INTEGRIGY

Oracle Business Intelligence Enterprise Edition (OBIEE)

Security Top Ten

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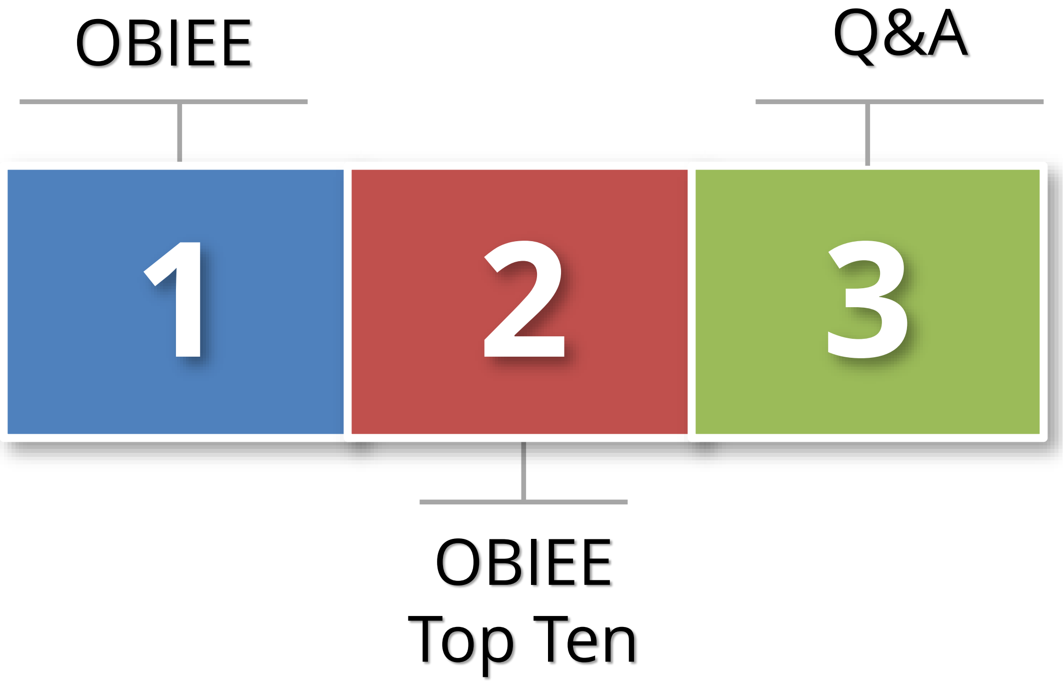
Agenda

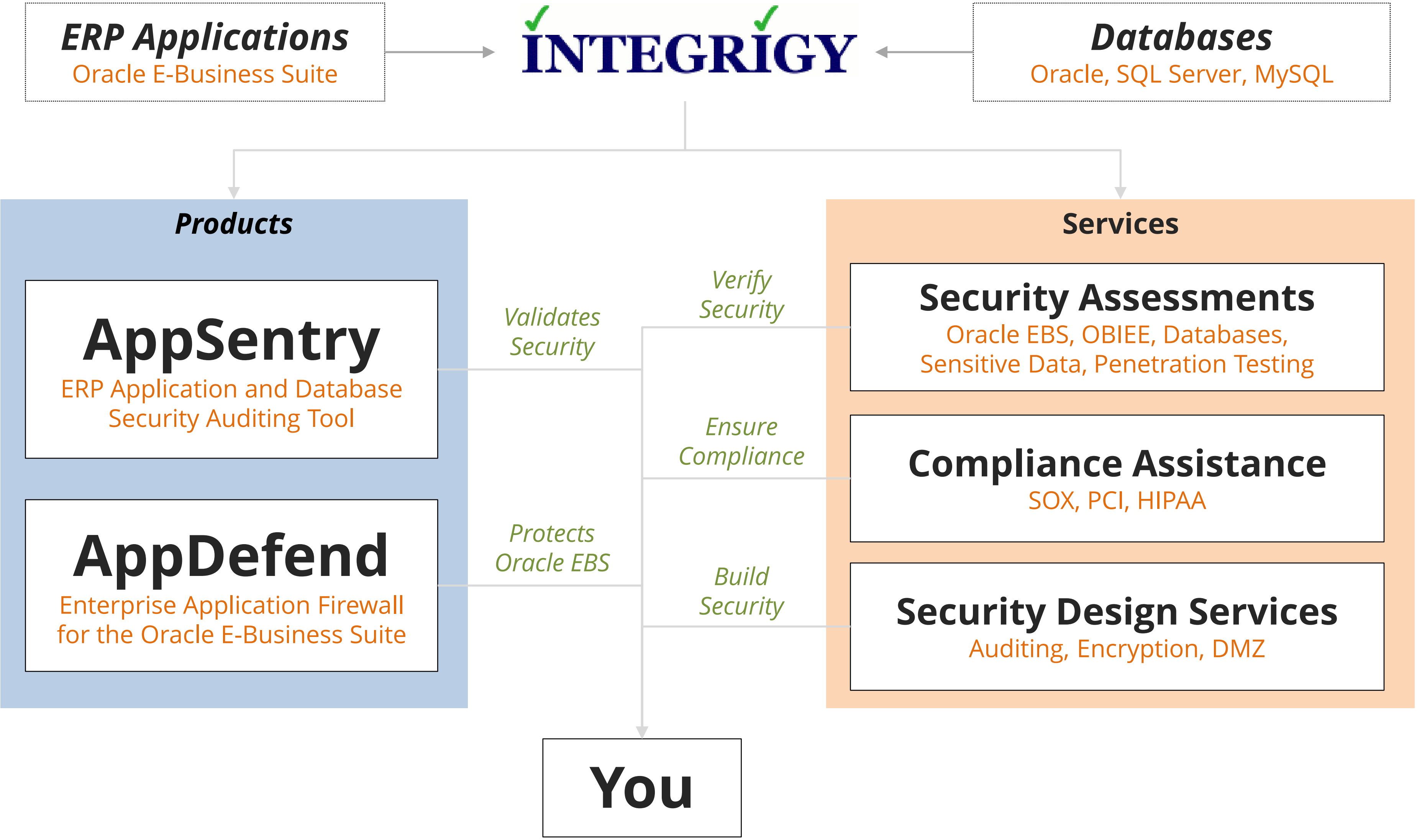


1 OBIEE

2 OBIEE Top Ten

3 Q&A

About Integrigy



ERP Applications
Oracle E-Business Suite

INTEGRIGY

Databases
Oracle, SQL Server, MySQL

Products

AppSentry
ERP Application and Database Security Auditing Tool

AppDefend
Enterprise Application Firewall for the Oracle E-Business Suite

Validates Security

Protects Oracle EBS

Verify Security

Ensure Compliance

Build Security

Services

Security Assessments
Oracle EBS, OBIEE, Databases, Sensitive Data, Penetration Testing

Compliance Assistance
SOX, PCI, HIPAA

Security Design Services
Auditing, Encryption, DMZ

You

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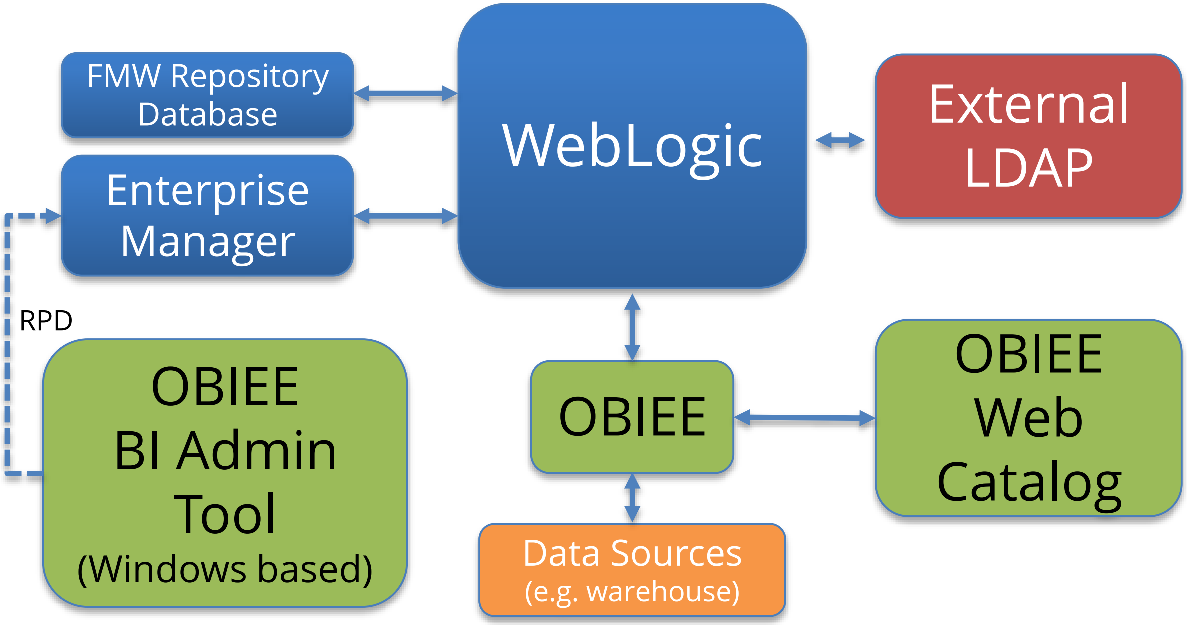
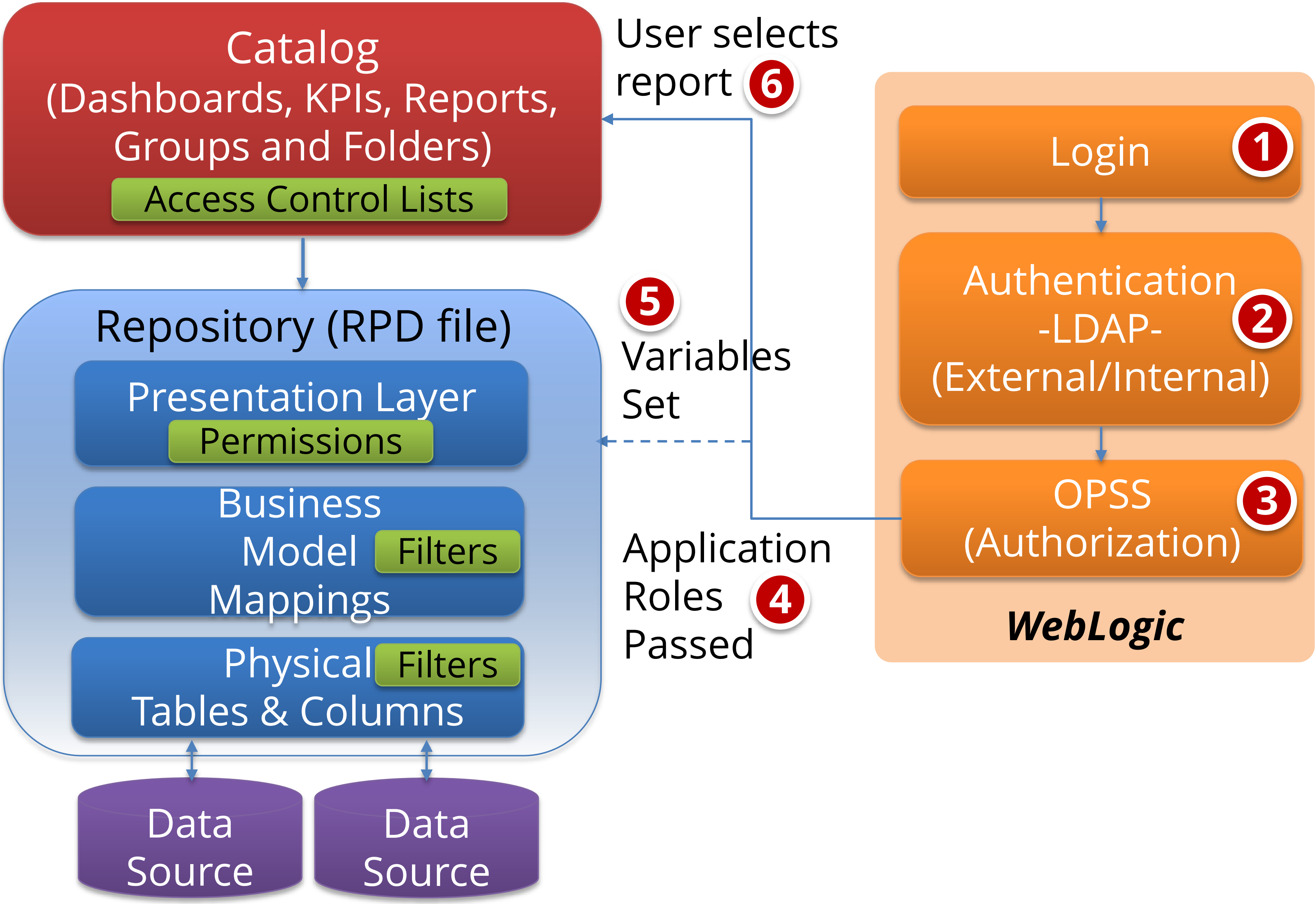
OBIEE Security Examined



Size of box proportionate to component's impact on security

OBIEE Security



Agenda

OBIEE

Q&A

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OBIEE
Top Ten

Top 10 OBIEE Security Vulnerabilities

1. Patching Policies and Procedures
2. Metadata database security
3. Key accounts not secured
4. RPD security
5. Weak overall security
6. Sensitive data not protected
7. Direct SQL access allowed
8. Write-Back enabled
9. Go URL and SQL access
10. No Usage Tracking

Patch Levels

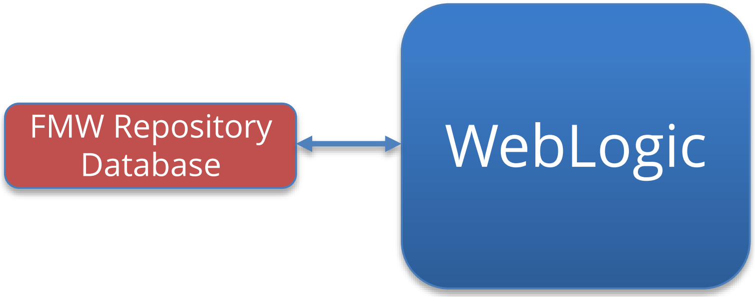
- **OBIEE 11.1.1.6.x end-of-life 2-April-2014**
  - Sustaining support

- **Recommend**
  - Upgrade to OBIEE 11.1.1.7.x

Metadata Database Security

- **Metadata repository database required for each Fusion Middleware product**
  - OBIEE schemas: BIPLATFORM, MDS

- **Recommendations**
  - All standard database security best practices apply
  - Apply CPU patches
  - Do not manually edit or allow access
  - Do not use for Usage Tracking



Key Accounts Not Secured

OS owner of WebLogic	Try not use to ‘weblogic’ or to use welcome1 for a password
OS user that runs WebLogic	Do not use root or a privileged user. Do not hardcode this user’s credentials in startup/shutdown scripts
WebLogic administration user(s)	End-user(s) with full Administration rights to WebLogic – only appropriate people should have access
BI Admin User	Seeded end-user with full Administration rights to OBIEE
BI System User	Seeded account not intended to be used by users. Change password by following the specific Oracle support instructions.
OracleSystemUser	Seeded account created during installation. User name can be change later but need to follow instructions

Act-As and Impersonation

	Impersonate	Act-As
Level of access	Full access	Full or read-only access, on a single user
Users whose identity can be assumed by the proxy user	Any and all users, anytime	Defined list of users
Access method	Construct URL manually	Standard functionality of UI
How to know if being used	No indication given	Both proxy and Target are shown in the UI
Security risk	Credentials exposed in plain text when URL submitted	Little to none

Key Account Recommendations

- **Key accounts**
  - Reconcile as part of full audit of OBIEE
  - Regularly rotate all passwords per Oracle Support
    - Note 1365210.1
    - Fusion Middleware Security Guide for Oracle Business Intelligence Enterprise Edition 11g (E10543-08) – Appendix C Troubleshooting Security in Oracle Business Intelligence

- **Act-As and Impersonation**
  - OBIEE security assessment
  - Set and/or review policy for using
  - Use Act-As if at all possible
  - Implement Usage Tracking
  - Log and Monitor

RPD Security

- **Password to encrypt and open RPD**
  - Protect all meta data and security rules

- **Export to XML option**
  - Connection pool passwords ARE encrypted

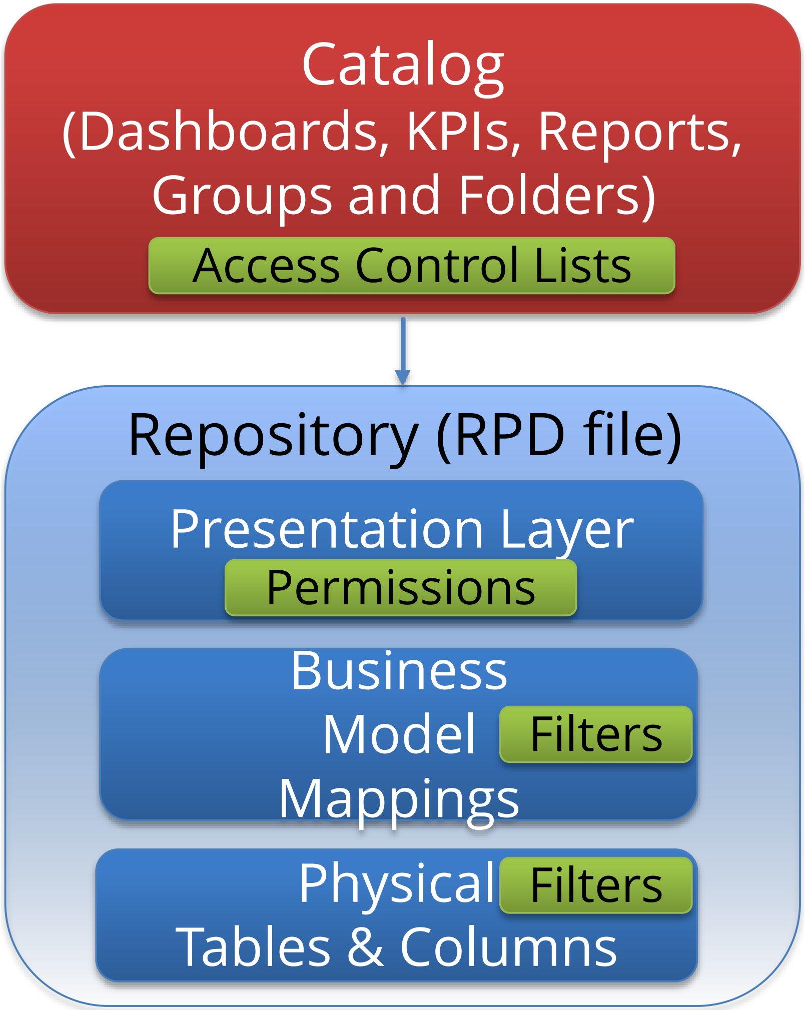
- **Recommendation**
  - Use complex passwords and regularly rotate password
  - Use different password for production
  - Secure access to XML export and put RPD under source code control

Weak Overall OBIEE Security

- **No easy way to reconcile security and authorization. Three security solutions:**
  - Catalog (ACLs)
  - Presentation Layer permission grants
  - Data level filters

- **Commonly find**
  - Rogue groups and users
  - Errors and gaps

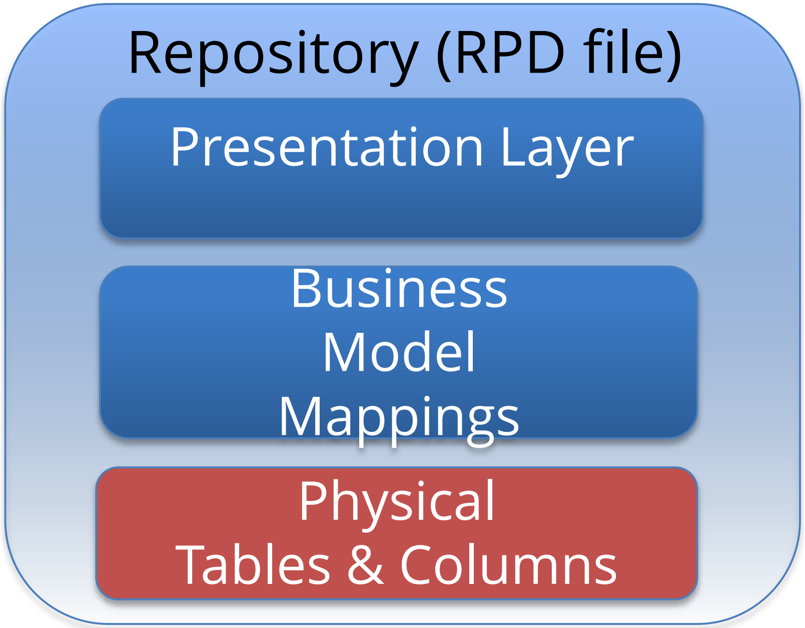
- **Recommendation**
  - OBIEE security assessment



Sensitive Data Not Protected

- **Need to protect if defined in RPD**
  - May not need or realize exists
  - Can be result of prior engagement or accidental metadata import

- **Examples:**
  - Social security, credit cards, bank accounts
  - Salaries, sales and customer records
  - E-Business User table and passwords

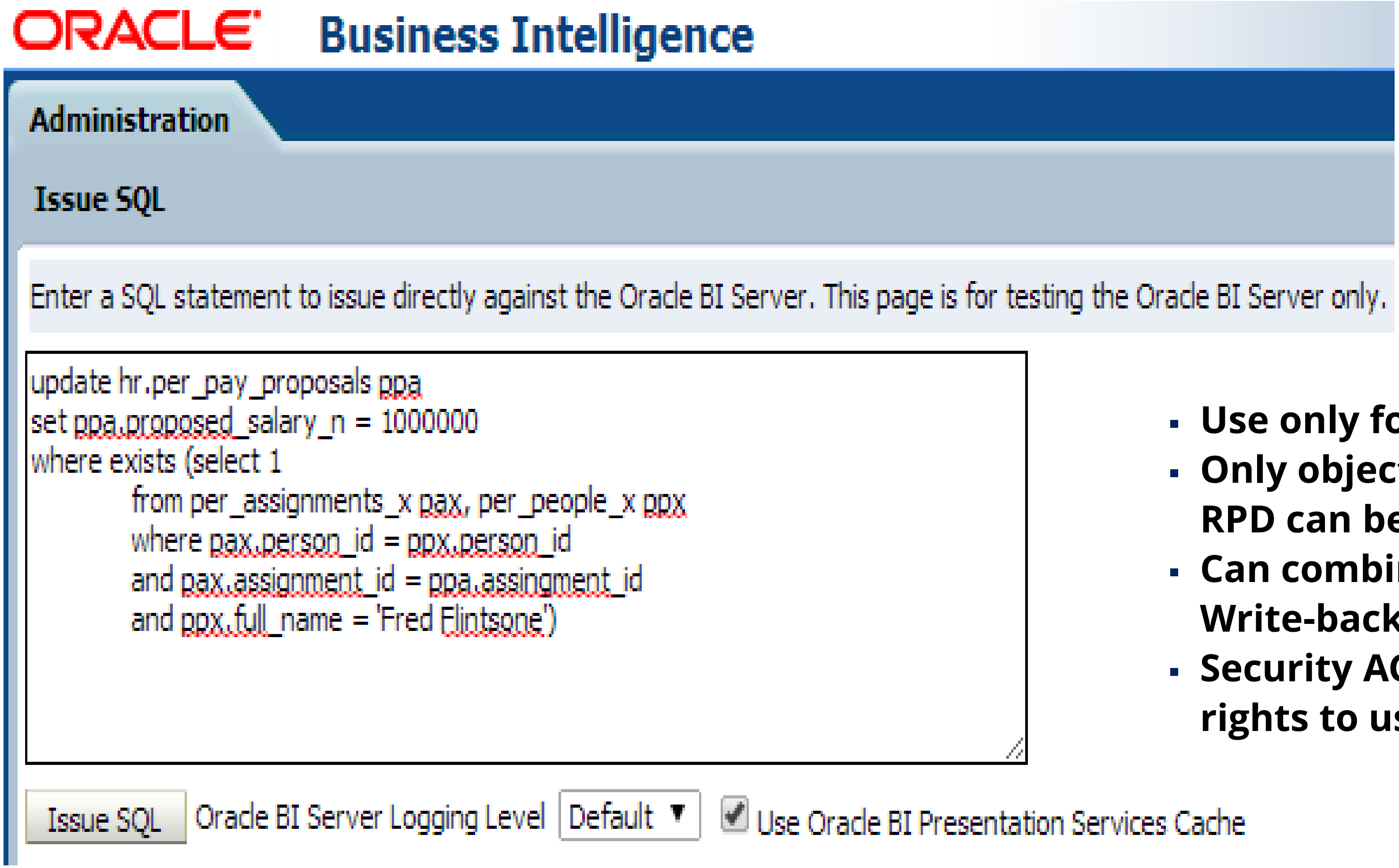


Sensitive Data Not Protected

- **Need to project against**
  - Weak or no security within RPD and catalog
  - Direct SQL access
  - Write Back
  - GO URL SQL access

- **Recommendation**
  - OBIEE security assessment, inclusive of sensitive data discovery

Direct SQL Access And Write-Back



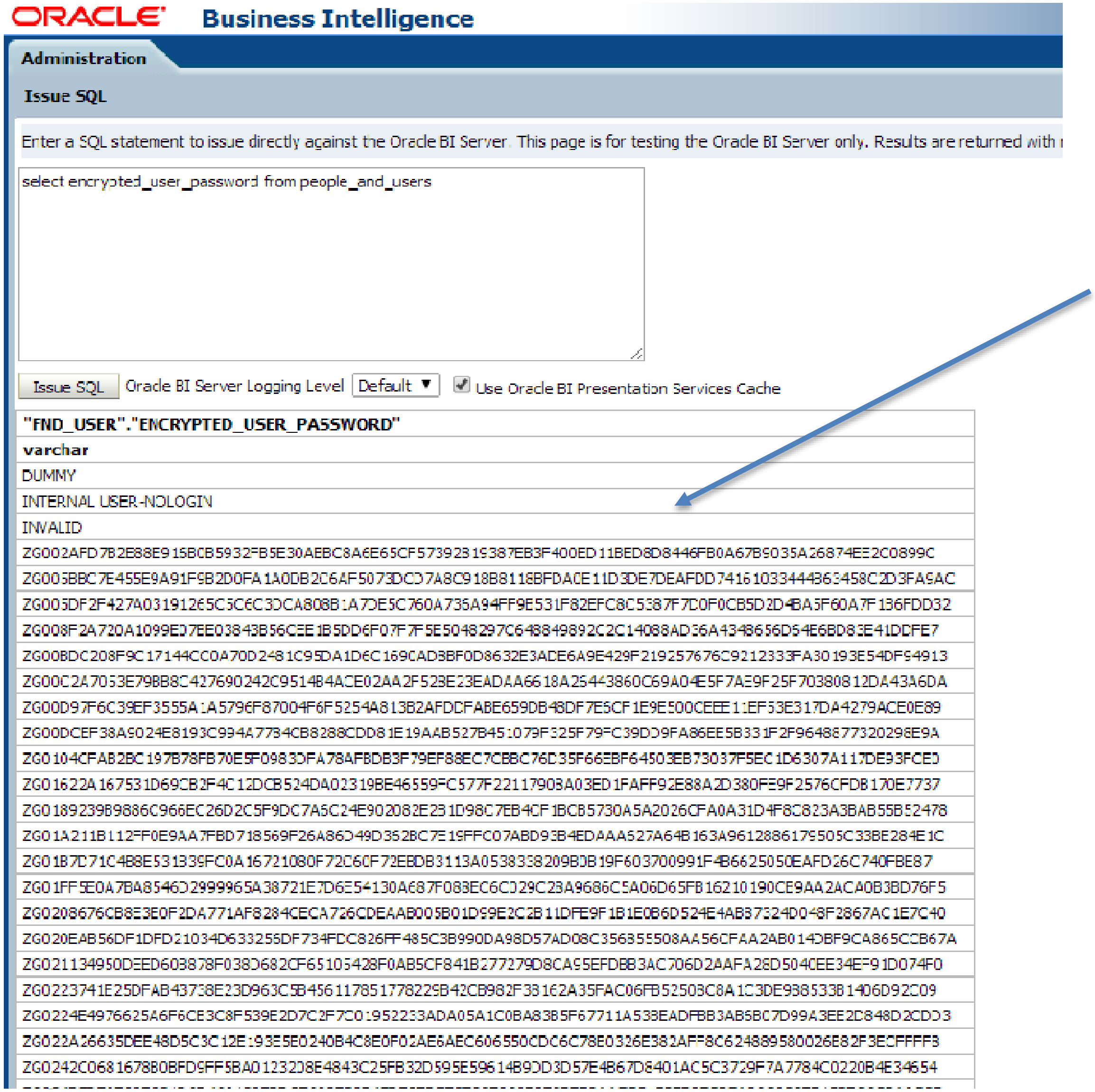
Enter a SQL statement to issue directly against the Oracle BI Server. This page is for testing the Oracle BI Server only.

```
update hr.per_pay_proposals ppa
set ppa.proposed_salary_n = 1000000
where exists (select 1
        from per_assignments_x pax, per_people_x ppx
        where pax.person_id = ppx.person_id
        and pax.assignment_id = ppa.assingment_id
        and ppx.full_name = 'Fred Flintsone')
```

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

- Use only for debug
- Only objects in RPD can be queried
- Can combine with Write-back
- Security ACL grants rights to use

Direct SQL Access



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

```
select encrypted_user_password from people_and_users
```

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

"FND_USER"."ENCRYPTED_USER_PASSWORD"
varchar
DUMMY
INTERNAL USER-NOLOGIN
INVALID
ZG002AFD7B2E88E915B0B5932FB5E30AEBC8A6E65CF57392319387EB3F400ED11BED8D8446FB0A67B9035A26874EE2C0899C
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Example of exposing Oracle E-Business Suite Passwords from APPLSYS.FND_USER

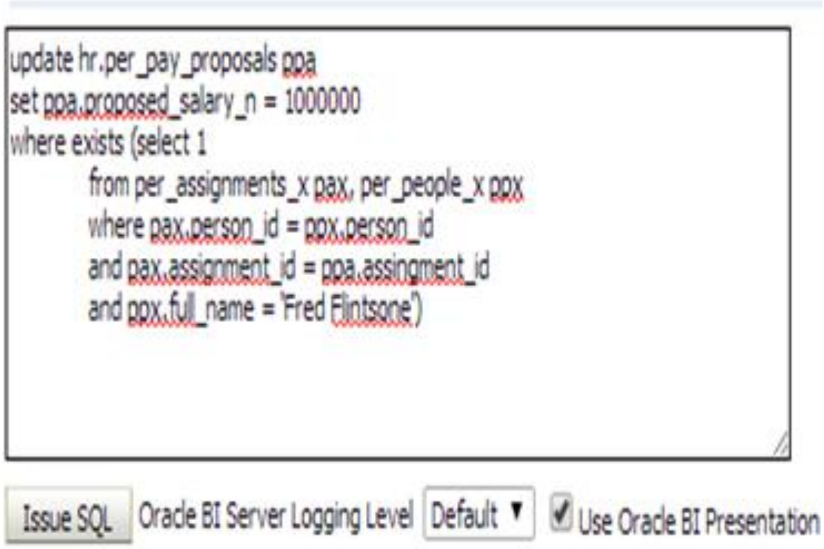
Recommend

- OBIEE logging, monitoring and auditing
- Full audit of Security ACL

Write-Back

- **Connection pools can be defined to allow users to create or update data**
  - Has write back been enabled?
  - What tables allow write-back?
  - Who has security to access?
  - Can they also issue Direct SQL?

- **Recommend**
  - OBIEE security assessment
  - Logging and monitoring



```
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        from per_assignments_x pax, per_people_x ppx
        where pax.person_id = ppx.person_id
        and pax.assignment_id = ppa.assingment_id
        and ppx.full_name = 'Fred Flintsone')
```

Oracle BI Server Logging Level: Default ▼

☑ Use Oracle BI Presentation

Go URL And SQL Access

- **Go URL used to integrate Presentation Services with external portals and applications**
  - Set variables, session attributes

- **Security concerns**
  - Must authenticate first
    - Do you have a PUBLIC user?
  - Bypasses certain parts of security
  - Creates OHS (Apache) log entries
  - Can Issue SQL

Go URL & SQL Access

Authenticate

http://<host>:<port>/analytics/saw.dll?GO&NQUser=weblogic&NQPassword=Password1

Issue SQL

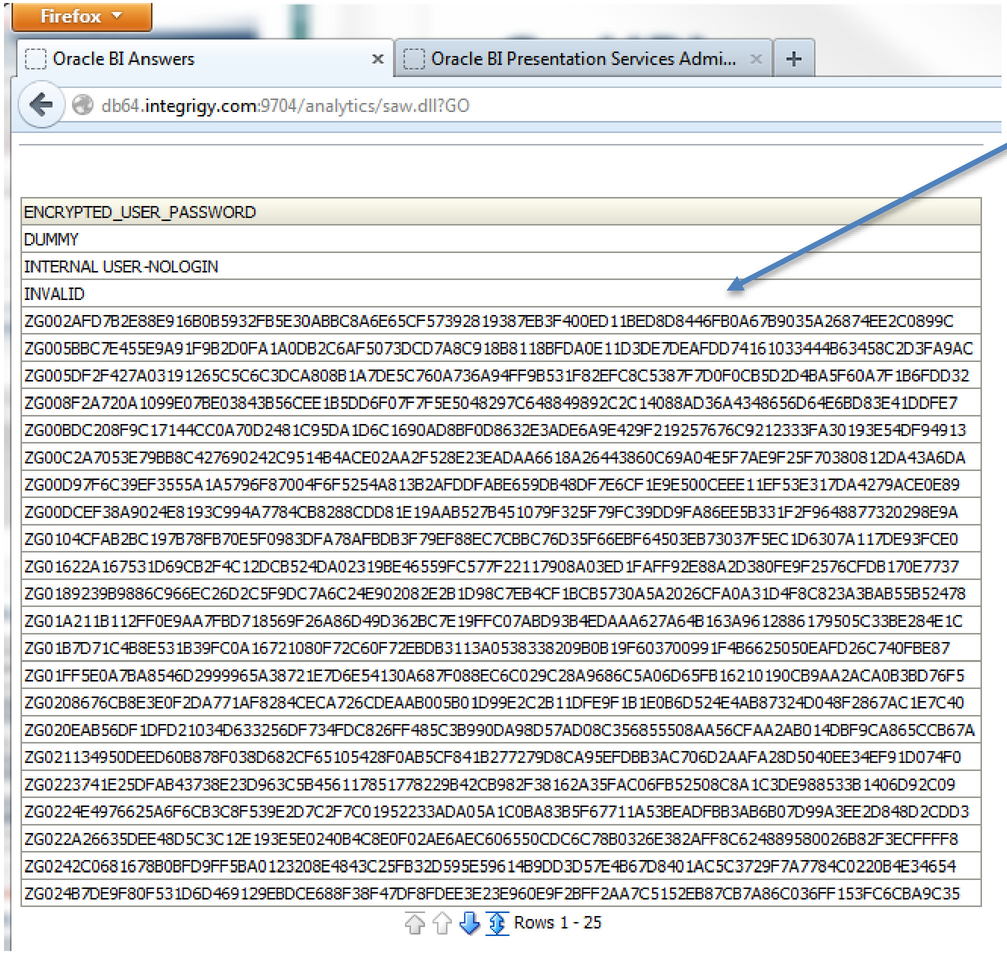
http://<host>:<port>/analytics/saw.dll?Go&SQL=select+thecolumn+from+subject_area

http://<host>:<port>/analytics/saw.dll?Go&SQL=select+person+salary+from+hr_salary_info

http://<host>:<port>/analytics/saw.dll?Go&SQL=select+encrypted_user_password+from+people_and_users

Go URL SQL Access

http://<host>:<port>/analytics/saw.dll?GO&NQUser=integrigy_test_1&NQPassword=test1234&SQL=select+encrypted_user_password+from+people_and_users


Firefox
Oracle BI Answers
Oracle BI Presentation Services Admi...
db64.integrigy.com:9704/analytics/saw.dll?GO
Rows 1 - 25

ENCRYPTED_USER_PASSWORD
DUMMY
INTERNAL USER-NOLOGIN
INVALID
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This test user <u>CANNOT</u> issue Direct SQL but still can query with Go URL

Being able to see passwords from APPLSYS.FND_USER is a BAD IDEA

Recommend to DISABLE GO URL

No Usage Tracking

- **Oracle provides sample RPD**
  - Manually copy or configure required components into your RPD

- **Reports on changes to**
  - Enterprise manager configuration changes
  - RPD changes
  - Who ran what report when

- **Recommendation**
  - Create new schema. Do not write to metadata schemas: BIPLATFORM or MDS
  - Make part of holistic log and audit solution
    - Integrigy Framework for Logging and Auditing
    - Pass to centralized logging (e.g. Spunk, ArcSight, etc…)

OBIEE Evaluate Function(s)

- **Evaluate function(s) bypass all OBIEE security**
    - Any DML statement may be issued directly against database: select, update and delete

- **Any user can use. Not limited by Security ACL or by WebLogic**
    - Limited only by database privileges of account used in connection pool

- **Recommend to Disable**
    - 11g only

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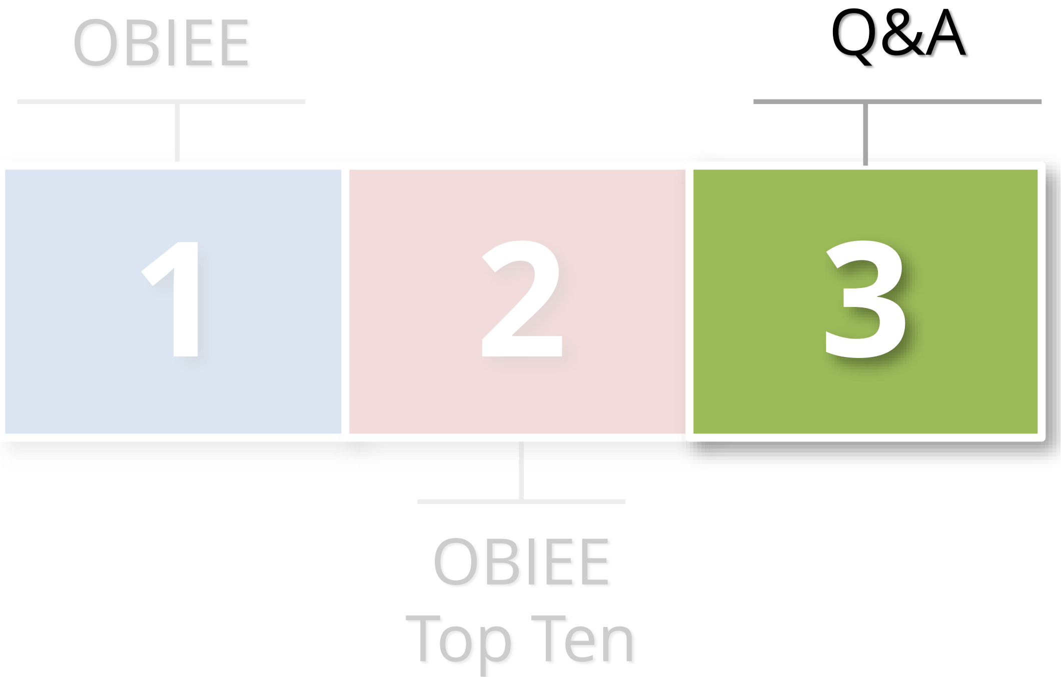

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Contact Information

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