# Design of the OSS Common API Reference Implementation (JSR 144)

## OSS through Java™ Initiative

OSS Common Team

COM-API-RI-DG.1.0

# Executive Summary

The Common API offers interfaces and classes, which are common across all OSS API defined under OSS J Initiative. This document describes how the Reference Implementation was designed to implement the Common API Specifications.

# Table of Contents

# Preface

## Objectives

Design description of the OSS/J Common Reference Implementation

## Audience

The target audiences are

- Developers who seek information about how the Common API can be implemented
- Developers of other OSS J API Reference Implementers
- Developers who want to make use of these API and extend its implementations

## Approval and Distribution

This document is reviewed and approved by the Common API Expert Group.

## Related Information

## Revision History:

| Date | Version | Author | State | Comments |
|---|---|---|---|---|
| 03-01-2002 | 1.0 | OSS Common Team | | First version |

# 1 Introduction

This document describes the design of the OSS through Java™ Initiative, Common API Reference Implementation.

The Reference Implementation can be used either as a proof-of-concept for the Common API specification, showing that it is possible to implement the API or API's can be directly used as a package. The Reference Implementation consists of two parts. The first part, consists of abstract classes and interfaces which can be reused by the target audiences of this API directly and the second part consists of concrete implementation the Interfaces of the API this part cant be reused and this only serves as proof or example how to implement the API.

This document shows how the Reference Implementation is designed. Reference Implementation provides the concrete interfaces and classes as specified in the Common API Specifications. It also provides some abstract classes for certain interfaces so that the developers classes can directly extend these classes and implement only those none generic methods.

In general the concrete Reference Implementation is designed as a set of Enterprise Java Beans. The entire RI is developed using J2EE Reference Implementation 1.3.  as System Platform and Weblogic Sever 6.1 as application server.

# 2 Design Overview of Reusable Part of Reference Implementation

The Reference Implementation has following set of classes apart from the classes and interfaces specified by the specification. Each of these classes is explained in detail in later part of the document.

- Application Context Implementer class
- Attribute Access classes
- Java Value Type Classes

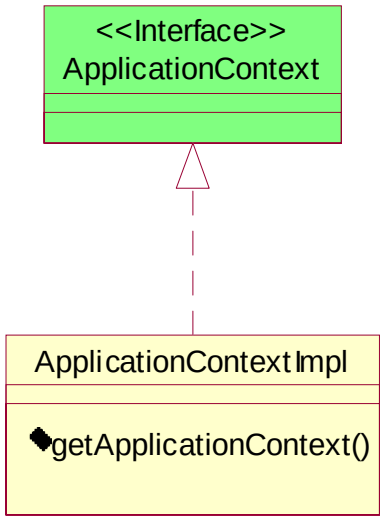
## 2.1 Application Context Implementer class

The Application Context Implementer class contains the URL and other system properties required to set up an initial connection with the JNDI provider into which the components in charge of that managed entity are registered. This class implements the Application Context Interface defined in the specification apart from this it provides additional static method, which provides the Application context based on the present server configuration.

The figure below shows the relationship between the interface and class

Green color indicates the Interface is part of the specification

Yellow class is additional class defined in Reference Implementation




## 2.2 Attribute Access Classes

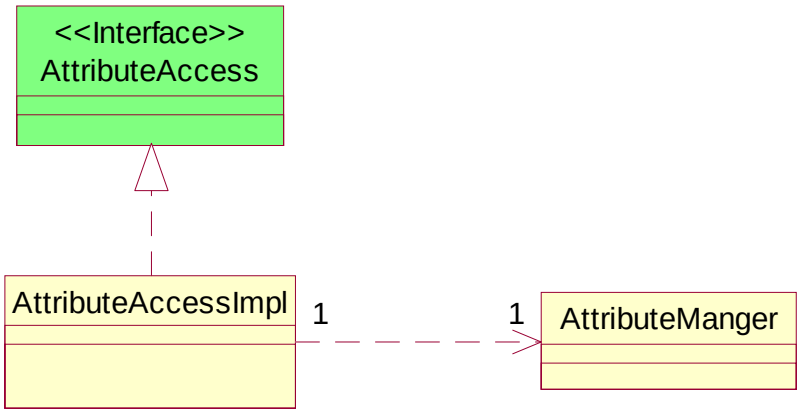
Two classes namely AttributeManager and AttributeAccessImpl are the classes, which help in accessing the attributes of value object as specified in the specification. Attribute Manager manages the attributes of the value object

and provides easy methods to get the properties of attributes like attribute names, settable attributes etc. AttributeAccessImpl is abstract class implementing the AttributeAcess Interface, which all value objects must implement according to the specification. This abstract class manages the attributes using the AttributeManager class.

The figure below shows the relationship between the interface and classes

Green color indicates the Interface is part of the specification

Yellow classes are addition classes defined in Reference Implementation




## 2.3 Java Value Type Classes

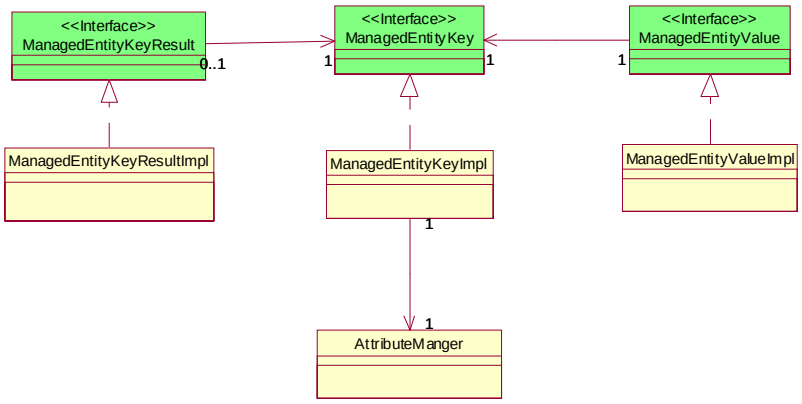
The Java Value Types are the objects, which are exchanged between the client and JVTSessionBean.The following classes are defined in addition to those specified in the specification

- ManagedEntityKeyImpl
- ManagedEntityKeyResultImpl
- ManagedEntityValueImpl

The figure below shows the relationship between the interface and classes

Green color indicates the Interface is part of the specification

Yellow classes are addition classes defined in Reference Implementation




ManagedEntityKeyImpl is an abstract class, which implements the ManagedEntityKey Interface. Since very managed Entity type must have a ManagedEntityKey Interface implementation it can directly extend ManagedEntityKey abstract class and define the methods to make the primary key which will be specific to the entity type, functionalities like checking equality of two key objects as specified in the specification is taken care by the abstract class. ManagedEntityvalueImpl implements the ManagedEntityValue Interface as specified in the specification and it also extends the AttributeAccessImpl class.

# 3 Design Overview of Non Reusable Part of Reference Implementation

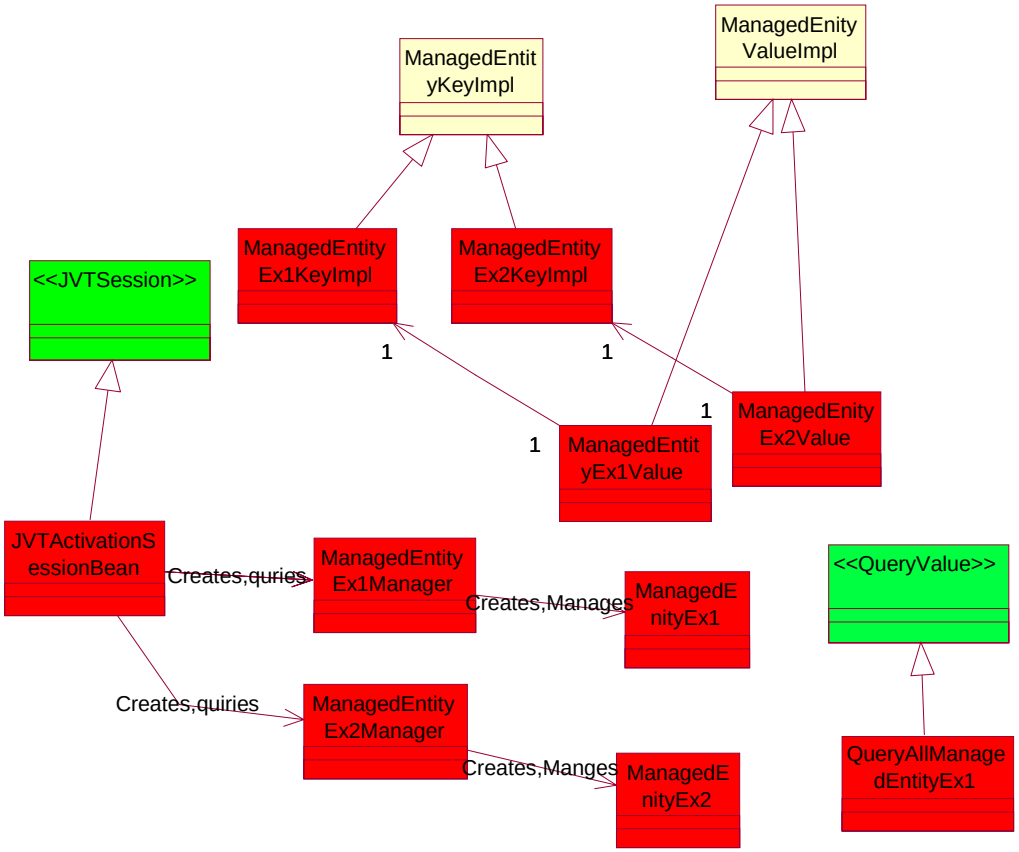
This part of Reference Implementation consists of concrete example Implementation of API.Since this Example tries to show simple implementation of overall Common API the Mange Entities created in this example are not pertitient. The emphasis in this example is on to show how to create Managed Entities and how to manage these using corresponding Managed entity values from the Clients.

The Reference Implementation example consists of the following main classes

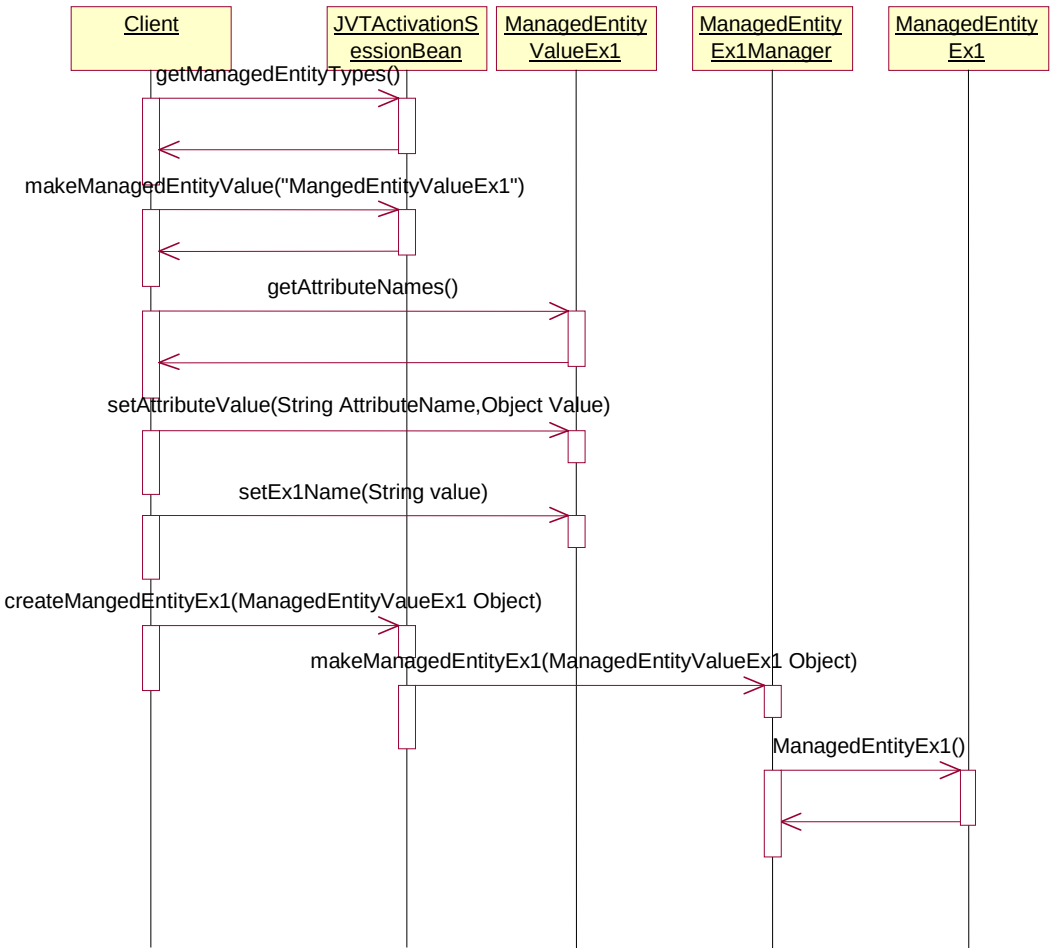
- JVTActivationSessionBean class
- ManagedEntityEx1 and ManagedEntityEx1Value classes
- ManagedEntityEx2 and ManagedEntityEx2Value classes
- ManagedEntityEx1Manager class
- ManagedEntityEx2Manager class
- QueryAllManagedEntityEx1 class

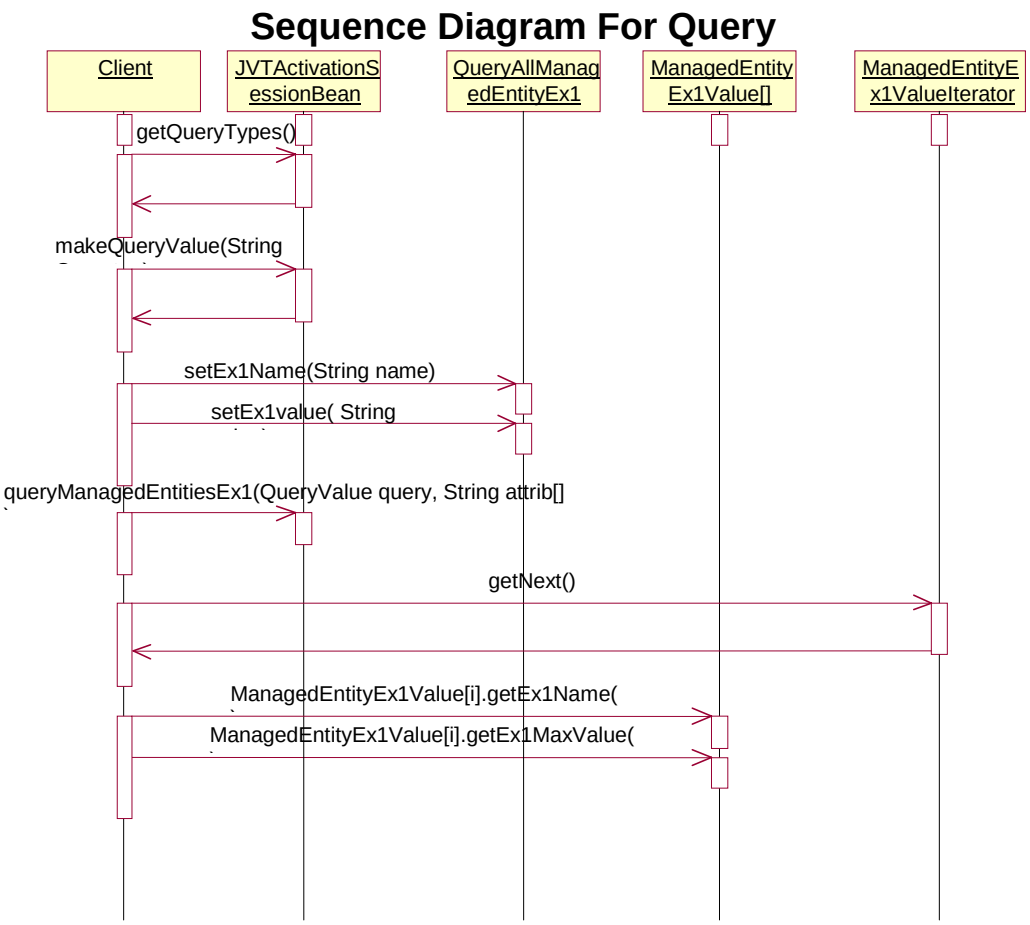
The class and sequence diagram of the Example Implementation is given below

# CLASS DIAGRAM



# Sequence Diagram For Creation of ManagedEntityEx1




Sequence Diagram For Query
Client
JVTActivationSessionBean
QueryAllManagedEntityEx1
ManagedEntityEx1Value[]
ManagedEntityEx1ValueIterator
getQueryTypes()
makeQueryValue(String
setEx1Name(String name)
setEx1value( String
queryManagedEntitiesEx1(QueryValue query, String attrib[]
getNext()
ManagedEntityEx1Value[i].getEx1Name(
ManagedEntityEx1Value[i].getEx1MaxValue(

# Appendix A: Glossary and References

## References

[EJB 01] "Enterprise Java Beans™ Specification, Version 2.0", ejb-2_0-pfd2-spec.pdf, chapter 10, Sun Microsystems, 2001

[OSS/J 01] OSS through Java™ Initiative, 2001, http://java.sun.com/products/oss