An Overview of Adapter Development for LSH PART II

Sujeet Roul

DBMS Consulting, Inc.

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Life Sciences HUB Focus Group

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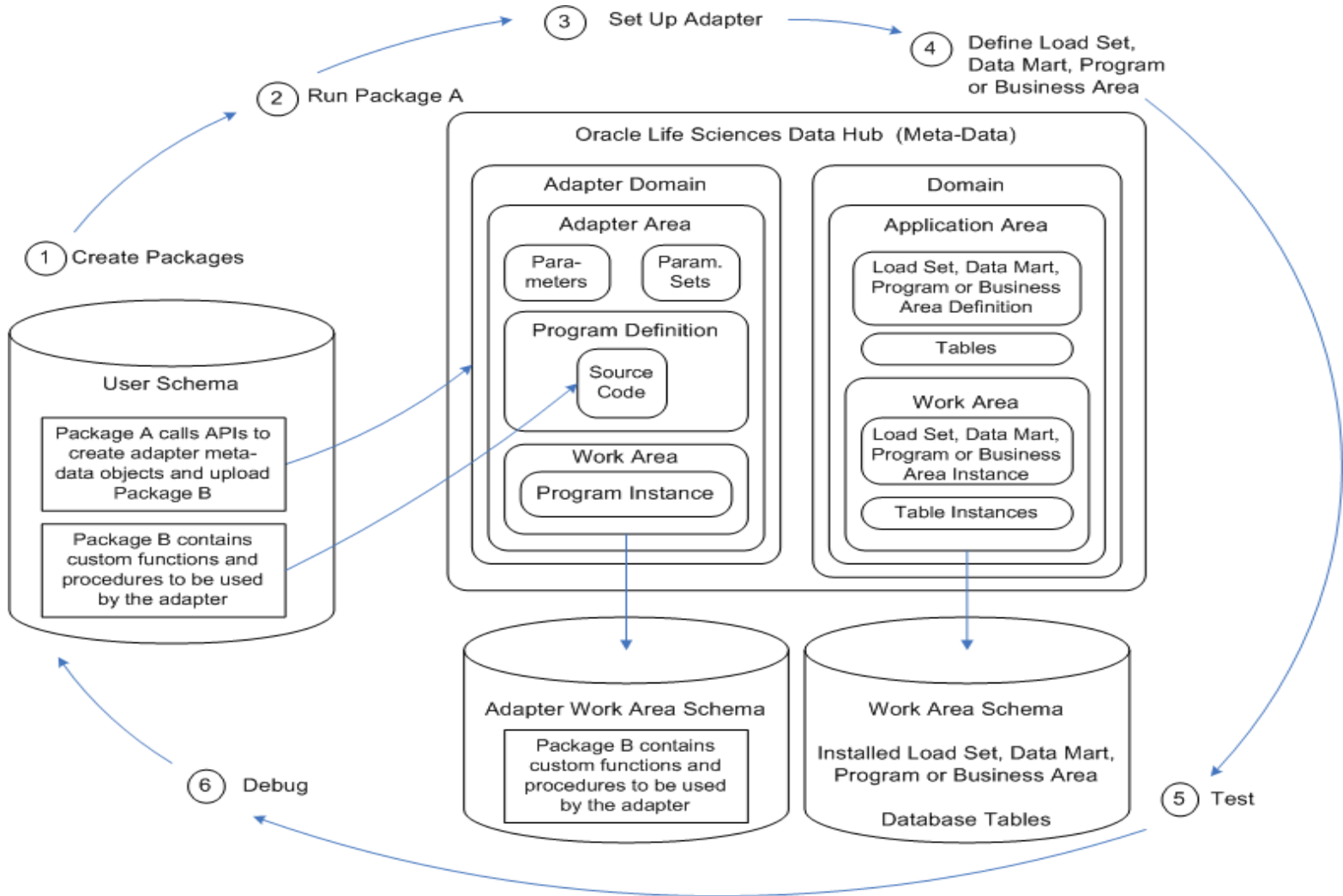
An overview of Adapter development for LSH PART II

AGENDA

- **ADAPTER DEVELOPMENT CYCLE**
- **ADAPTERS TO EXTERNAL SYSTEMS**
- **ADAPTER STRUCTURE**
- **PREDEFINED ADAPTERS**
- **CREATING YOUR OWN ADAPTERS**
- **LISTS OF API**
- **SETTING UP SECURITY FOR ADAPTERS**
- **SAMPLE CODE FOR API**
- **TESTING AND VALIDATION CONSIDERATIONS**
- **CRITICAL DECISION POINTS WHILE WORKING WITH ADAPTER**
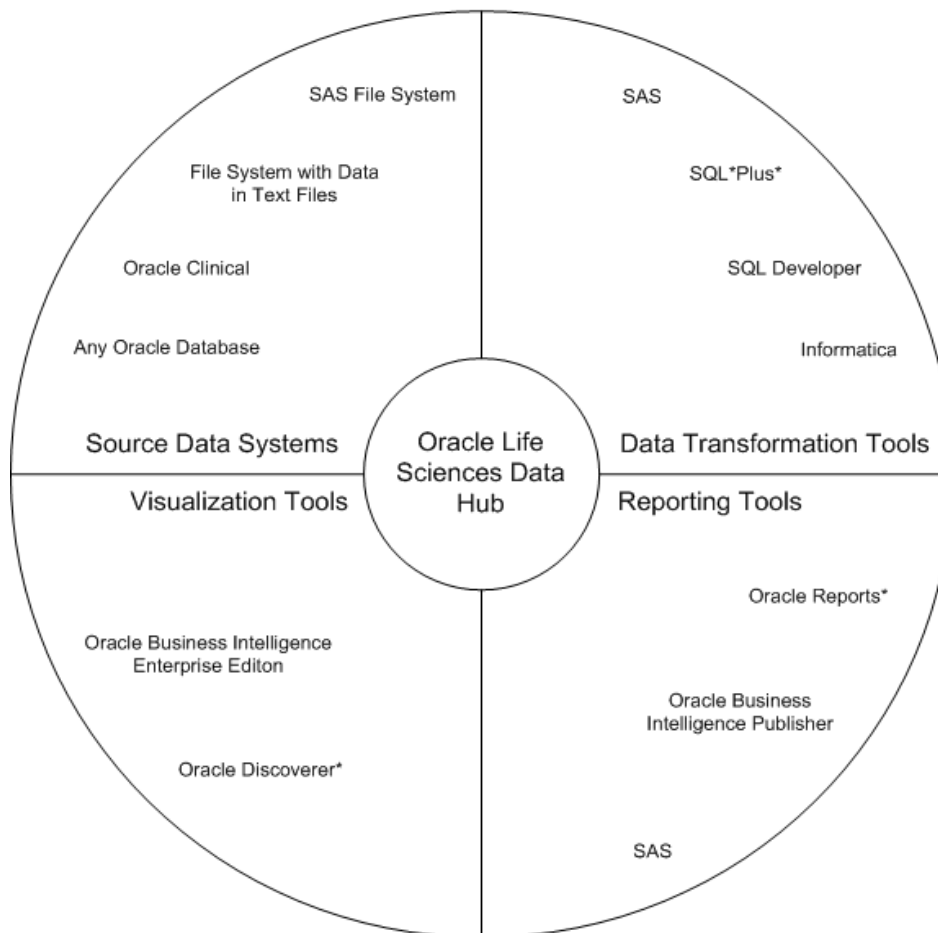- **BENEFITS TO ORGANIZATION**
- **BIOGRAPHIES**

Adapter Development Cycle

Adapters to External Systems

Oracle Life Sciences Data Hub Built-In Adapters

Source Data Systems	Data Transformation Tools
SAS File System	SAS
File System with Data in Text Files	SQL*Plus*
Oracle Clinical	SQL Developer
Any Oracle Database	Informatica

Oracle Life Sciences Data Hub

Visualization Tools	Reporting Tools
	Oracle Reports*
Oracle Business Intelligence Enterprise Editon	Oracle Business Intelligence Publisher
Oracle Discoverer*	SAS

*System included with Oracle LSH

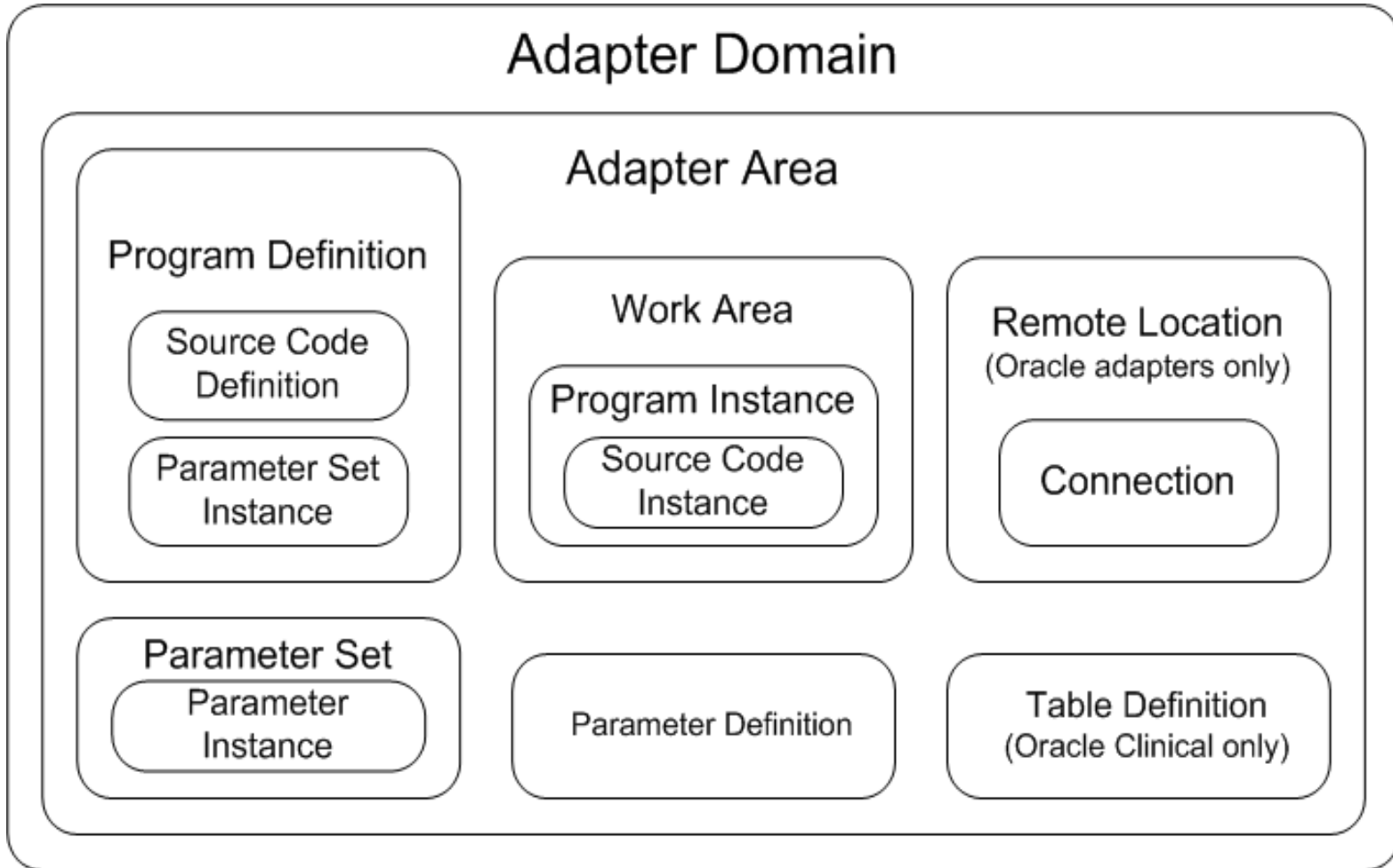# Adapters to External Systems

- **Programming Languages**
- **Source Data Systems**
- **Visualization Tools**
- **Data Export Tools**

Adapter Structure: Object Ownership

Predefined Adapters Available in Oracle LSH

Following predefined Adapter available in Oracle LSH (Release 2.1.3) :-

- **ORACLE EXPORT**
- **ORACLECLINICAL_ADAPTER**
- **ORACLEFAMILY_ADAPTER**
- **SASFAMILY_ADAPTER**
- **SAS EXPORT**
- **TEXT EXPORT**
- **TEXTFAMILY_ADAPTER**
- **VISUALIZATION_ADAPTER**
- **BIP_ADAPTER_DOMAIN**
- **INFORMATICA_ADPTR_DOMAIN**

Creating Your Own Adapters

- There is no user interface in Oracle LSH for creating adapter; you must use the **Application Programming Interface (API).**

- After you have created an adapter it appears in the Oracle LSH user interface and you can assign user groups to it the same way you do for the predefined adapters;

Lists of API

- ## Adapter Domain:
  - CDR_PUB_ATK_ADAPTER.CreateAdapterDomain()

- ## Application Area:
  - CDR_DF_APPLICATIONAREA()

- ## Work Area:
  - CDR_PUB_DF_WORKAREA.CreateWorkArea()

- ## Program:
  - CDR_PUB_DF_PROGRAM.CreateProgram()

- ## Program Instance:
  - CDR_DF_PROGRAM.createProgramInstance()

- ## Parameter:
  - CDR_PUB_DF_PARAMETER.CreateParameter()

List of API

- ## Parameter Instance:
  - CDR_DF_PARAMETER.Createparinstance()
- ## Parameter Set :
  - CDR_PUB_DF_PARAMETER_SET.CreateParameterSet()
- ## Source Code:
  - CDR_PUB_DF_SOURCECODE.CreateSourceCode()
- ## Table:
  - CDR_PUB_DF_TABLE.CreateTableDefinition()
- ## Column:
  - CDR_PUB_DF_TABLE.Create.Column()
- ## Variable:
  - CDR_PUB_DF_VARIABLE.CreateVariable()

Security API

Calling the Security API Package

You must call a security API, CDR_PUB_API_INITIALIZATION

--Enable--

CDR_PUB_API_INITIALIZATION.enableAPIs(

       p_api_version=>1

       ,p_init_msg_list=>CDR_PUB_DEF_CONSTANTS.G_FALSE

       ,p_commit=>CDR_PUB_DEF_CONSTANTS.G_FALSE

--Disable—

CDR_PUB_API_INITIALIZATION.disableAPIs(p_api_version=>1

       ,p_init_msg_list=>CDR_PUB_DEF_CONSTANTS.G_FALSE

       ,p_commit=>CDR_PUB_DEF_CONSTANTS.G_FALSE

APIs are available for the following objects

- Application Areas
- Business Areas
- Data Marts
- Domains (Life Sciences Data Hub Domain)
- Execution Setups
- Load Sets (External Data Load Run)
- Parameter Sets
- Parameters

APIs are available for the following objects

- Planned Outputs
- Programs
- Report Sets
- Source Code (Software Source Code)
- Tables, Columns, and Constraints (Meta-Data Registered Data Object)
- Variables
- Work Areas
- Workflows
- Workflow Notifications

Setting Up Security for Adapters

- Assigning User Groups to Adapter Domains and Adapter Areas on page
  - Assigning User Groups
  - Viewing and Modifying User Group Assignments

- Creating Roles with the Required Operations for Adapters
  The View operation on the following objects of subtype Default is required:

  - Adapter Domain
  - Adapter Area
  - Work Area
  - Program

Setting Up Security for Adapters

CONT....

- Program Instance
- Parameter
- Parameter Instance
- Parameter Set
- Parameter Set Instance
- Source Code
- Source Code Instance
- Table (required for Oracle Clinical adapters only)
- Remote Location
- Connection

Sample API code

WORK AREA Creation:-

```
CDR_PUB_DF_WORKAREA.createWorkArea (
     p_api_version=>1
    ,p_init_msg_list=>CDR_PUB_DEF_CONSTANTS.G_FALSE
    ,p_commit=>CDR_PUB_DEF_CONSTANTS.G_FALSE
    ,p_validation_level=>CDR_PUB_DEF_CONSTANTS.G_VALID_LEVEL_FULL
    , x_return_status  => x_return_status
    , x_msg_count    => x_msg_count
    , x_msg_data    => x_msg_data
    , pio_sourceCdrNaming =>varWANSObj
    , pio_workareaObjType =>varWAObj
    , pi_defClassificationColl => NULL
                                    );
```

Testing and Validation Considerations

❑ Checking in all objects is required and it may be useful for your internal testing and validation purposes to use this tool.

❑ The API that upgrades objects' validation status first checks in all objects and can be used to simplify that task.

❑ The validation API checks in and upgrades the validation status of the object you specify in the input parameter PI_VALOB, and all the objects it contains (if any).

❑ If you specify the Adapter Domain in PI_VALOB, the API attempts to check in and upgrade all the objects in your adapter.

API Name	Description
CDR_PUB_VL_ VALIDATION.UpdateValStatus	To set the validation status of all the objects in your Adapter Domain to Development, Quality Control, or Production, run the API

Testing and Validation Considerations

There is a different API for checking in each type of object

Following APIs are:

- ❏ CDR_PUB_DF_PROGRAM.CheckInProgramDefinition
- ❏ CDR_PUB_DF_PARAMETER_SET.CheckInParameterSetDefinition
- ❏ CDR_PUB_DF_TABLE.CheckIn

Note:- Each of these APIs has the same type of parameters

Testing and Validation Considerations

The following conditions prevent a successful validation:

1. The validation of a particular object fails if the object is checked out by a user different from the person running the validation API. In this case, the person who has the object checked out must either explicitly check in the object or run the validation API.

2. The validation process fails if the Work Area is included in the process (which it is if you have specified either the Adapter Domain, the Adapter Area, or the Work Area itself) and does not have a validation status of Production.
Use the API CDR_PUB_DF_WORKAREA.UpdateUsageIntent to change it to Production.

Critical decision points while working with Adapter

- **When you upgrade to a new version of Oracle LSH or one of these external systems, you may need to upgrade the adapter also.**

- **Oracle LSH Release 2.1.3 has been tested ONLY on Release 11.5.10.2 of Oracle Applications.**

- **The Work Area, like other Oracle LSH Work Areas, must be installed in the database in order to function. Adapter Work Areas are installed as part of the post-installation.**

- **Oracle-technology adapters include all operations on Connections.**

Benefits to Organization

- Streamline Clinical Development Information Management
- Reduce Risk
- Lower Cost of Ownership
- Simplify Clinical Integration
- Flexible and Extensible Architecture
- Open Integration
- Achieve a Single View of Clinical Data
- Improve Productivity with Self-Service Analysis and Reporting
- Work with Regulators to Optimize Approval Process

Biographies

Sujeet Roul, Consultant of ERP technology, DBMS Consulting, Inc.

- Sujeet has worked with Oracle E-Business suites since 2004 as an ERP tecno functional application developer, database administrator, Apps DBA ,systems analyst and worked on various tools reports 6i, 10g, XML publisher and interfaces.

- He has worked in the various industries since 2004, primarily in the services, banking and pharma.
sujeet.roul@clinicalserver.com
+91-981-009-0935