Using business rules and data services to gain customer insight

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May 24, 2013

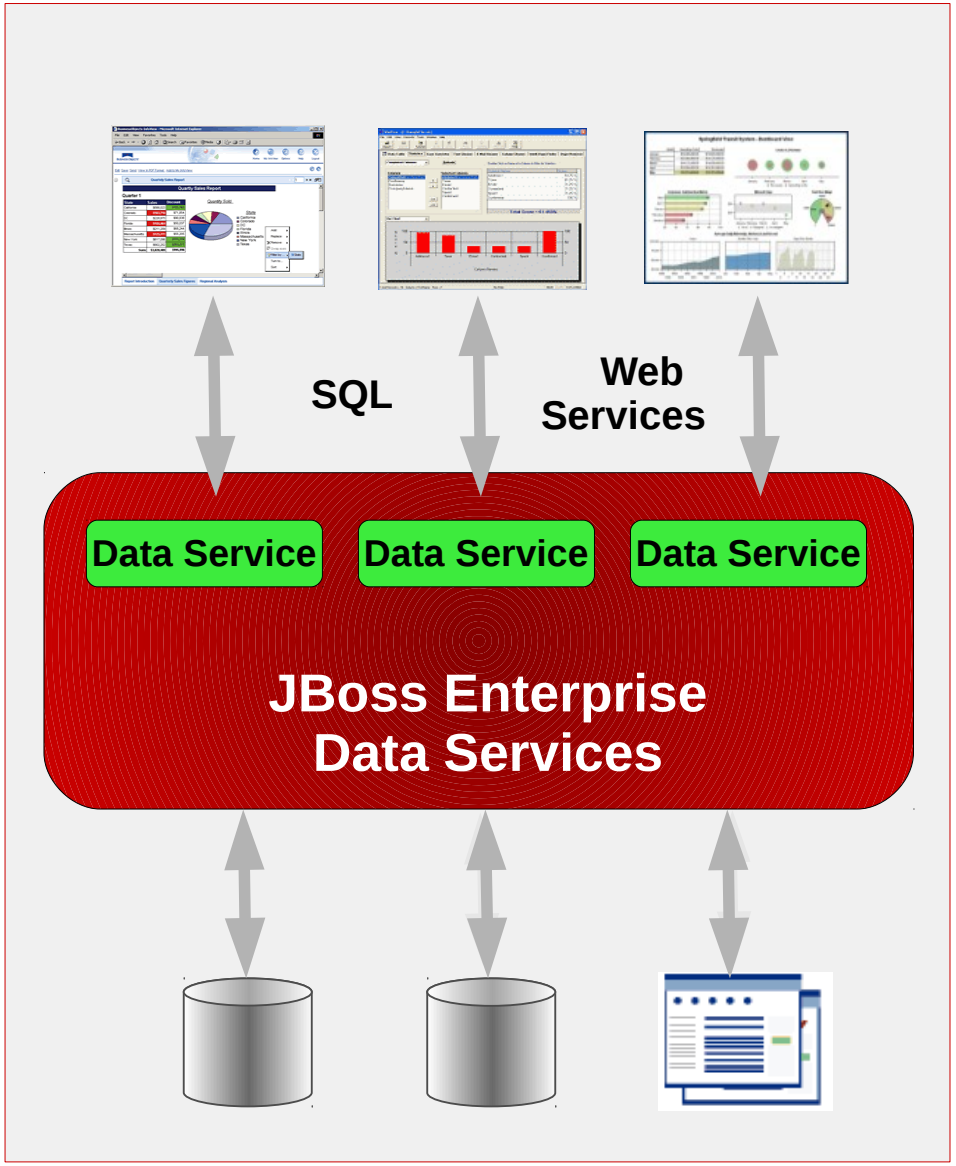
JBoss Fuse Getting Started

- Part 1 – Business Rules Overview – Phil Simpson (20 minutes)
- Part 2 – Data Services Overview – Kenneth Peeples (10 minutes)
- Part 3 - Demonstration of using Business Rules with Enterprise Data Services – Kenneth Peeples (20 minutes)
- Part 4 – Question and Answer Session - Phil and Kenneth (10 minutes)

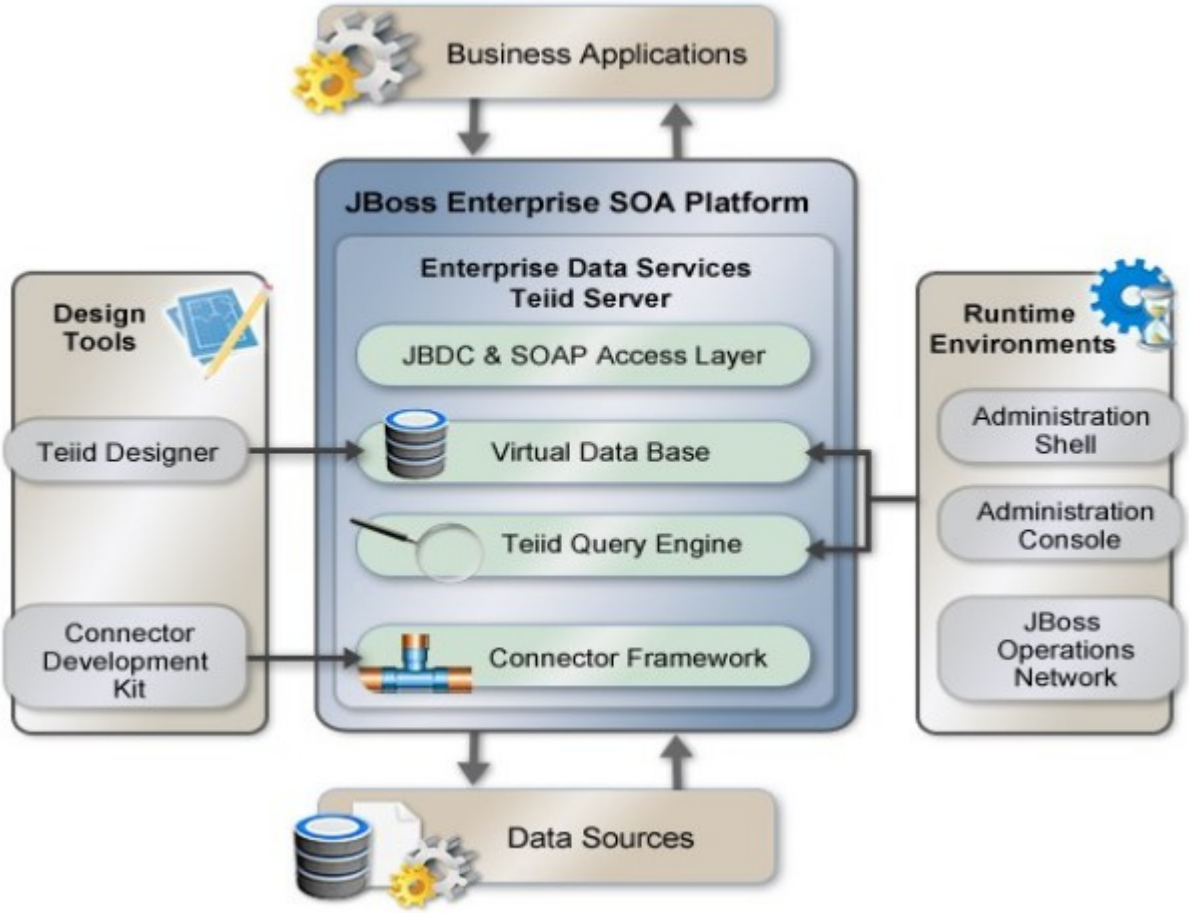
Part 2: Data Services Overview – Kenneth Peeples

JBoss Enterprise Data Services

- **Turn the data you have into the information you want.**
- Standards-based read/write access to heterogeneous data stores in real time.
- Speeds application development by simplifying access to distributed data.
- Transforms data structure and semantics through data virtualization.
- Consolidates data into a “single view” without the need for more data.
- Centralized access control, auditing through robust security infrastructure.
- Creates services that provision data to business process in your SOA.
- Enterprise-proven – flexible, scalable,



Data Services (Teiid) Architecture

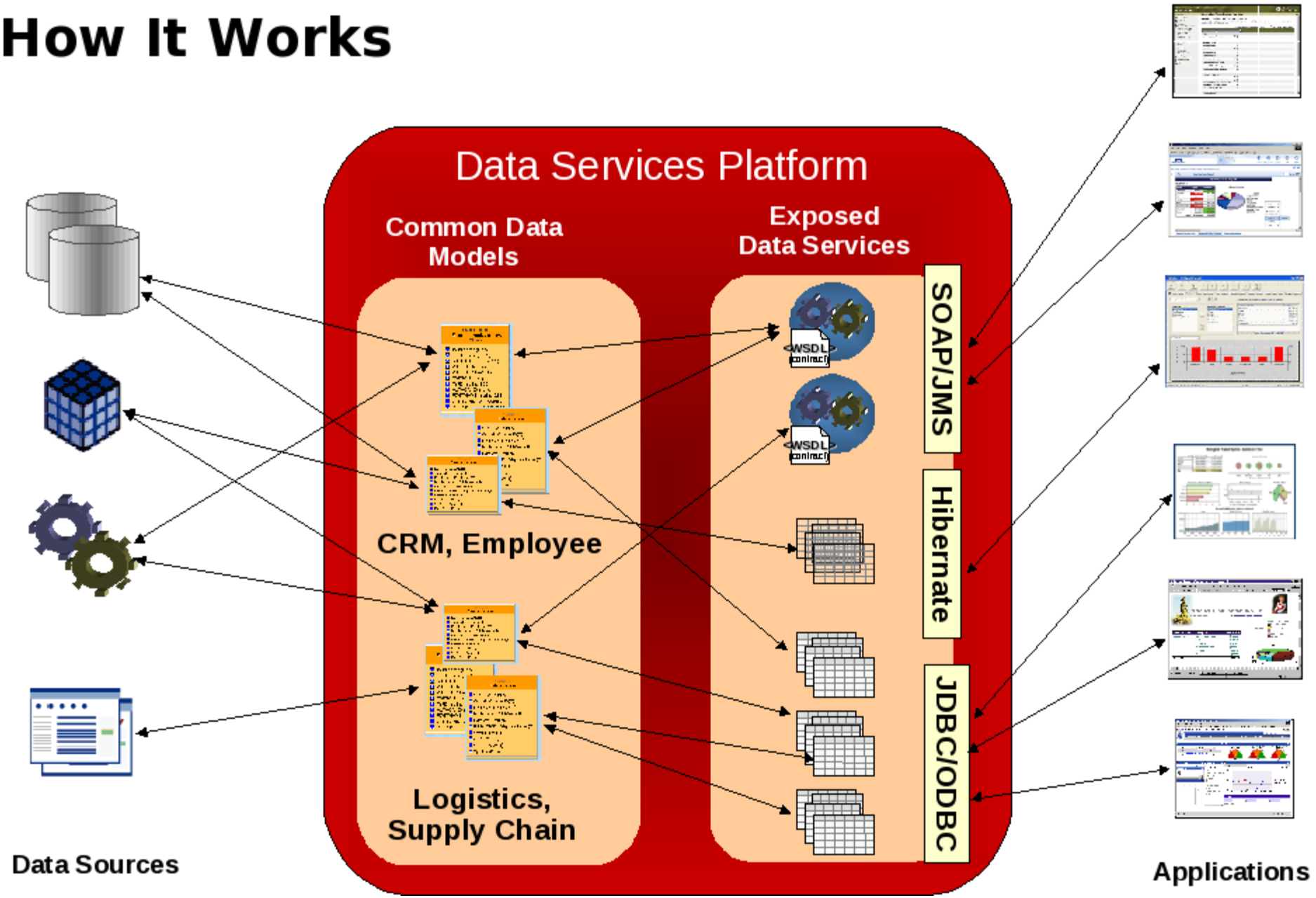


•JBoss Enterprise Data Services Platform is a data federation and virtualization engine (the Teiid Server) that allows you to query multiple data sources (RDBMSs, web services, files, applications, etc) as though they were a single unified source.

•It builds on the JBoss EAP and SOA Platforms and includes model-driven development tools and rich management capabilities along with a robust runtime

•The Teiid Server Runtime executes as an additional service/capability within the JBoss container.

How It Works


Data Services Platform
Common Data Models
Exposed Data Services
CRM, Employee
Logistics, Supply Chain
WSDL contract
WSDL contract
SOAP/JMS
Hibernate
JDBC/ODBC
Data Sources
Applications

What does Data Services/Teiid do?

Data Virtualization, with a focus on optimized real-time access.

Like a database, but the planner and optimizer are geared to data integration.

- Query decomposition/push-down
- XA Transactions for writes

Convenient relational abstraction with lots of other features

- XML Document Models
- SQL Views, Procedure language, XQuery integration
- Available as a JDBC driver, includes optional ODBC driver
- Built-in integration with RDBMSs, XML sources, LDAP, Salesforce, Services etc.

Tight integration with Teiid Designer

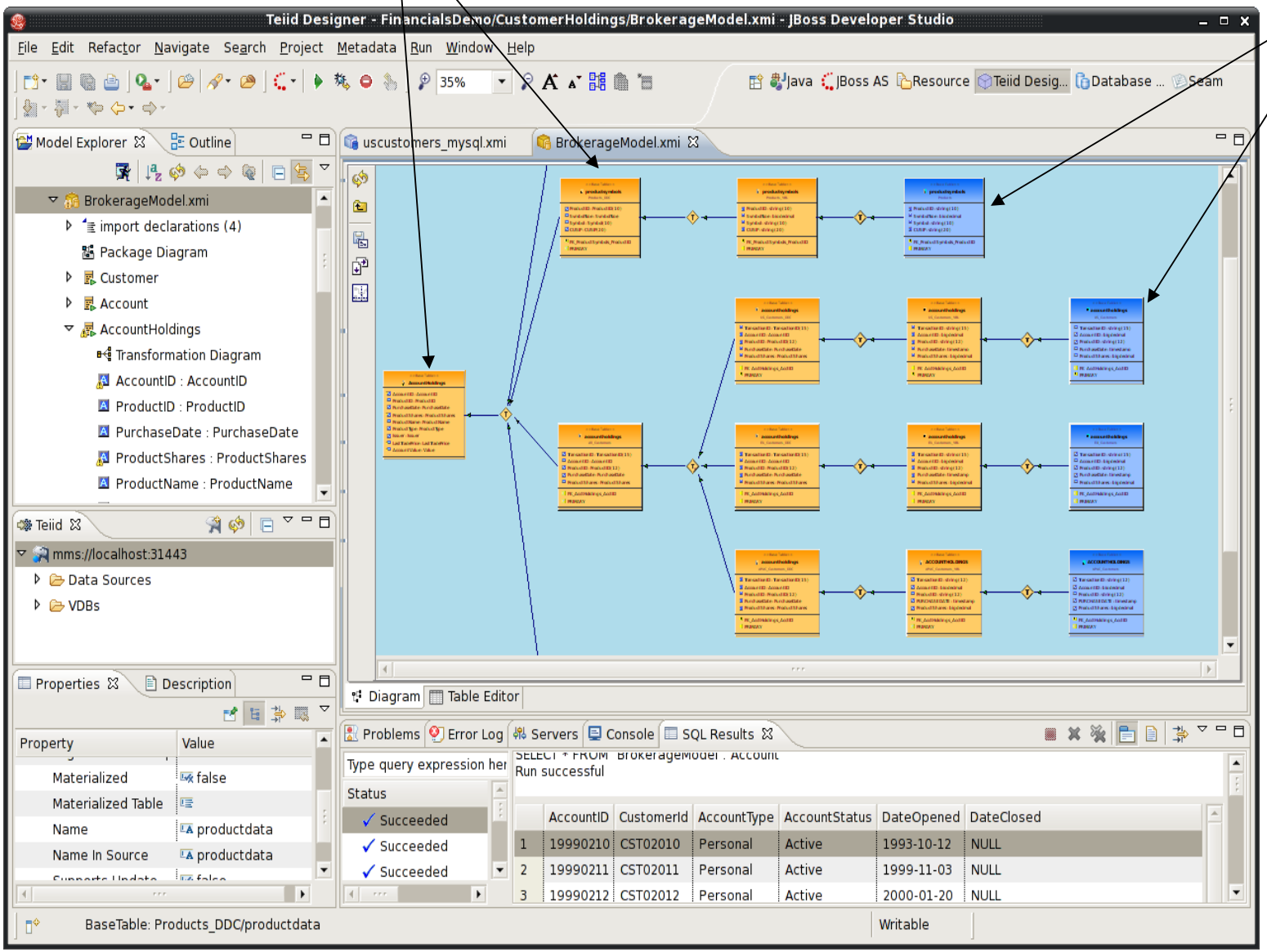
What does Teiid Designer do?

- Creates source models
  - By importing metadata
  - By manually defining metadata
- Creates view models
- Creates Virtual Databases (VDB)
- Uses Teiid (integrated with the Designer) to allow querying models prior to deployment

JBoss Developer Studio - Designer Tooling

Logical Models

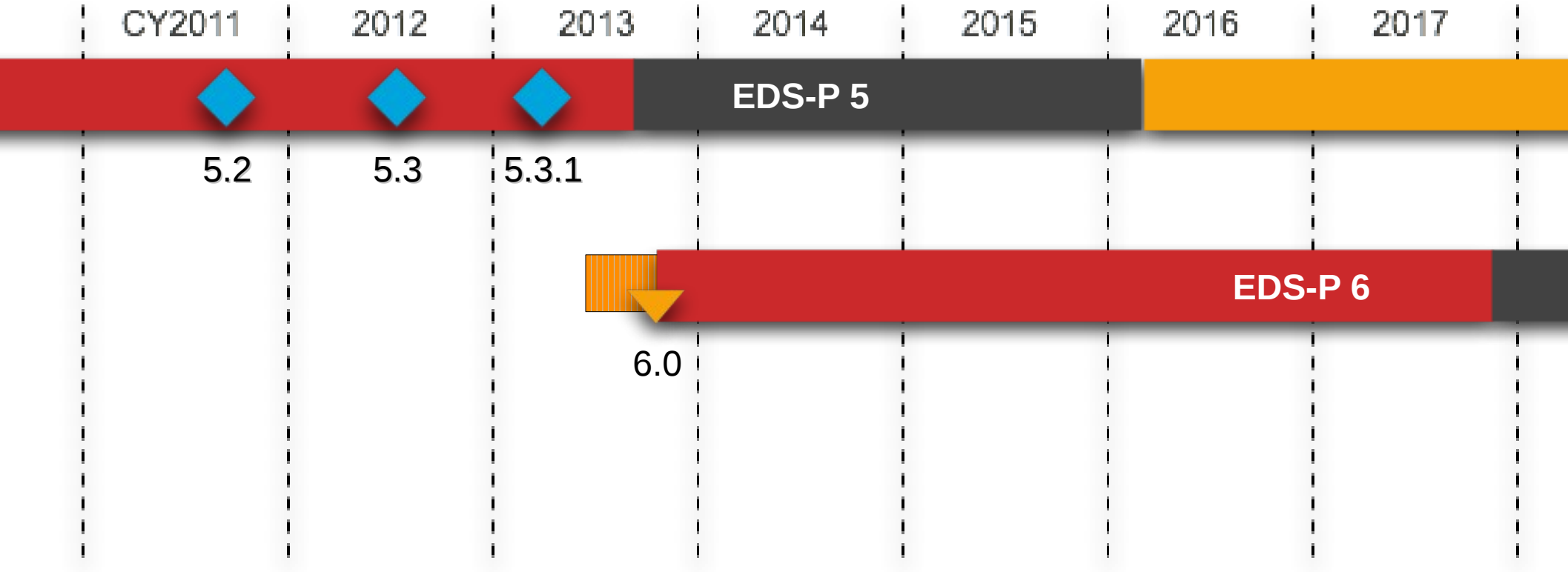
Physical Models representing actual data sources



- **Shows structural transformations**
- **Defines transformations with**
  - **Selects**
  - **Joins**
  - **Criteria**
  - **Functions**
  - **Unions**
  - **User Defined**

JBoss Enterprise Data Services Roadmap

Subject to Change



EDS 5.3.1 (Released Feb/CY13)

- Java 1.7 support
- Additional certifications
- Fixes/updates

EDS 6.0 (Target : Q4/CY13)

- Teiid 8, S-RAMP/ModeShape 3.
- Lightweight footprint / EAP 6
- Decoupling from SOA runtime
- Updated tooling
- Many new features

Upcoming New Features

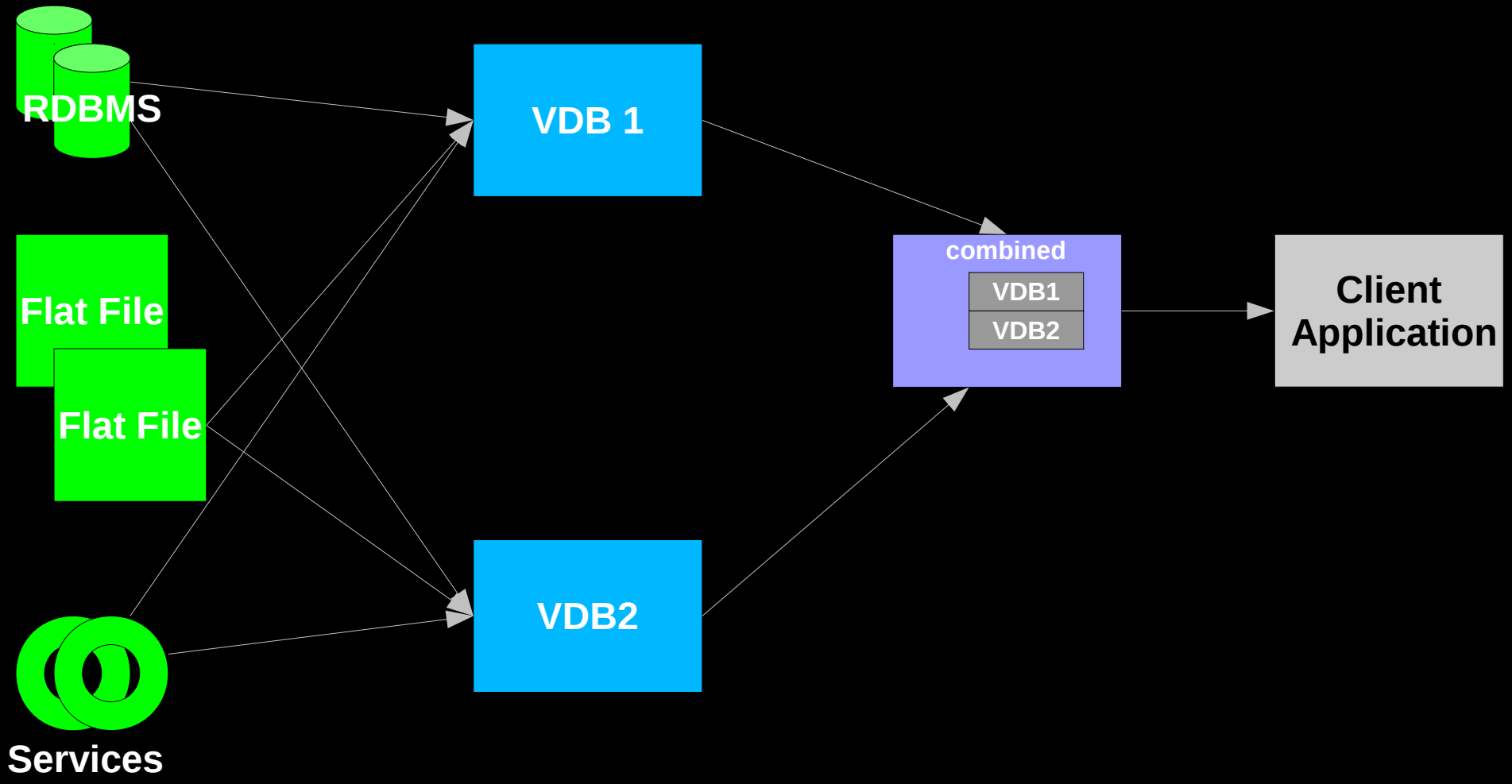
- DDL Based View Definitions in Dynamic VDBs
- VDB import/reuse
- VDB deployment improvements
- Native Queries
- OData Support
- Procedure Exception Handling
- NoSQL sources
- JSON production
- Source temporary tables
- Teiid Designer 8
- OpenShift

You can access these features in Teiid community releases now

DDL-based Dynamic View Creation

- **Unique among data virtualization technologies/vendors**
- **Programmatic configuration**
- **In Teiid 7.7/EDS 5.x, DDL could only specify integration between multiple physical sources.**
- **In Teiid 8/EDS 6, DDL can be used to specify view definitions.**

VDB Import/Reuse Feature



VDB Imports/Reuse

- Enables and promotes enterprise/project/domain wide canonical data model
- Hides the complexity from application developers
- Improves the performance when “stacking” VDBs
- Treats it as single source
- Keeps one copy of materialization results per VDB

Native Query Support

Source Table Metadata

- Specified as metadata property on source table:
  - `native-query="select c from g"`
- Produces source query with inline view:
  - `"SELECT c FROM (select c from g) as x"`

Native() Procedure

- Allow ad-hoc native SQL to be passed to source. Metadata structure defined at execution.
  - `SELECT x.* FROM (call pm1.native('select * from g1')) w, ARRAYTABLE(w.tuple COLUMNS "e1" integer , "e2" string) AS x`

PARTICIPATION IN STANDARDS BODIES

OData (OASIS Open Data Protocol)

`https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=odata`

Objective: OASIS OData TC works to simplify the querying and sharing of data across disparate applications and multiple stakeholders for re-use in the enterprise, Cloud, and mobile devices. A REST-based protocol, OData builds on HTTP, AtomPub, and JSON using URIs to address and access data feed resources. It enables information to be accessed from a variety of sources including (but not limited to) relational databases, file systems, content management systems, and traditional Web sites.

S-RAMP (OASIS SOA Repository Artifact Model and Protocol)

`https://s-ramp.org`
`http://github.com/governance`

Objective: define common data model and APIs to store and manage SOA artifacts throughout their lifecycle.

Part 3: Demonstration of using Business Rules with Enterprise Data Services – Kenneth Peeples

Topics Covered to build the example project

1) Show multiple data sources with EDS including salesforce.com and text file

2) Show how to use business rules with the data

3) Show how to build, deploy and test the project through the IDE

Prerequisites

- Maven 3.0.3 or higher
- JDK 1.7
- JBoss Developer Studio 6
- JBoss SOA-P 5

Source to be posted with Video

https://github.com/kpeeples/eds-brms-salesforce.git

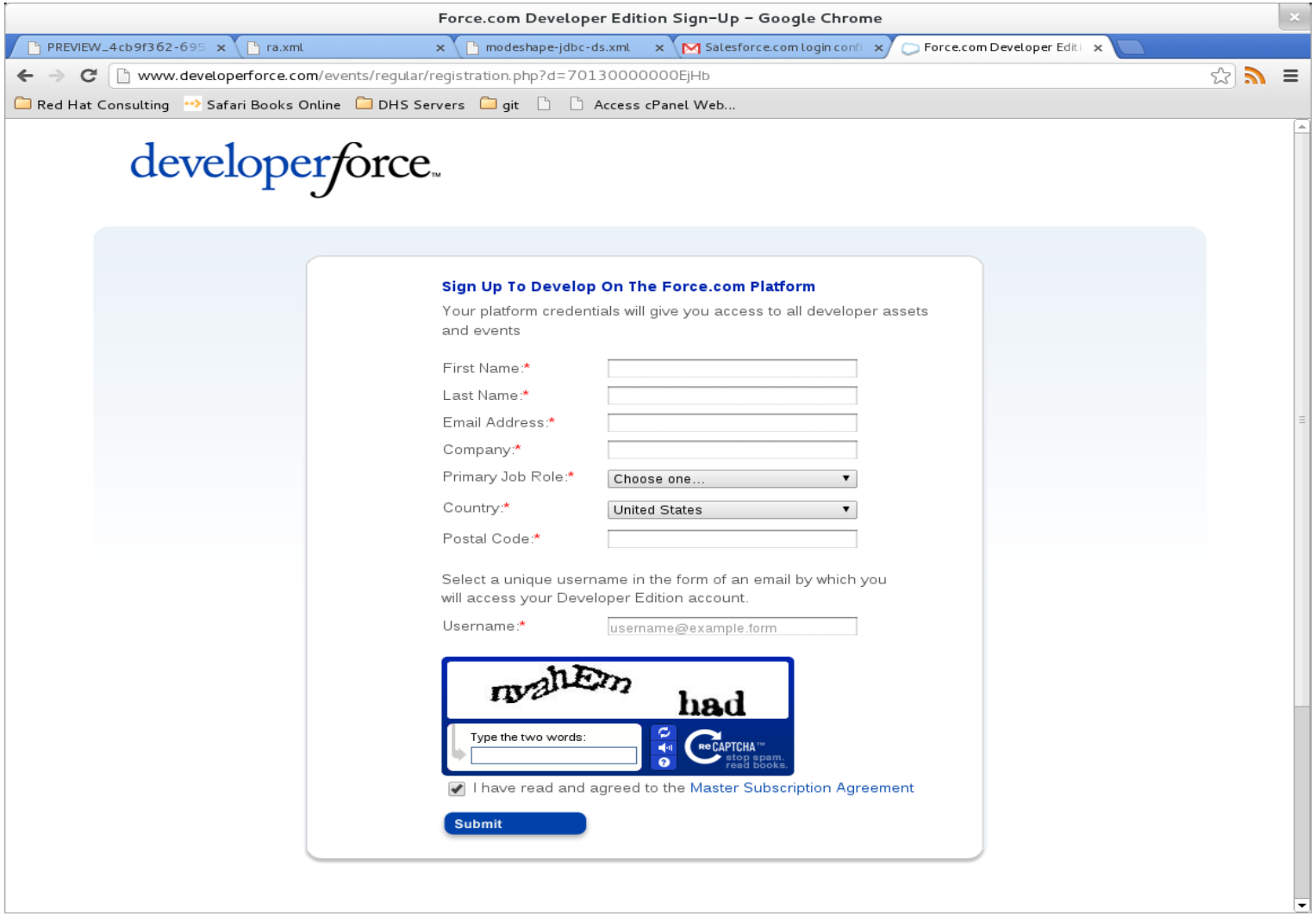
Steps to create the example project

Scope: Get opportunities from a salesforce.com VDB with a opportunity line items that match the product codes from a text file VDB and then execute a business rule to find those opportunities with total price above 100k.

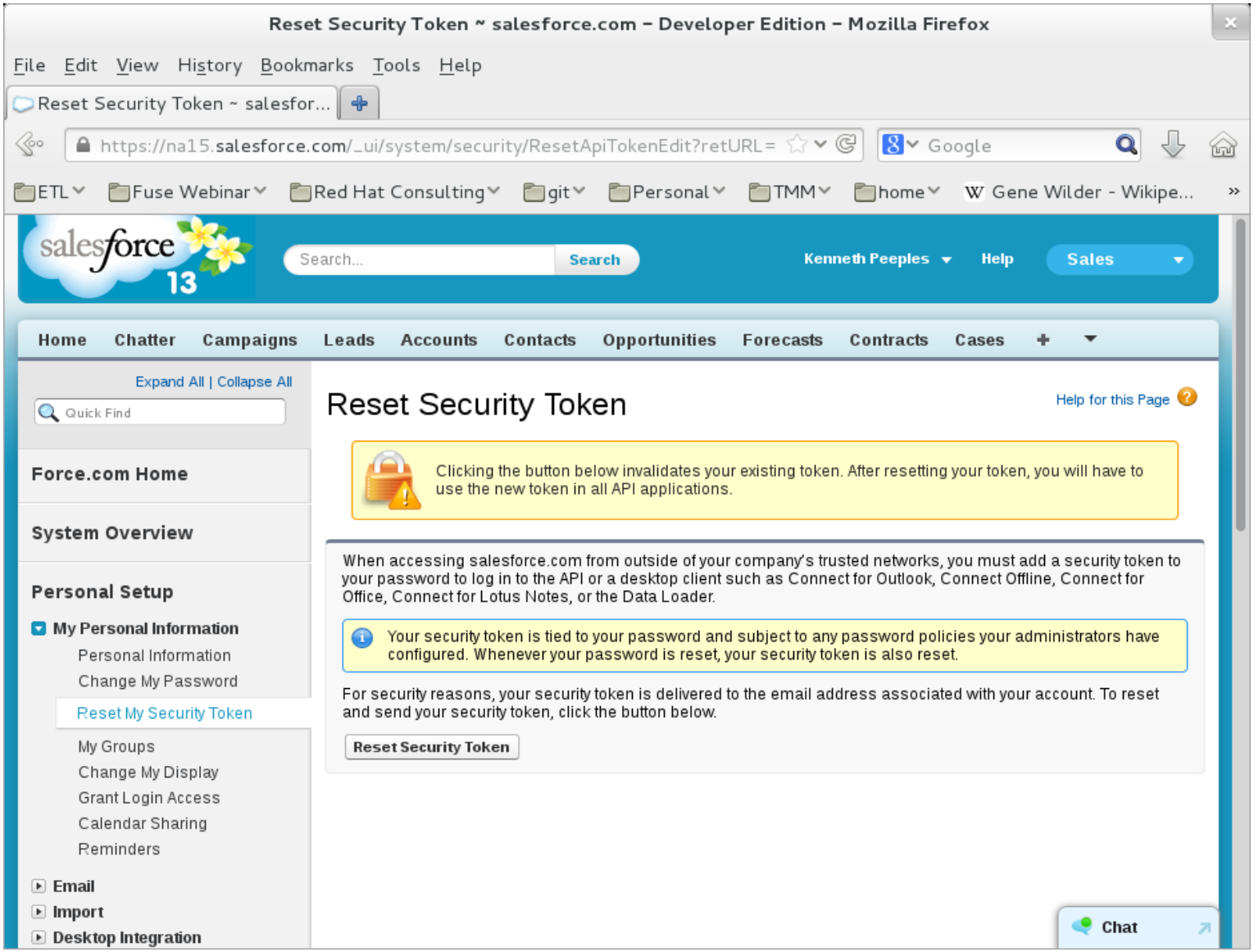
Step 1 – Setup salesforce.com developer account with token for API access

http://www.ossmentor.com/2013/05/using-enterprise-data-services-teiid-to.html

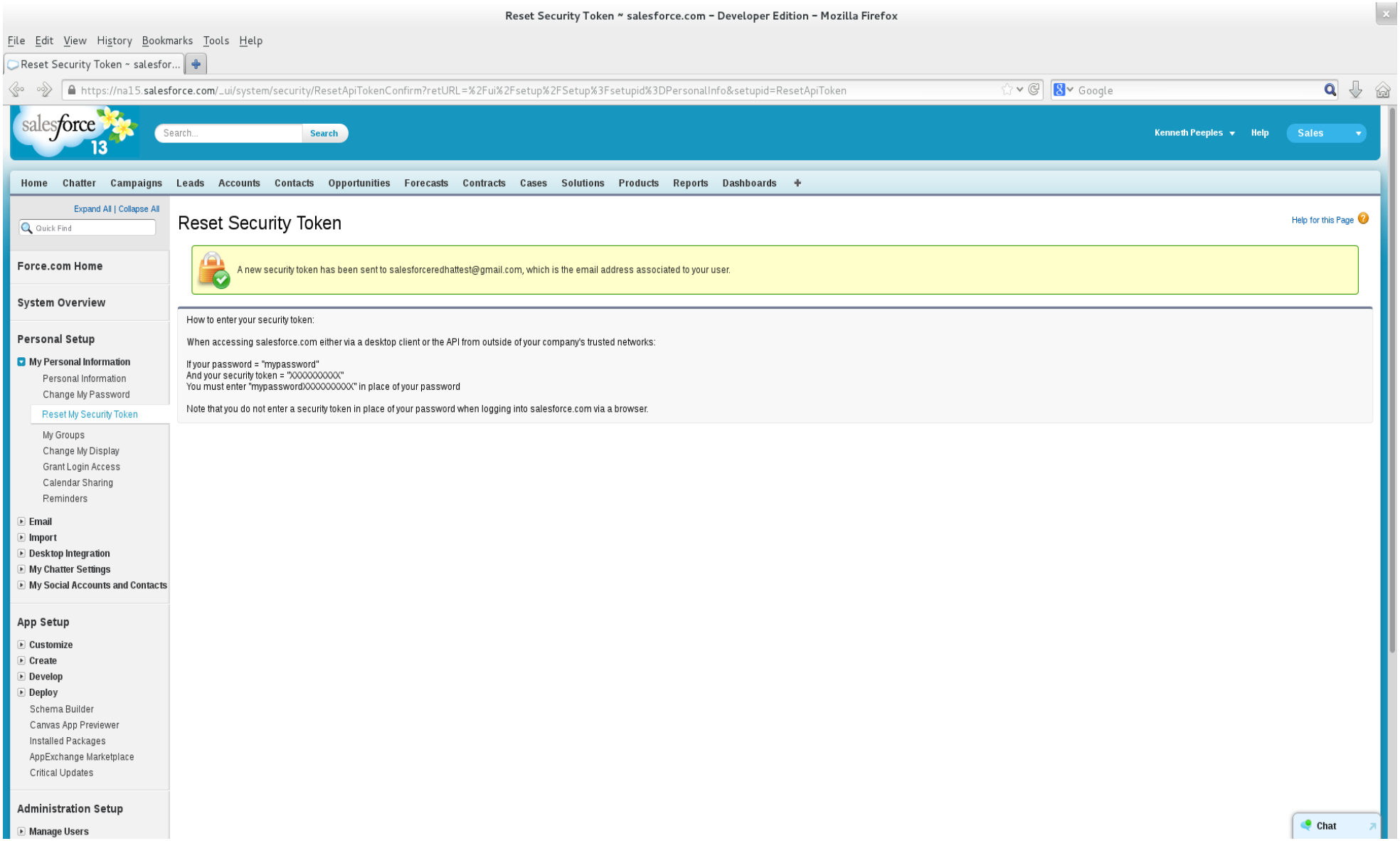
Create a Developer Force Account



Reset Security Token



Token Reset


Reset Security Token ~ salesforce.com – Developer Edition – Mozilla Firefox
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Kenneth Peeples
Help
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Expand All | Collapse All
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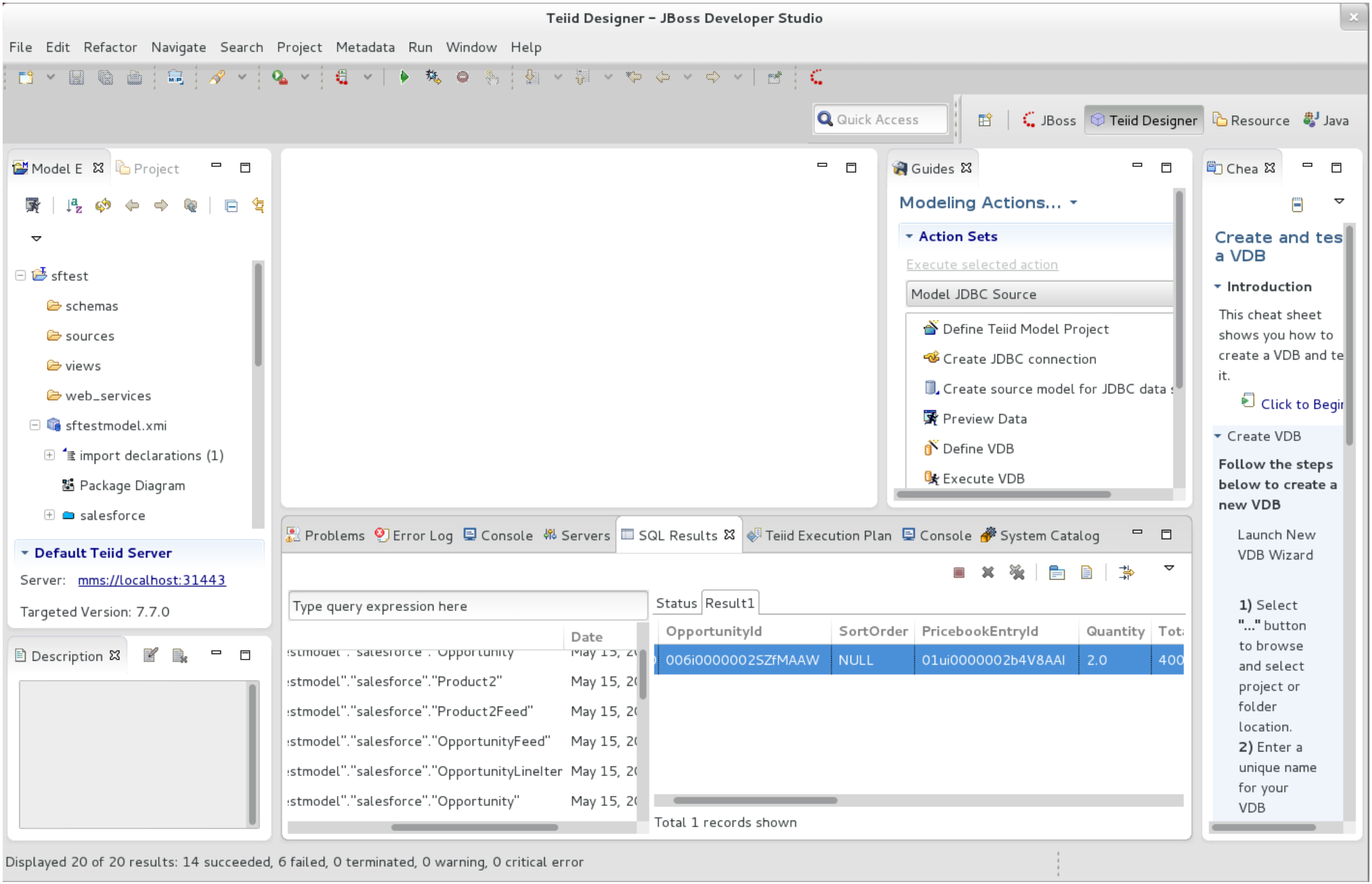
Force.com Home
System Overview
Personal Setup
My Personal Information
Personal Information
Change My Password
Reset My Security Token
My Groups
Change My Display
Grant Login Access
Calendar Sharing
Reminders
Email
Import
Desktop Integration
My Chatter Settings
My Social Accounts and Contacts
App Setup
Customize
Create
Develop
Deploy
Schema Builder
Canvas App Previewer
Installed Packages
AppExchange Marketplace
Critical Updates
Administration Setup
Manage Users
Reset Security Token
Help for this Page
A new security token has been sent to salesforceredhattest@gmail.com, which is the email address associated to your user.
How to enter your security token:
When accessing salesforce.com either via a desktop client or the API from outside of your company's trusted networks:
If your password = "mypassword"
And your security token = "XXXXXXXXXX"
You must enter "mypasswordXXXXXXXXXX" in place of your password
Note that you do not enter a security token in place of your password when logging into salesforce.com via a browser.
Chat

Steps to create the example project

Step 2 – Build and deploy the data source and VDB for Salesforce.com and text file

- Import from salesforce to build source model
- Import from Text file, which will build a source model (which has the getTextFiles function) and a view model for viewing the contents of the file
- Package VDB to include salesforce and text file models, and then deploy the VDB

https://community.jboss.org/wiki/ConnectToSalesforceUsingTeiid
http://docs.jboss.org/teiid/7.0.0/quick-start-example/en-US/pdf/teiid_quick_start_example.pdf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import declarations (1)
Package Diagram
salesforce
Default Teiid Server
Server: mms://localhost:31443
Targeted Version: 7.7.0
Description
Guides
Modeling Actions...
Action Sets
Execute selected action
Model JDBC Source
Define Teiid Model Project
Create JDBC connection
Create source model for JDBC data
Preview Data
Define VDB
Execute VDB
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Introduction
This cheat sheet shows you how to create a VDB and te
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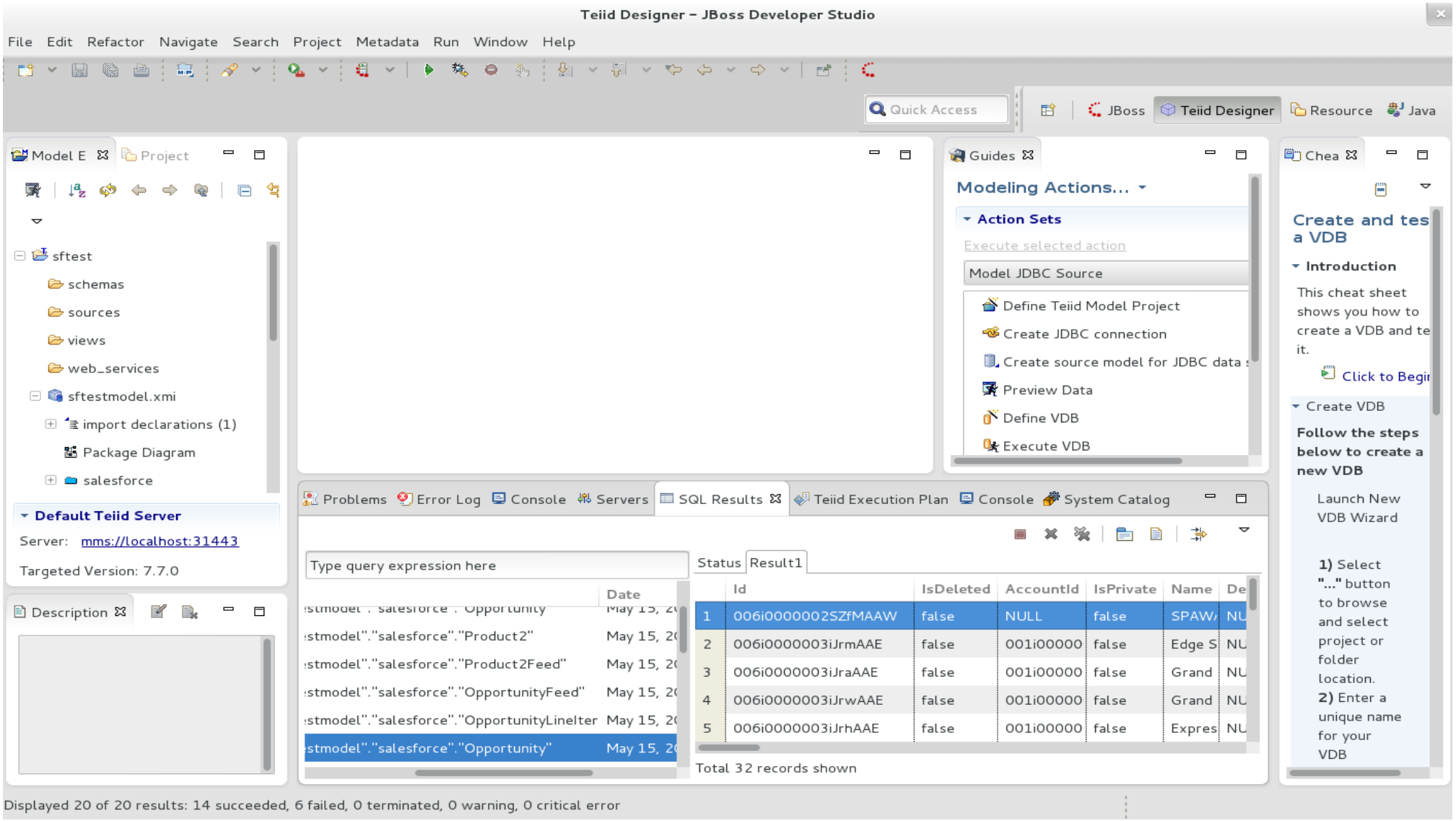
Create VDB
Follow the steps below to create a new VDB
Launch New VDB Wizard
1) Select "..." button to browse and select project or folder location.
2) Enter a unique name for your VDB
Problems
Error Log
Console
Servers
SQL Results
Teiid Execution Plan
Console
System Catalog
Type query expression here
Date
stmodel"."salesforce"."Product2" May 15, 20
stmodel"."salesforce"."Product2Feed" May 15, 20
stmodel"."salesforce"."OpportunityFeed" May 15, 20
stmodel"."salesforce"."OpportunityLineIter May 15, 20
stmodel"."salesforce"."Opportunity" May 15, 20
Status
Result1
OpportunityId
SortOrder
PricebookEntryId
Quantity
006i0000002SZfMAAW
NULL
01ui0000002b4V8AAI
2.0
Total 1 records shown
Displayed 20 of 20 results: 14 succeeded, 6 failed, 0 terminated, 0 warning, 0 critical error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stmodel"."salesforce"."Opportunity" May 15, 20
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IsPrivate
Name
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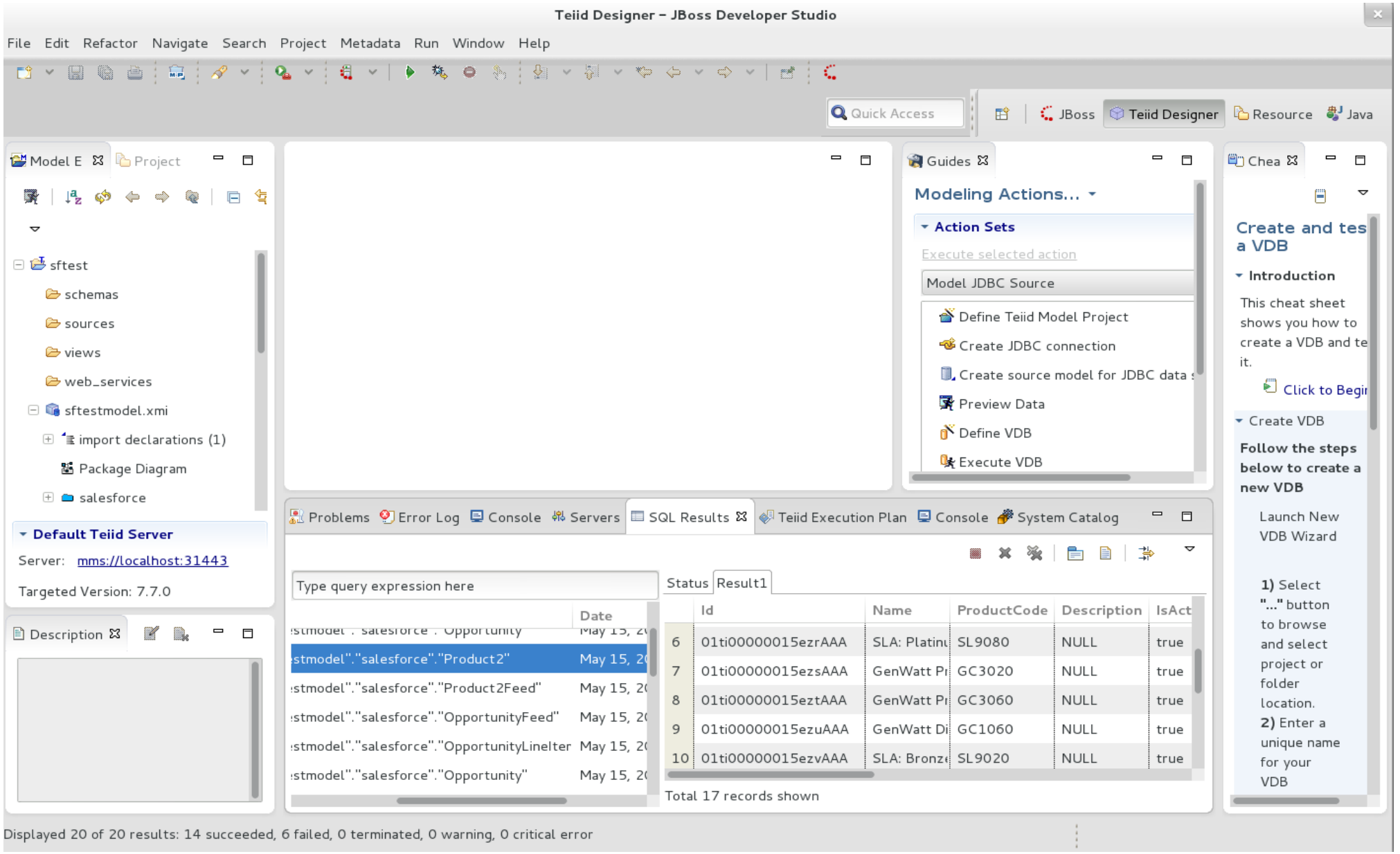
3 006i0000003iJraAAE false 001i00000 false Grand
4 006i0000003iJrwAAE false 001i00000 false Grand
5 006i0000003iJrhAAE false 001i00000 false Expres
Total 32 records shown
Displayed 20 of 20 results: 14 succeeded, 6 failed, 0 terminated, 0 warning, 0 critical error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Description
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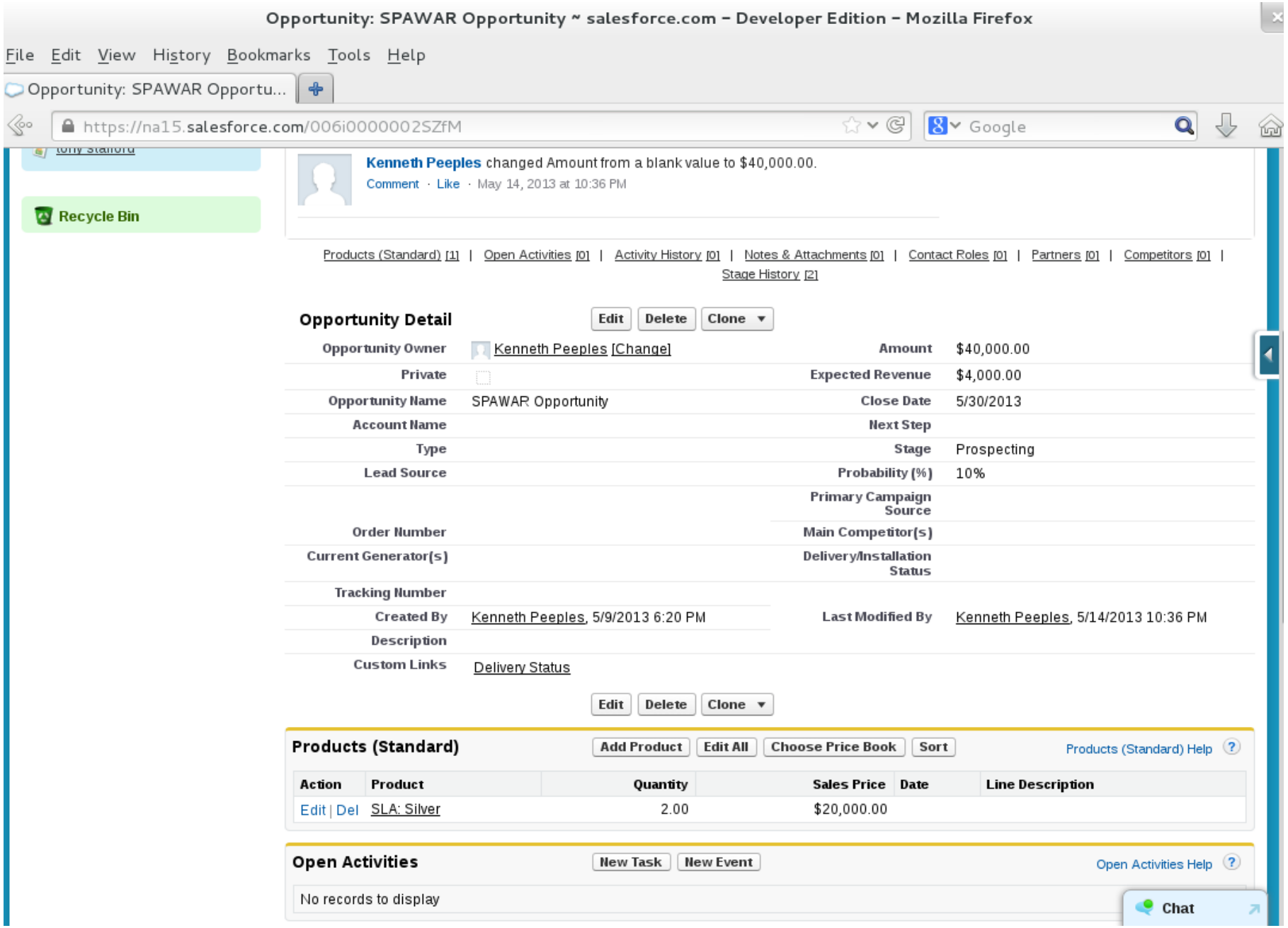
7 01ti00000015ezsAAA GenWatt Pi GC3020 NULL true
8 01ti00000015eztAAA GenWatt Pi GC3060 NULL true
9 01ti00000015ezuAAA GenWatt Di GC1060 NULL true
10 01ti00000015ezvAAA SLA: Bronz SL9020 NULL true
Total 17 records shown
Displayed 20 of 20 results: 14 succeeded, 6 failed, 0 terminated, 0 warning, 0 critical error


Opportunity: SPAWAR Opportunity ~ salesforce.com - Developer Edition - Mozilla Firefox
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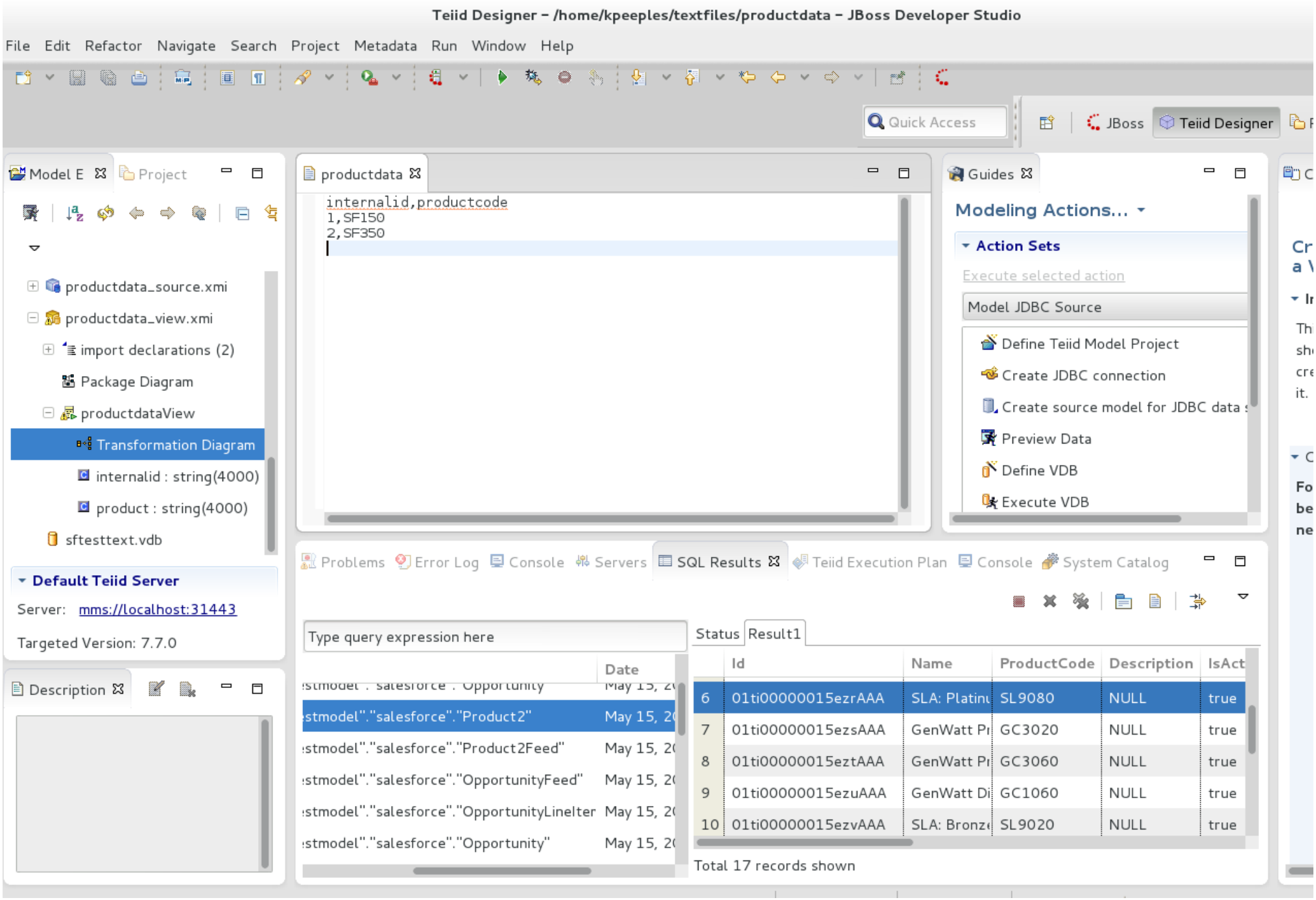
Opportunity: SPAWAR Opportu...
https://na15.salesforce.com/006i0000002SZfM
Google
Recycle Bin
Kenneth Peeples changed Amount from a blank value to $40,000.00.
Comment · Like · May 14, 2013 at 10:36 PM
Products (Standard) [1] | Open Activities [0] | Activity History [0] | Notes & Attachments [0] | Contact Roles [0] | Partners [0] | Competitors [0] | Stage History [2]
Opportunity Detail
Edit Delete Clone
Opportunity Owner Kenneth Peeples [Change]
Private
Opportunity Name SPAWAR Opportunity
Account Name
Type
Lead Source
Order Number
Current Generator(s)
Tracking Number
Created By Kenneth Peeples, 5/9/2013 6:20 PM
Description
Custom Links Delivery Status
Amount $40,000.00
Expected Revenue $4,000.00
Close Date 5/30/2013
Next Step
Stage Prospecting
Probability (%) 10%
Primary Campaign Source
Main Competitor(s)
Delivery/Installation Status
Last Modified By Kenneth Peeples, 5/14/2013 10:36 PM
Edit Delete Clone
Products (Standard)
Add Product Edit All Choose Price Book Sort
Products (Standard) Help
Action Product Quantity Sales Price Date Line Description
Edit | Del SLA: Silver 2.00 $20,000.00
Open Activities
New Task New Event
Open Activities Help
No records to display
Chat


Teiid Designer – /home/kpeeples/textfiles/productdata – JBoss Developer Studio
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JBoss
Teiid Designer
Model E
Project
productdata_source.xmi
productdata_view.xmi
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Package Diagram
productdataView
Transformation Diagram
internalid : string(4000)
product : string(4000)
sftesttext.vdb
Default Teiid Server
Server: mms://localhost:31443
Targeted Version: 7.7.0
Description
productdata
internalid,productcode
1,SF150
2,SF350
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10 01ti00000015ezvAAA SLA: Bronz SL9020 NULL true
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Steps to create the example project

Step 3 – Build the POJO's

Step 4 – Build the business rule that will verify the opportunities with products with a total price above 100k
-package POJO's and .drl rules file into jar
-deploy jar (place in the server/<config>/lib directory

Step 5 – Execute the business rule

http://docs.jboss.org/drools/release/5.5.0.Final/drools-expert-docs/html_single/index.html#d0e8782

Teiid v8 (EDS 6) Quickstart with drools integration

- Demonstrates how to integrate drools so that business rules can be triggered based on the data moving through Teiid by using a UDF (User Defined Function)
- This quick start demonstrates one way to execute a set of business rules on a set of data. In this example, the execution of the rules will be triggered by calling the UDF (User Defined Function) from a virtual procedure, capturing the errors that occurred, and returning that error list to the client.

  https://github.com/teiid/teiid-quickstarts/tree/master/drools-integration

References

OSSMentor Teiid Salesforce Integration
http://www.ossmentor.com/2013/05/using-enterprise-data-services-teiid-to.html

Quickstart Guide
https://community.jboss.org/wiki/TeiidDesigner77QuickStartGuide

Quick Start Samples
http://docs.jboss.org/teiid/7.7.0.Final/quick-start-example/en-US/html/example-explained.html

EDS Lab
http://www.jboss.com/pdf/tyrrell_wt_lab_enterprise_data_services.pdf

Drools Article
http://java.dzone.com/articles/jbossesb-drools-integration

Teiid Quickstart Repository
https://github.com/teiid/teiid-quickstarts.git - drools integration

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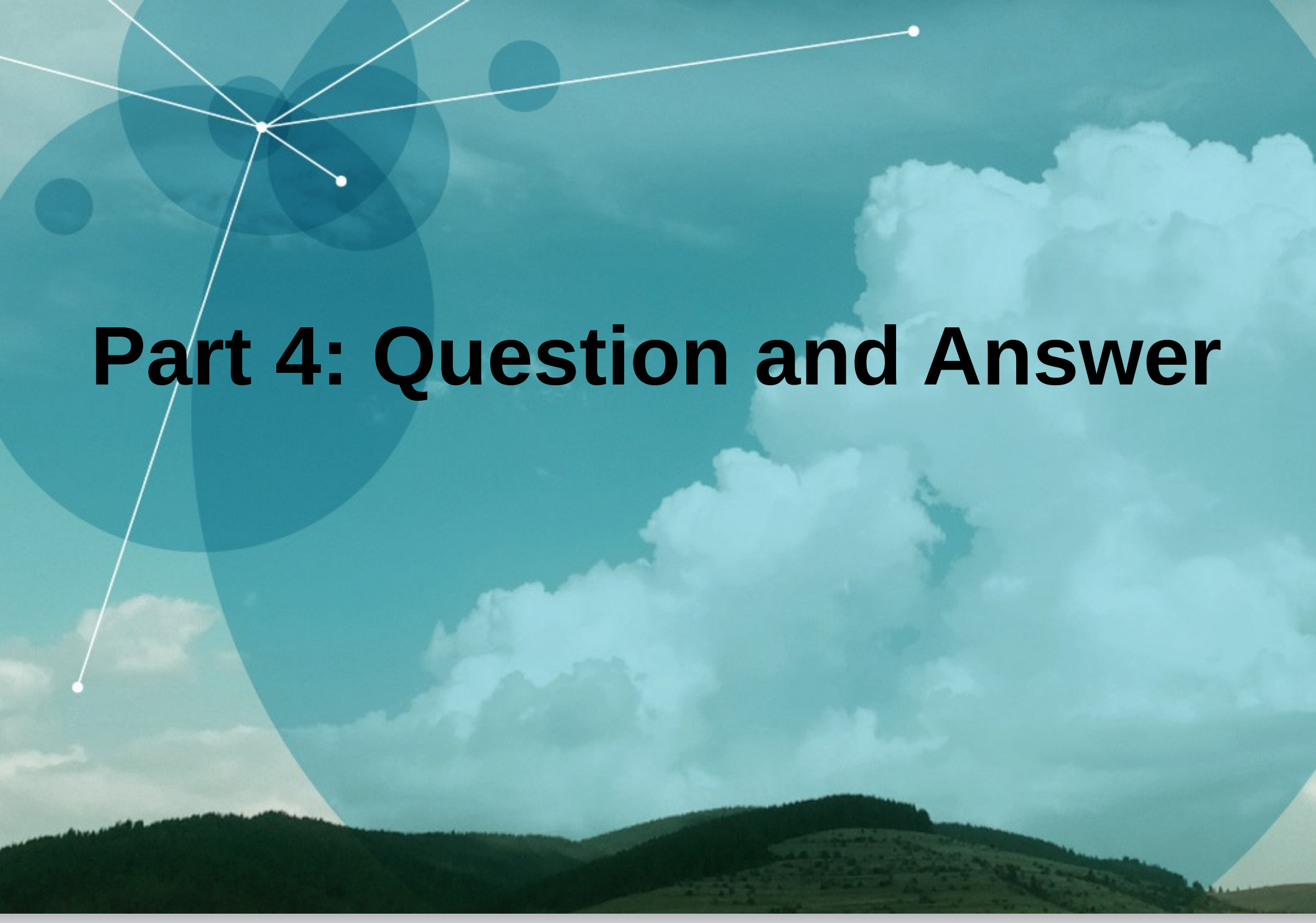
JBoss Technology Evangelist
OASIS and OMG Member
kpeeples@redhat.com


Part 4: Question and Answer