

Absolute Technologies Inc  
BBB Intelligence

Sales Territory Flexfield Based  
Record Level Security

**User Guide**

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## Introduction

Over the last several years, Absolute Technologies has worked with many companies to help them understand and easily access their Order to Revenue stream in Oracle Financials. This knowledge and experience has resulted in the development of BBB Intelligence, an integrated, ready to use, real time solution for overcoming many of the reporting shortcomings in OE/OM and AR. BBBi transforms complex relational data into meaningful business information that is easy to access and analyze from within your Oracle Applications or via any reporting or query tool.

## Record Level Security in BBBi

In addition to accurately and easily allowing companies to track Booking, Billing and Backlog information, BBBi includes a feature that addresses the issue of contextually restricting data access, known as **Record Level Security**. This essentially means that access to data through pre-defined Oracle Reports or Discoverer folders can be controlled, based on the user or responsibility.

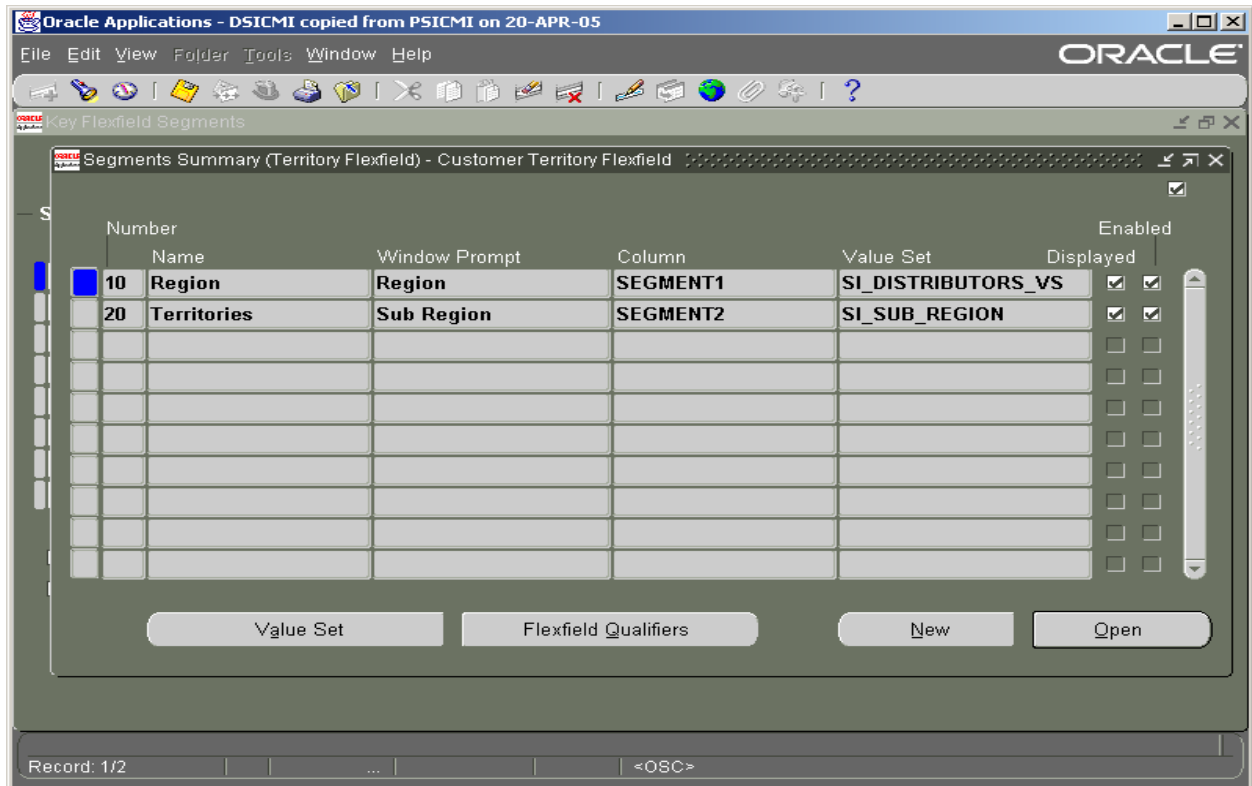
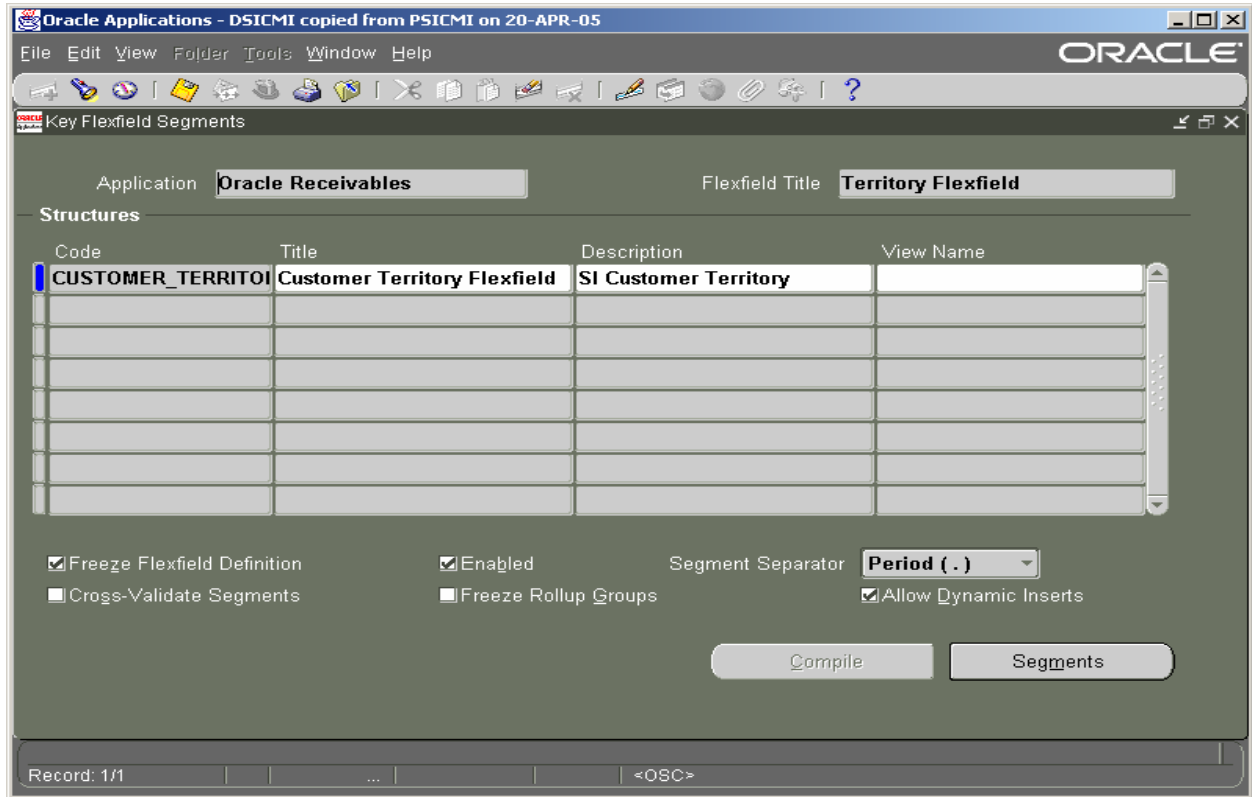
It is implemented by assigning Oracle users or Responsibilities to a specific “Sales Territory Flexfield”, and allowing them to only access records which contain that Territory. For instance, a sales person assigned to the Territory ‘AMERICAS’ would view a report with output filtered to only show records for that Territory. Additionally we can define a master-detail relationship to map many Territories to a single Territory Set, so that a sales manager or other executive can access records for all the territories under his/her management.

When a user accesses a Discoverer folder or Oracle Report with Record Level Security enabled, the Territory that he/she is assigned, is determined by a User or Responsibility based profile option that has been created for this purpose. The “security level” assigned in the profile option is cross referenced within the Report at runtime using a specialized BBBi function, which is added to the WHERE clause of the SQL within the Report. This function validates the profile option against the Territory assigned to every Record fetched by the Report. Only those records for the Territory that match the user’s assigned Territory would be selected for display.

Understanding Territory Based Record Level Security starts with a look at the Territory Key Flexfield and its segments. In the example highlighted below, this key flexfield has two segments – Region and Territory. This combination (SEGMENT1.SEGMENT2) returns an ID that is stored by the flexfield and is used by the BBBi function for validating records. This combination is referred to as ‘Territory’ throughout the User Guide.

Thus, for any report or folder that contains a table with the Territory Flex ID column, a BBBi function can be placed on it to filter the output to only those records that the user is allowed to view.

# Absolute Tech BBB Intelligence - Territory Based Record Level Security



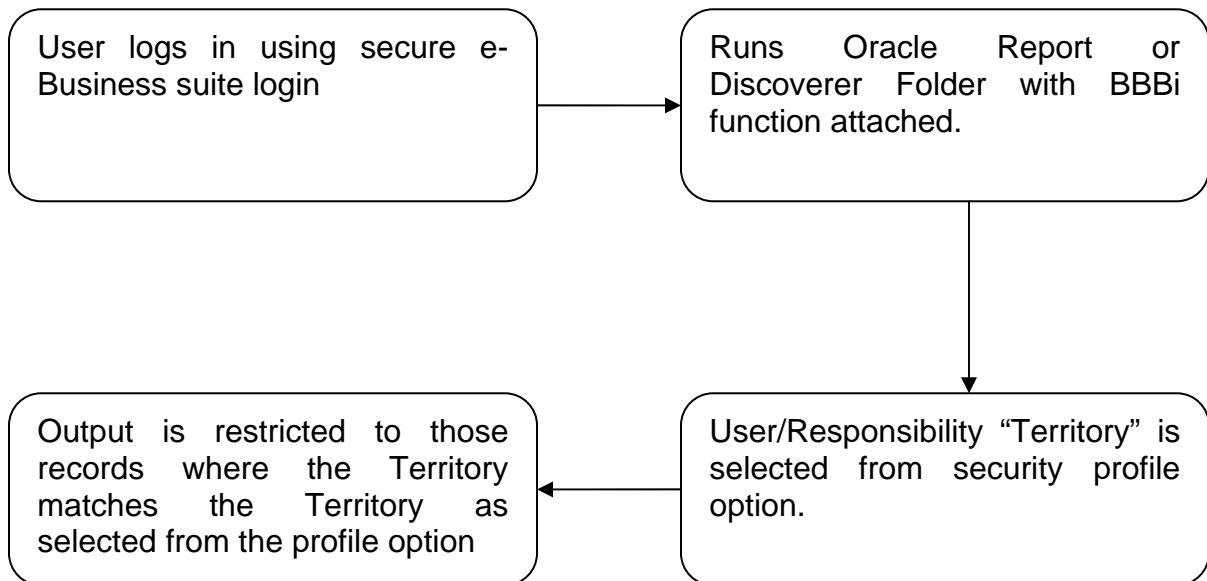
The following section deals with an overview of the process, followed by an in-depth look at the setup and working of Sales Territory Based Record Level Security.

### Functional Overview

A security profile option is created during the setup process, and users or responsibilities are assigned values. The values are a list of valid Territories as defined by the organization. The user/responsibility's profile option value must match that of a record before the record will be displayed.

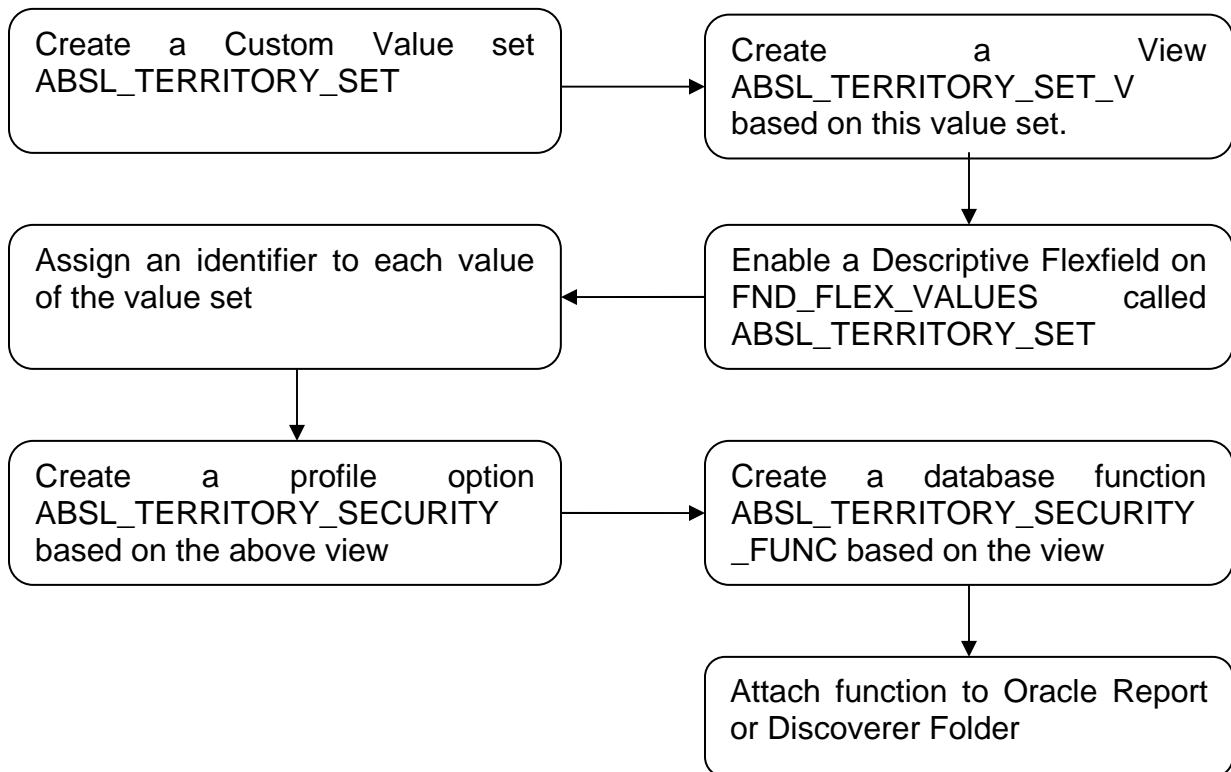
Each user requires a secure e-Business suite login in order to activate the security profile option. This can be achieved via a standard e-business suite login corresponding with a concurrent report submission, or, via Discoverer, if the user logs in using the e-business suite user name and responsibility. The Discoverer Administrator user must assign the BBBi security function to the appropriate folder as a condition. Discoverer Workbooks accessed via the Discoverer End User application can then use this Folder.

The following process flow outlines how data access is restricted when Record Level Security is implemented.



## Technical Overview

- An independent value set is created, which holds the list of Territories that a user or responsibility may be assigned to. This value set may also hold “parents” for flex values, namely, Territory Sets with more than one Territory included.
- Create a view for the data for this value set.
- Enable a context sensitive Descriptive Flexfield on FND\_FLEX\_VALUES called ABSL\_TERRITORY\_SET. Set Attribute 1 of the flexfield with a context value set to the ABSL\_TERRITORY\_SET Value Set to store Territory ID.
- Assign an identifier to each value of the value set, in the descriptive flexfield zone [ ] of the value set.
- The flex value, parent flex value (if any) and Territory ID are stored in the view.
- Create a profile option that will store Territory for a user or responsibility.
- Create a database function that, when passed the record level identifier, will return a Yes/No value as to whether the current user or responsibility can access the record.



## Territory Based Record Level Security Setup

The following setup steps and screen shots help explain the technical details.

- Create an Independent Value Set ABSL\_TERRITORY\_SET, which holds the attribute values to be secured.

The screenshot shows the Oracle Applications Value Set configuration window. The window title is "Oracle Applications - DSICMI copied from PSICMI on 20-APR-05". The menu bar includes "File", "Edit", "View", "Folder", "Tools", "Window", and "Help". The toolbar contains various icons for file operations and help. The main area is titled "Value Sets" and contains the following fields and options:

- Value Set Name:** ABSL\_TERRITORY\_SET
- Description:** (empty text field)
- List Type:** List of Values
- Security Type:** No Security
- Format Validation:**
  - Format Type:** Char
  - Maximum Size:** 240
  - Precision:** (empty text field)
  - Numbers Only (0-9)
  - Uppercase Only (A-Z)
  - Right-justify and Zero-fill Numbers (0001)
  - Min Value:** (empty text field)
  - Max Value:** (empty text field)
- Value Validation:**
  - Validation Type:** Independent
  - Edit Information:** (button)

At the bottom of the window, the status bar shows "Record: 1/1" and "<OSC>".

# Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Define the attribute values for this independent value set. These values are the Territories (Regions) as defined in the territory flexfield.

The screenshot shows the Oracle Applications 'Segment Values' window. The window title is 'Oracle Applications - DSICMI copied from PSICMI on 20-APR-05'. The menu bar includes 'File', 'Edit', 'View', 'Folder', 'Tools', 'Window', and 'Help'. The toolbar contains various icons for navigation and editing. The main area has four radio buttons: 'Value Set' (selected), 'Key Flexfield', 'Descriptive Flexfield', and 'Concurrent Program'. Below these are fields for 'Name' (containing 'ABSL\_TERRITORY\_SET'), 'Dependent Value Set', and 'Independent Value Set'. A section titled 'Values (ABSL\_TERRITORY\_SET)' is expanded, showing two tabs: 'Values, Effective' (selected) and 'Values, Hierarchy, Qualifiers'. The 'Values, Effective' tab contains a table with the following data:

Value	Translated Value	Description	Enabled		[ ]
			From	To	
APAC	APAC		<input checked="" type="checkbox"/>		AP
EUROPE	EUROPE		<input checked="" type="checkbox"/>		EU
ISCAN	ISCAN		<input checked="" type="checkbox"/>		IS
JAPAN	JAPAN		<input checked="" type="checkbox"/>		JA
KOREA	KOREA		<input checked="" type="checkbox"/>		KO
NAE	NAE		<input checked="" type="checkbox"/>		NA
NAW	NAW		<input checked="" type="checkbox"/>		NA

At the bottom of the window, there is a status bar showing 'Record: 1/1' and '<OSC>'.

## Absolute Tech BBB Intelligence - Territory Based Record Level Security

- The Value Set values may also include supersets of Territories, for certain users who may require access to more than one Territory. These parent attributes help include a greater level of flexibility to user access. For instance, a manager or senior executive may require access to all the Territories that he/she oversees. This is the reason for the creation of a new value set, as opposed to using an Oracle table which already holds the required values.

Oracle Applications - DSICMI copied from PSICMI on 20-APR-05

File Edit View Folder Tools Window Help ORACLE

Segment Values

Value Set  Key Flexfield  Descriptive Flexfield  Concurrent Program

Name: **ABSOLUTE\_TERRITORY\_SET**

Dependent Value Set: [ ]

Independent Value: [ ]

Values (ABSOLUTE\_TERRITORY\_SET) [x]

Values, Effective | Values, Hierarchy, Qualifiers

Value	Translated Value	Description	Enabled			[ ]
				From	To	
JAPAN	JAPAN		<input checked="" type="checkbox"/>			JA
KOREA	KOREA		<input checked="" type="checkbox"/>			KO
NAE	NAE		<input checked="" type="checkbox"/>			NA
NAW	NAW		<input checked="" type="checkbox"/>			NA
<b>Set: Japan &amp; Korea</b>	<b>Set: Japan &amp; Korea</b>		<input checked="" type="checkbox"/>			
<b>Set: Jon Kiachian</b>	<b>Set: Jon Kiachian</b>		<input checked="" type="checkbox"/>			
<b>Set: North America</b>	<b>Set: North America</b>		<input checked="" type="checkbox"/>			

Define Child Ranges | Move Child Ranges | View Hierarchies

Record: 8/10 | ... | <OSC>



## Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Create a view to show the data for the value set created above. The view can be created by executing the attached SQL file in SQL\*Plus. Double-click on the following object to view the script. The following screen shot describes the newly created view.



absl\_territory\_set\_v.sql

```
Oracle SQL*Plus
File Edit Search Options Help
SQL> desc absl_territory_set_v
Name                                     Null?    Type
-----
FLEX_VALUE                               VARCHAR2(450)
TERRITORY_ID                             NUMBER
PARENT_FLEX_VALUE                         VARCHAR2(450)
PARENT_FLAG                              CHAR(1)

SQL> select substr(flex_value,1,10) flex_value,territory_id,
 2  substr(parent_flex_value,1,10) parent_flex_value,
 3  parent_flag from absl_territory_set_v;

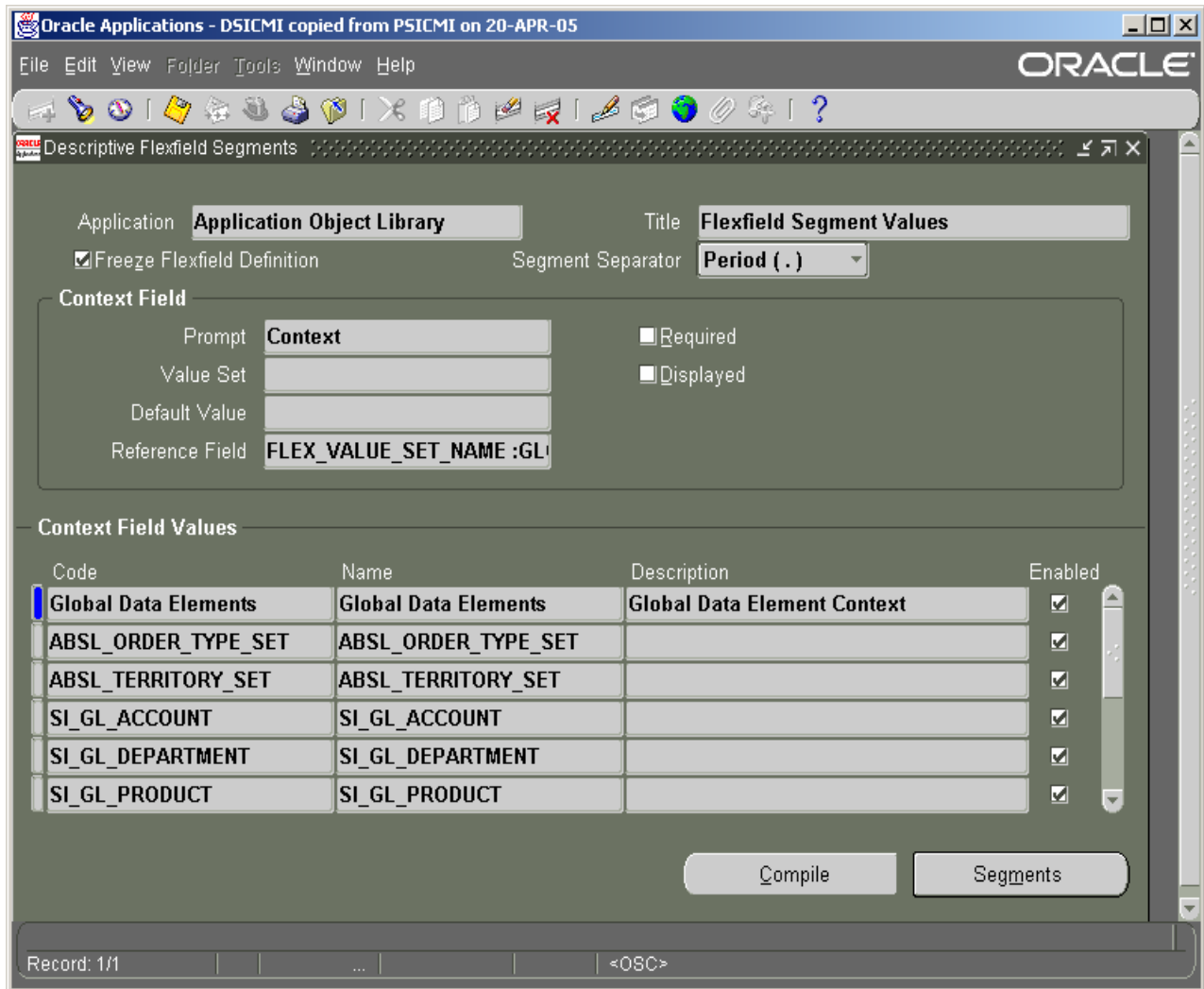
FLEX_VALUE          TERRITORY_ID PARENT_FLEX_VALUE      P
-----
APAC                1001 APAC                N
APAC                1001 Set: Japan       Y
EUROPE              1003 EUROPE           N
ISCAN               1013 ISCAN             N
JAPAN               1005 JAPAN             N
JAPAN               1005 Set: Japan       Y
JAPAN               1005 Set: Jon K       Y
KOREA               1007 KOREA           N
KOREA               1007 Set: Jon K       Y
NAE                 1009 NAE              N
NAE                 1009 Set: Jon K       Y
NAE                 1009 Set: North      Y
NAW                 1011 NAW              N
NAW                 1011 Set: Jon K       Y
NAW                 1011 Set: North      Y

15 rows selected.

SQL>
```

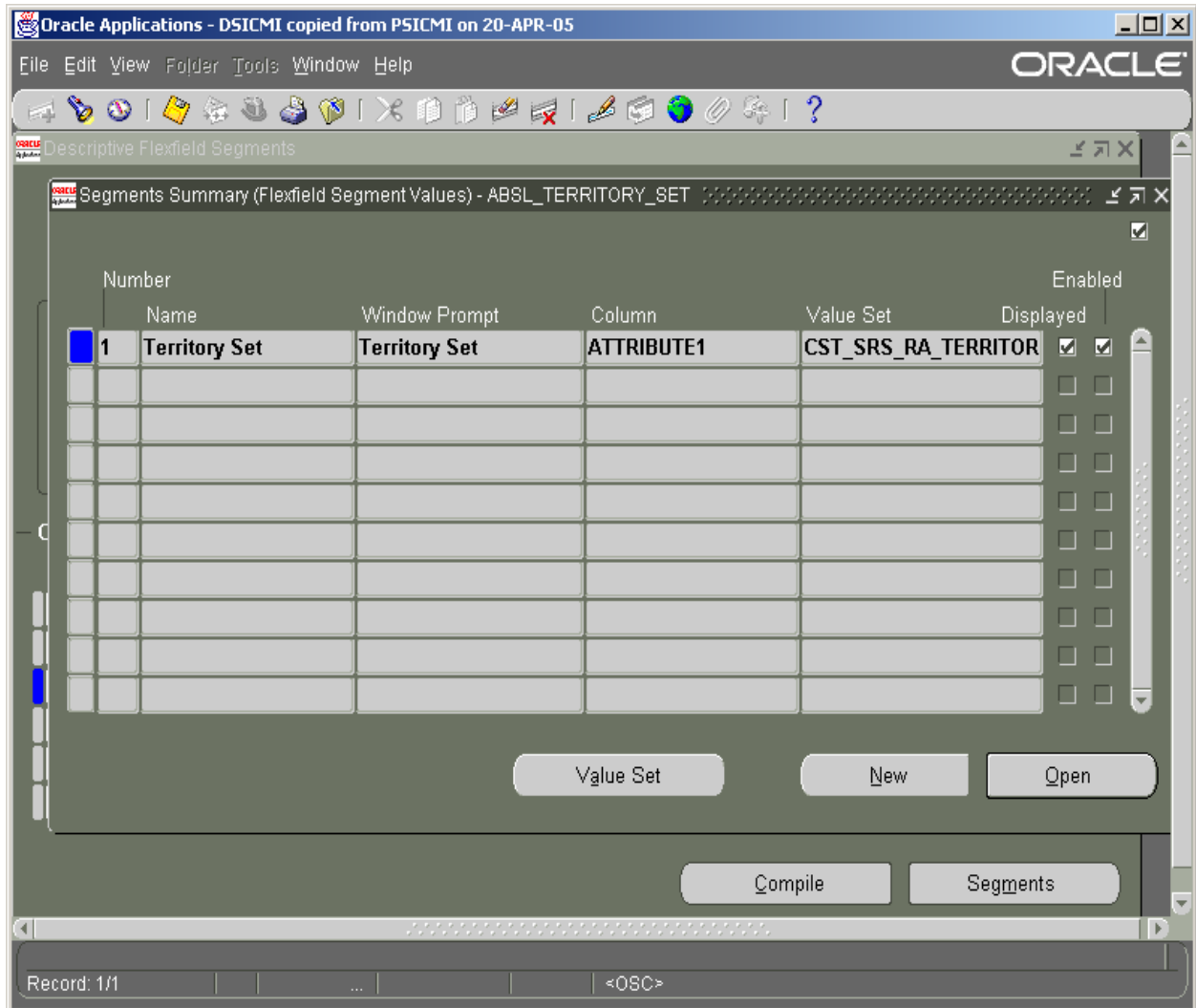
# Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Enable a context sensitive field value on FND\_FLEX\_VALUES called ABSL\_TERRITORY\_SET. This is necessary in order to assign an identifier to each value of the value set.

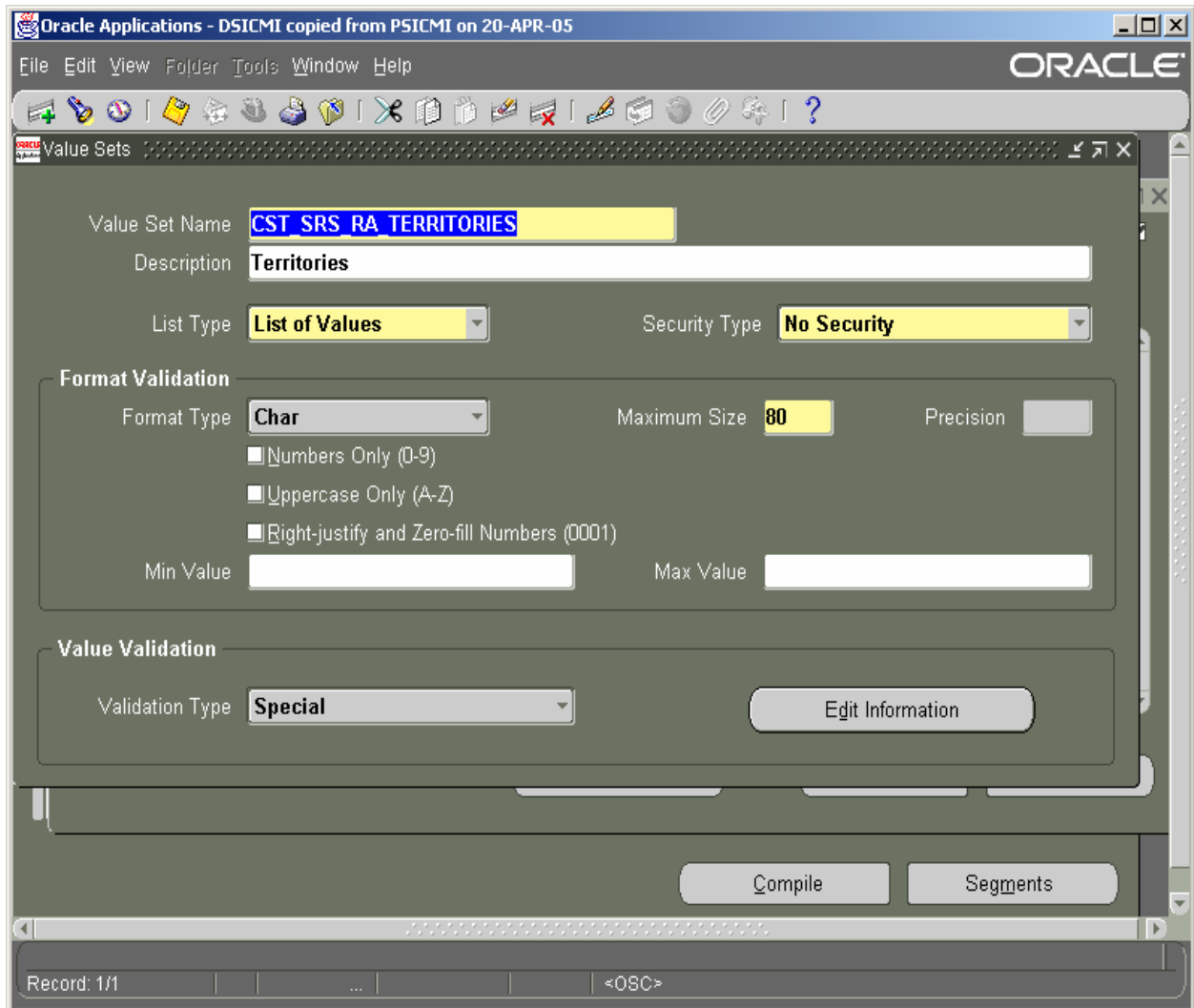


# Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Select the Column Attribute1 to store the ID (identifier) for the values in the value set ABSL\_TERRITORY\_SET.



- Assign the pre-defined Value Set CST\_SRS\_RA\_TERRITORIES to the flexfield segment. This value set validates the information entered by the user in the flexfield attached to ABSL\_TERRITORY\_SET, and returns an ID for REGION.SUB-REGION (Segment1.Segment2 of the Key Territory Flexfield). This is the ID stored in Attribute1.
- In cases where the organization does not wish to access this level of detail, and prefers simply to store the ID for Segment1 of the territory flexfield, they may use an alternative value set (instead of CST\_SRS\_RA\_TERRITORIES) that returns an ID value for Segment1 only, rather than for a Segment1.Segment2 combination, as defined in the Key Territory Flexfield.



## Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Uncheck the 'Required' Text Box and save.

The screenshot shows the Oracle Applications configuration window for Flexfield Segment Values. The window title is "Oracle Applications - DSICMI copied from PSICMI on 20-APR-05". The menu bar includes "File", "Edit", "View", "Folder", "Tools", "Window", and "Help". The toolbar contains various icons for navigation and editing. The main window title is "Segments (Flexfield Segment Values) - ABSL\_TERRITORY\_SET".

The configuration fields are as follows:

- Name: **Territory Set**
- Description: [Empty]
- Column: **ATTRIBUTE1**
- Number: **1**
- Enabled
- Displayed

**Validation**

- Value Set: **CST\_SRS\_RA\_TERRITORIES**
- Description: **Territories**
- Default Type: [Empty]
- Default Value: [Empty]
- Required
- Security Enabled
- Range: [Empty]

**Sizes**

- Display Size: **50**
- Description Size: **50**
- Concatenated Description Size: **25**

**Prompts**

- List of Values: **Territory Set**
- Window: **Territory Set**

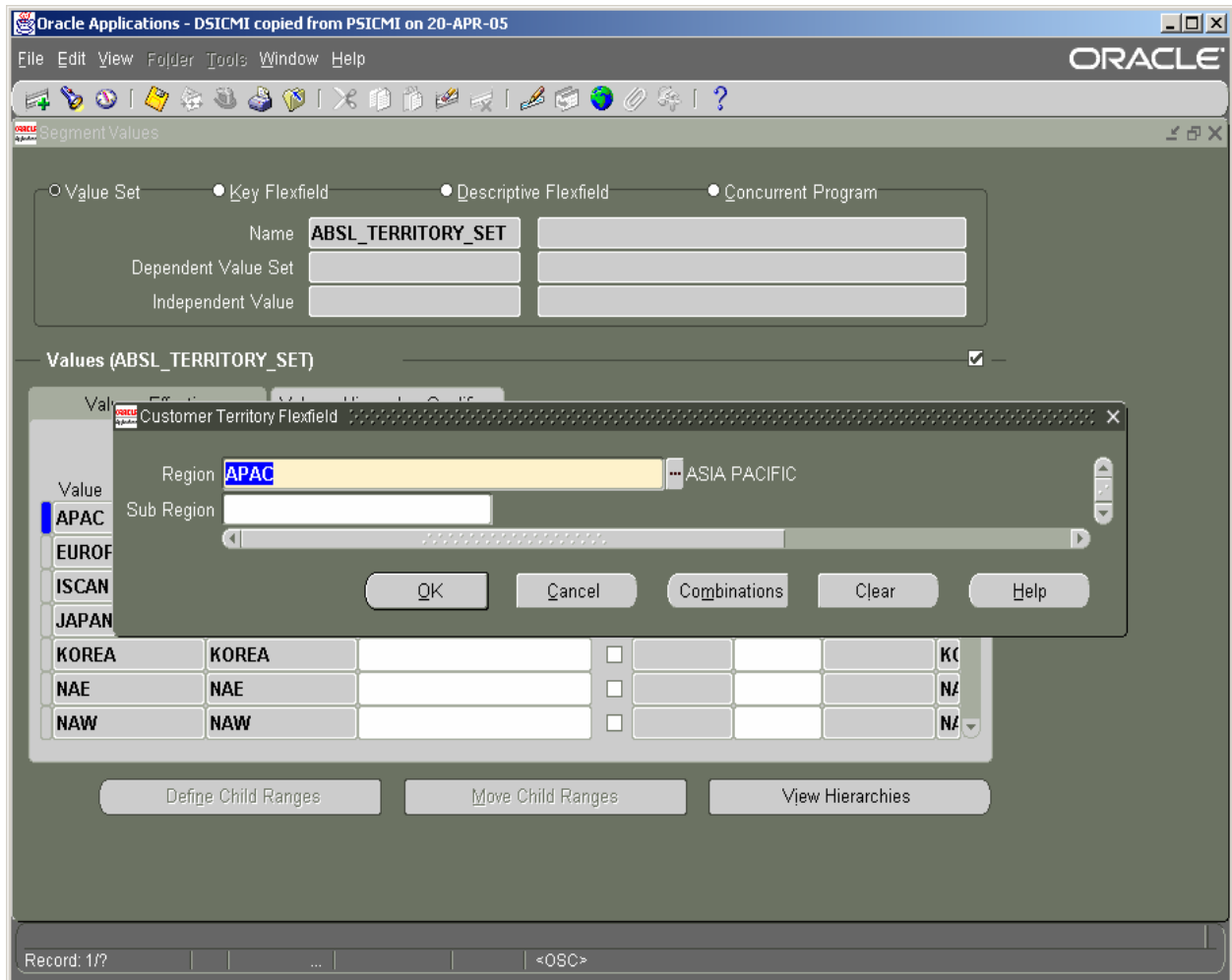
Value Set [Button]

Record: 1/1 | ... | <OSC>

- Freeze and compile the flexfield.

## Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Once the descriptive flexfield has been created, navigate to Validation->Values. Open Value Set ABSL\_TERRITORY\_SET.
- Click on the flexfield icon [ ] for each value. Select the Region (Territory) for each value set value (excluding parent values) from the LOV. In this setup, in order to maintain simplicity, no sub-region has been selected. However, if sub-region were enabled, the ID stored would be for the combination of REGION.SUB-REGION (Segment1.Segment2 , as discussed above), instead of just Region.



## Absolute Tech BBB Intelligence - Territory Based Record Level Security

- Create a system profile option, which will dictate what records a user is allowed to access. To create a profile option, navigate to Application Developer Responsibility -> Application -> Profile.

The screenshot shows the Oracle Applications 'Profiles' window. The profile name is 'ABSL TERRITORY SECURITY', the application is 'Absolute BBB Intelligence', and the user profile name is 'BBBi: Territory Security'. The description is 'Row level Security for Reports and Views'. The active dates start on 22-APR-2003. The SQL validation window contains the following SQL statement:

```
SQL=" select substr(fv.flex_value,1,length(fv.flex_value)) \"Territory Set\",
        substr(fv.flex_value,1,length(fv.flex_value))
into :VISIBLE_OPTION_VALUE ,
:PROFILE_OPTION_VALUE
from    fnd_flex_values          fv
```

The 'Hierarchy Type' is set to 'Security'. Under 'User Access', both 'Visible' and 'Updatable' are checked. Under 'Program Access', both 'Visible' and 'Updatable' are checked. The 'Hierarchy Type Access Level' table is as follows:

	Visible	Updatable
Site	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Application	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Responsibility	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Server	<input type="checkbox"/>	<input type="checkbox"/>
Organization	<input type="checkbox"/>	<input type="checkbox"/>
User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- The newly created profile option is validated with the following SQL statement, which is pasted into the SQL statement window while creating the profile option.

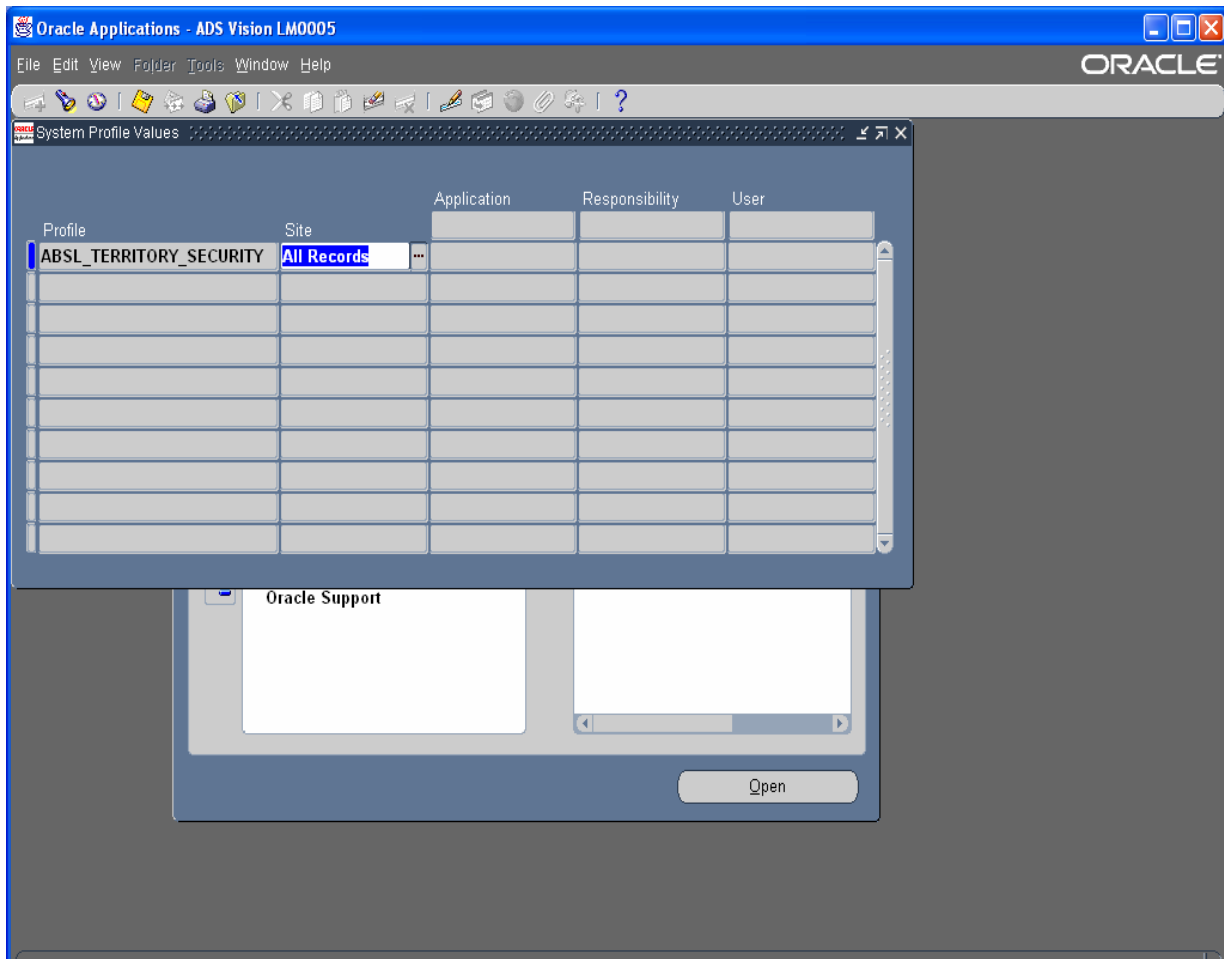
```
SQL="      select      substr(fv.flex_value, 1, length(fv.flex_value)) \"Territory Set\",
                substr(fv.flex_value,1,length(fv.flex_value))
into      :VISIBLE_OPTION_VALUE ,
          :PROFILE_OPTION_VALUE
from      fnd_flex_values          fv,
```

## Absolute Tech BBB Intelligence - Territory Based Record Level Security

```

                                fnd_flex_value_sets          fvs
      where fvs.flex_value_set_name = 'ABSL_TERRITORY_SET'
      and   fvs.flex_value_set_id = fv.flex_value_set_id
      and   fv.enabled_flag = 'Y'
UNION
      select 'All Records' \"Territory Set\",
            'All'
      from   dual"
COLUMN= \"Territory Set\"(30)"
```

- Assign the appropriate value to the profile option for Users and Responsibilities.



- Users that have the option - 'All Records', assigned to them will be able to see the records without filtering. For users with a specific Territory assignment, output will be filtered to show only those records which match their Territory.

- Finally, we create a database function, ABSL\_TERRITORY\_SECURITY\_FUNC. This function is based on the view, and is the filtering mechanism for record level security. The function, when attached to an Oracle or Discoverer Report, accepts a Region ID as an input parameter from the record. This is validated against the user's profile option setting. If the two match, then the function returns a 'Y' result and the record is allowed through.
- The function can be created with the following SQL. Double-click on the attached object to open the script.



absl\_territory\_security\_func.sql

```
sc5-web220 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
SQL> @absl_territory_security_func.sql
DOC>*      Absolute Technologies, Inc.
DOC>*      All Rights Reserved
DOC>*****
DOC>*      File       :      absl_territory_security_func.sql
DOC>*      Author      :      Cameron Lerner
DOC>*      Created: 14-APR-03
DOC>*
DOC>*      Objects:      absl_territory_security_func
DOC>*
DOC>*      Description:  Return territory_id's accessible for the current user's session
DOC>*      History:
DOC>*      14-APR-03      Cam Lerner      Created.
DOC>*****/
Enter value for absl_user: absl
Enter value for absl_psswd: absl
Enter value for at_db_instance:
Connected.

Function created.

PL/SQL procedure successfully completed.

SQL> █

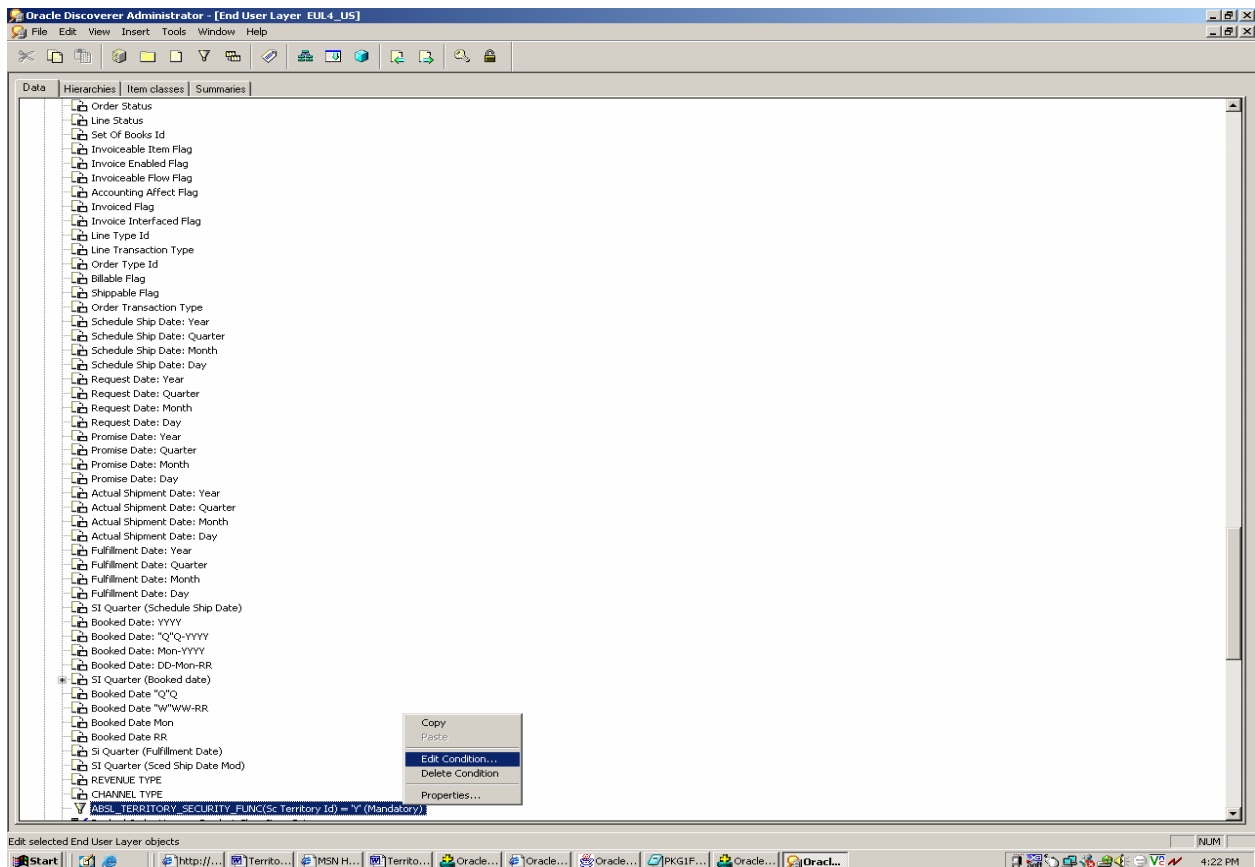
Ready          ssh2: Twofish 25, 6 37 Rows, 117 Cols VT100 NUM
```

## Absolute Tech BBB Intelligence - Territory Based Record Level Security

- The function can now be applied to Discoverer folders or Oracle Reports as a constraint.

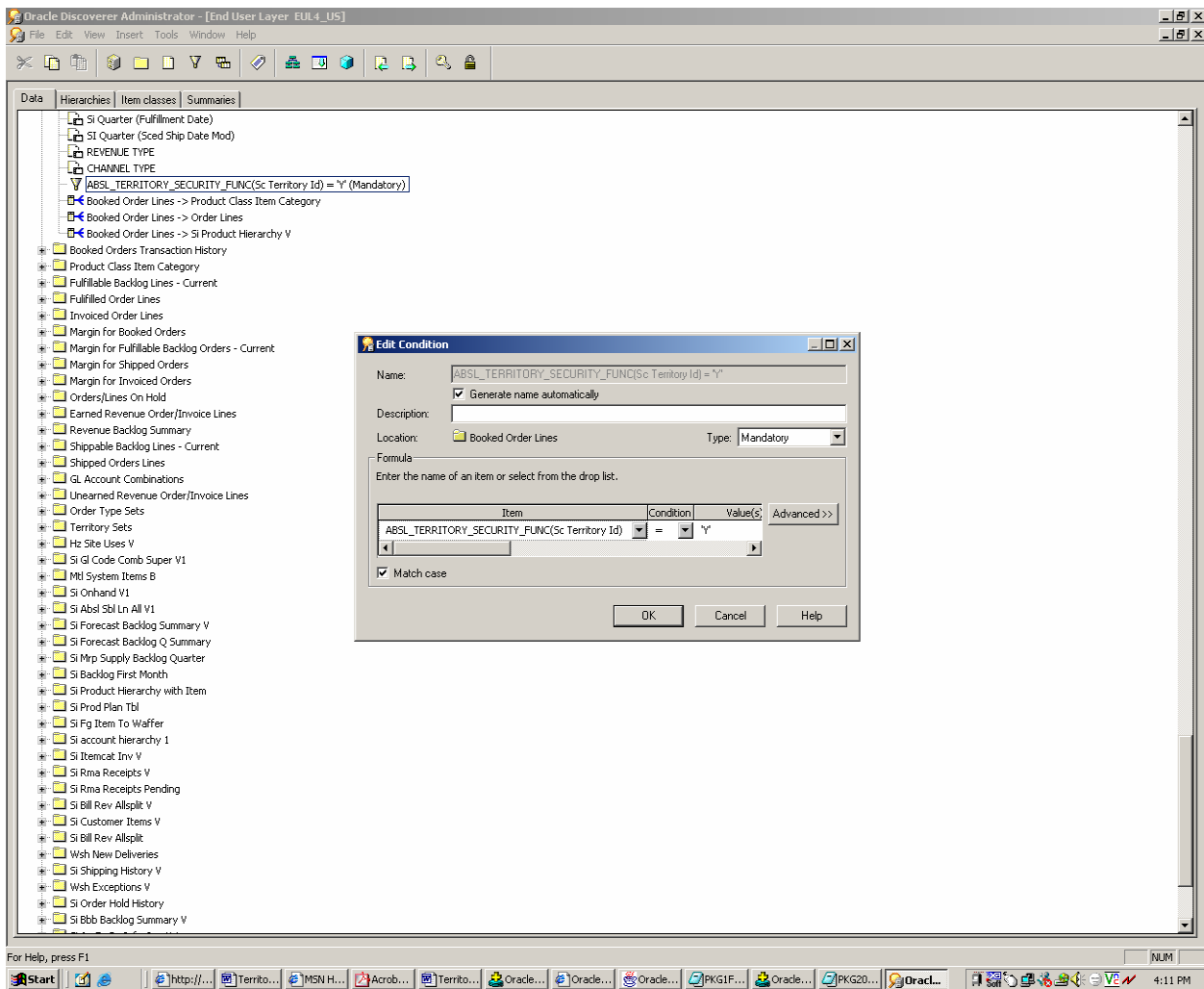
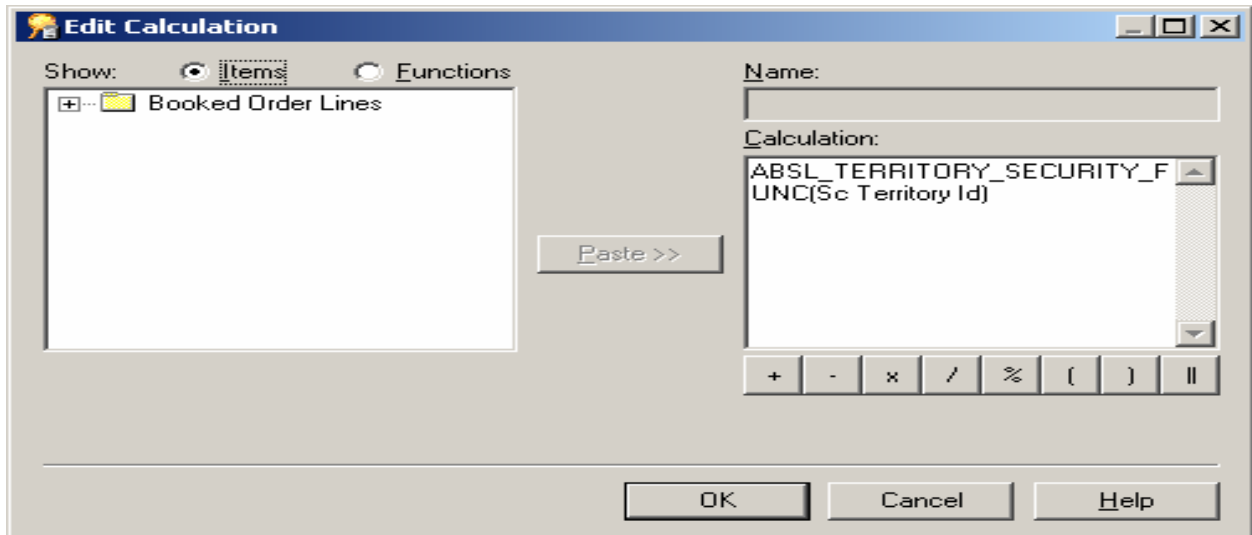
## Application of Sales Territory Based Record Level Security

- We now apply the database function created above to a Discoverer Folder as a filter. In this example we use a Report called 'Booked Order Lines'.



- Apply the function and save.

# Absolute Tech BBB Intelligence - Territory Based Record Level Security



The output is filtered to only allow those records that pass the conditions in the function.

## **Conclusion**

Sales Territory Based Record Level Security extends basic BBB functionality in such a way that emphasizes accuracy, efficiency and security.

Also under consideration and development is a proposal to extend this feature in such a way that record level security can be based on any column, and not just segment1 of the territory flexfield.