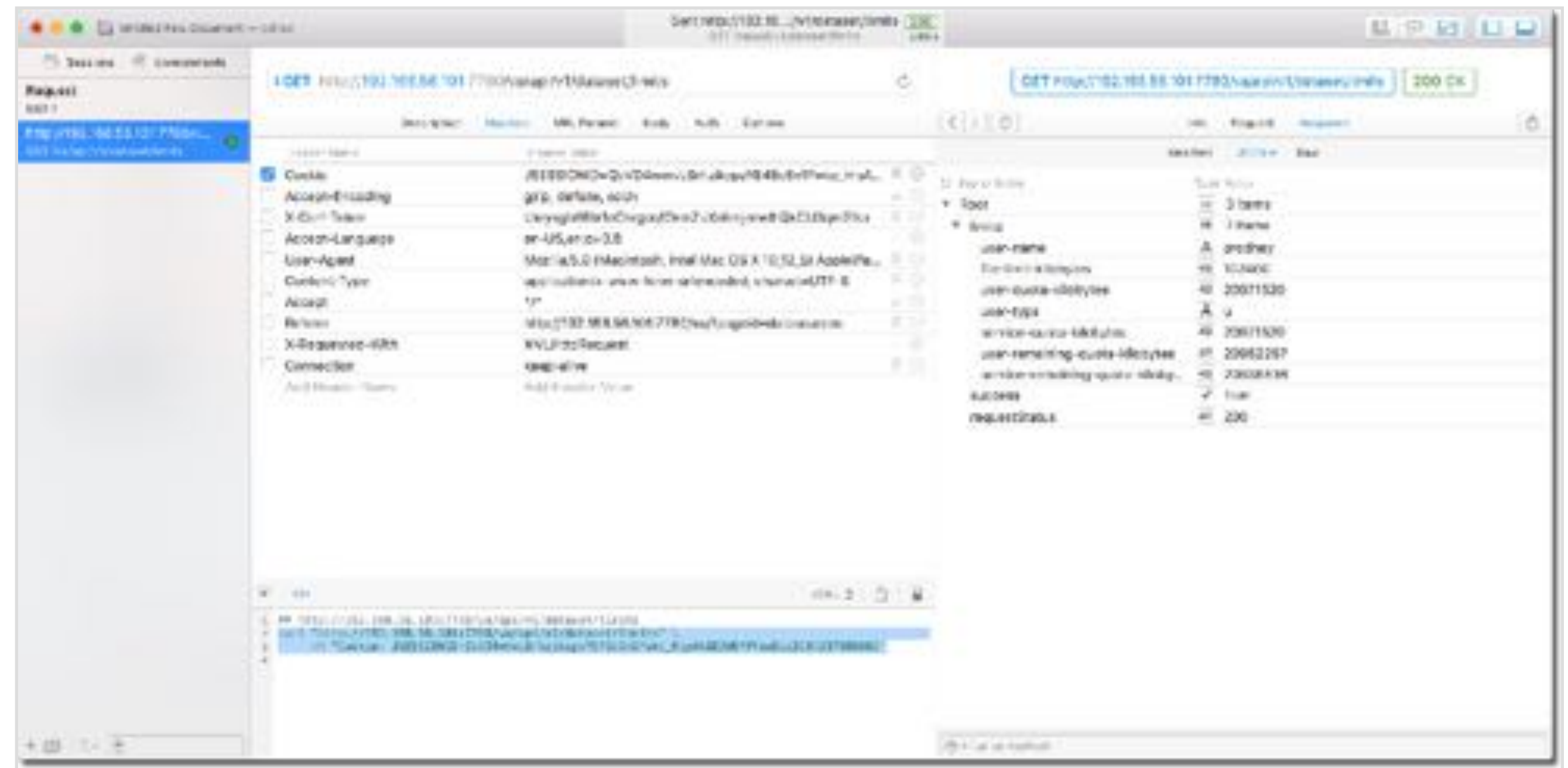
Google Chrome Developer Tool

The screenshot shows the Network tab in Chrome DevTools. The request URL is `http://192.168.56.101:7788/va/api/v1/dataset/limits`. The request method is GET. The status code is 200 OK. The response headers show a date of Fri, 26 May 2017 08:49:29 GMT and X-ORACLE-DMS-ECID: 29474de3-d8ca-490f-a197-7fc182a0e627-00001de1. The request headers show a cookie: `JSESSIONID=0vVD4wvLSrhziKcpzYE45c6n1Fwkc_HiyAkGEQW04PfewDqc2C8I237805061`, which is highlighted with a red box.

## How to Test?

## REST API client for Mac

- Similar to Postman, SoapUI
- Copy Request as cURL
- Paste into Paw
- Complete Control of Headers
- Formatted Layout
- Provides the cURL Syntax to Export

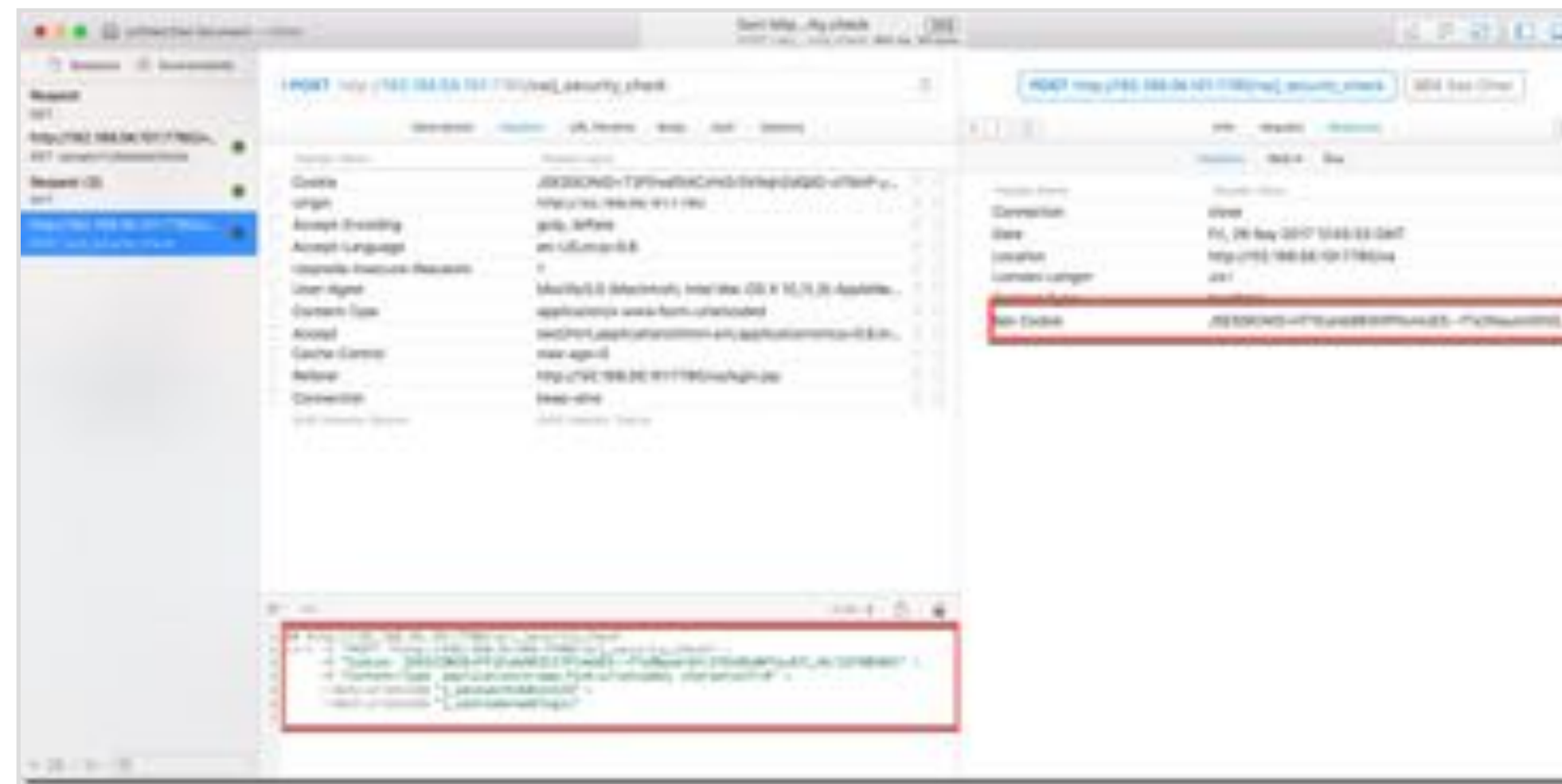


Cookie: JSESSIONID=QvVD4wmvLSrhzikcpzYE45c6n1Fwkc\_HiyAkGEQW04PfewDqc2C8!237805061

Wonderful...How do I get this Cookie?

# Getting the Login Cookie

- Check Login to /va
  - URL
  - Set-Cookie
  - Form Data (Plain Text - SSL Anyone?)
- Import to Paw
  - Remove headers
  - Get cURL



# Parsing the Cookie

- Calling cURL from terminal
  - --cookie-jar option
  - grep/awk

```
francescotisiot — oracle@demo:~ — -bash — 87x44
Fracos:~ francescotisiot$ curl -X "POST" "http://192.168.56.101:7780/va/j_security_check" -H "Content-Type: application/x-www-form-urlencoded; charset=utf-8" --data-urllencode "j_password=Admin123" --data-urllencode "j_username=weblogic"
<html><head><title>303 See Other</title></head>
<body bgcolor="#FFFFFF">
<p>This document you requested has moved temporarily.</p>
<p>It's now at <a href="http://192.168.56.101:7780/va">http://192.168.56.101:7780/va</a>.</p>
</body></html>
```

```
francescotisiot — oracle@demo:~ — -bash — 87x44
Fracos:~ francescotisiot$ curl -X "POST" "http://192.168.56.101:7780/va/j_security_check" -H "Content-Type: application/x-www-form-urlencoded; charset=utf-8" --data-urllencode "j_password=Admin123" --data-urllencode "j_username=weblogic" --cookie-jar >(cat) -o /dev/null -s |grep -ISESSIONID|awk '{print $1}'
KY9E0rOqyytat7NPT9Ga-qztujTM5UeIgyeSuml9IqyDKKGyek0!237805061
```

Data Storage: 18.8MB of 20GB used, 0B selected

**COOL**

**BUT COMPLETELY  
USELESS**

# Same Stuff

- ▶ [Web Page to Download/Upload RPD](#)
- ▶ Download Files
- ▶ Refresh Data Sources
- ▶ Any other Rest API!

```
curl -X POST \  
  "http://192.168.1.41:7780/bi-lcm/v1/si/ssi/rpd/uploadrpd" \  
  --form "file=@myRPD.rpd;type=application/vnd.oracle.rpd" \  
  --form "rpd-password=Password01" \  
  --basic --user weblogic:Admin123
```

```
Fracos:Downloads francescotisiot$ curl -X "POST" "http://192.168.56.101:7780/va/api/v1/dataset/refreshFile" \  
> -H "Accept-Encoding: gzip, deflate" \  
> -H "Origin: http://192.168.56.101:7780" \  
> -H "Cookie: JSESSIONID=0nxEmc8VdyJPv7umxguf-ZU8yoJOU3Q1z6MAReoePijFnDKSqHa3!237805061" \  
> -H "X-Csrf-Token: Nwm54xdfsmwlanwGcx0rQGwotHEMfbzuvJyczcm0RRCpDnLFL" \  
> --form "subjectArea=XSA('weblogic','78s')" \  
> --form "file=@/Users/francescotisiot/Downloads/78s.xlsx;type=application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" | jq ".success" \  
% Total % Received % Xferd Average Speed Time Time Time Current \  
 Dload Upload Total Spent Left Speed \  
100 14438 100 4683 100 9755 1799 3748 0:00:02 0:00:02 ---:---:--- 3747 \  
true
```

**None of these Web Services are documented, and they should therefore be assumed to be completely unsupported by Oracle. This presentation is purely for geek interest. Using undocumented APIs leaves you at risk of the API changing at any time.**

# Summary

- Don't accept defaults
- Don't trust the 1st result on Google
- Find the root cause of your problem
- Use the right tools
- Check out Sample App or examples in blog posts
- Adapt examples to your situation
- Don't be afraid to ask (**smartly**) -> OTN, #obihackers







Questions?