Rapidly Creating a Database-Centric Web Application using Oracle HTML DB

Purpose

This lesson shows you how to build a query and update application on a database table using HTML DB.

Topics

This lesson will discuss the following topics:

⟳⟳ Place the cursor on this icon to display all screenshots. You can also place the cursor on each icon to see only the screenshot associated with it.

HTML DB Overview

What is HTML DB?

HTML DB provides a declarative development framework for creating database-centric web applications. Development is done using an online service. Deployment is done by downloading a runtime module and your application and running it within your enterprise.

What components make up HTML DB?

HTML DB contains three main components. You will use all three components throughout this lesson.

| Application Builder	The Application Builder allows you to build database-centric interactive web applications.
SQL Workshop	The SQL Workshop allows you to run SQL statements and SQL scripts.
Data Workshop	The Data Workshop helps you load data into and extract data from the database.

Terminology

The following concepts are important to know when working with HTML DB:

Application	An Application is a collection of pages with branches that connect them. Its attributes include the authentication method, default UI templates, and authorization rules.
Page	A page is defined by how it is rendered or displayed and by how it is processed. Processing refers to the events and logic that occur when the page is submitted. Each page is rendered dynamically at runtime from meta data defined by the Application developer. How a page looks is controlled by page templates.
Region	Content is displayed in regions, which are logical subsections of a page. Each page can have any number of regions of several different types. These types include: HTML text, SQL Queries, PL/SQL generated HTML and charts. Each region is rendered using a region template. Regions are positioned on the page using display points defined in the page template.
Item	Application items are used to generate HTML form elements. The Applications engine manages the generation of the HTML, you as the developer simply choose the item type. Applications supports over 50 such types including date pickers, popup lists of values, text areas with spell checking, etc. The value of an item is automatically stored into session state which can be referenced at any point within the user's session.

Architecture

All applications are rendered in real time from data stored in database tables. When you create or extend your application, no code is generated; metadata is created or modified and stored in database tables. The applications rendering engine reads the metadata and displays the page accordingly.
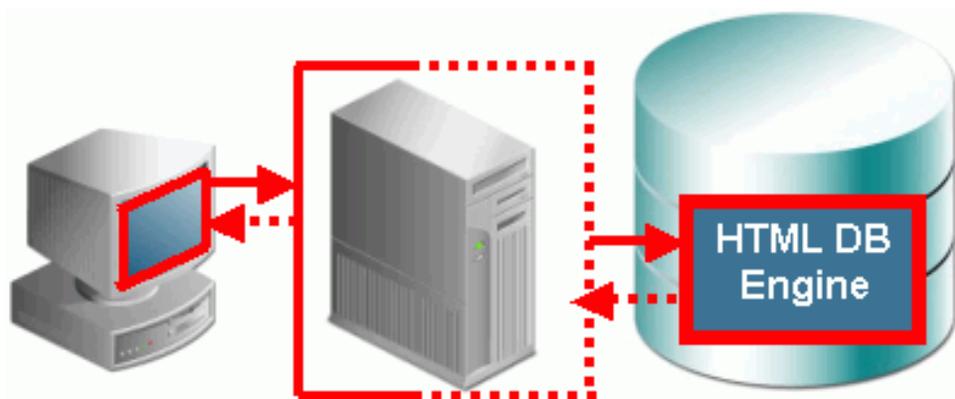
All session state is also stored in the database. Each page view results in a new database session, so when the applications engine is not processing a page, no database resources are consumed (except for storage space used by table rows). The unique session identifier used to manage your application's session state as the user runs the application from start to finish is unrelated to the many individual database sessions created and run by the runtime engine for each page view.

Applications that execute SQL or PL/SQL are parsed as the "owner" of the application. When your workspace is provisioned you are given the right to parse as a specific schema. Thus all of your Oracle database rights and privileges are that of the schema you choose to parse as.

Prerequisites

Before starting this module, you should have:

1. Completed the [Configuring Linux for the Installation of Oracle Database 10g](#) lesson

2. Completed the [Installing the Oracle Database 10g on Linux](#) lesson

3. Completed the [Installing Oracle HTTP Server on Linux](#) lesson.

4. Download the [hardware.xls](#) into your working directory. (i.e. /home/oracle/wkdir)

Creating a Table from a Spreadsheet

You will first load the data that you will use for this lesson from a spreadsheet. Perform the following:

1. Enter the following URL to login to HTML DB:

   http://<hostname>:7777/pls/htmldb/htmldb

2. Enter your workspace (**obe**), username (**obe**), and password (**obe**) and click **Login** .
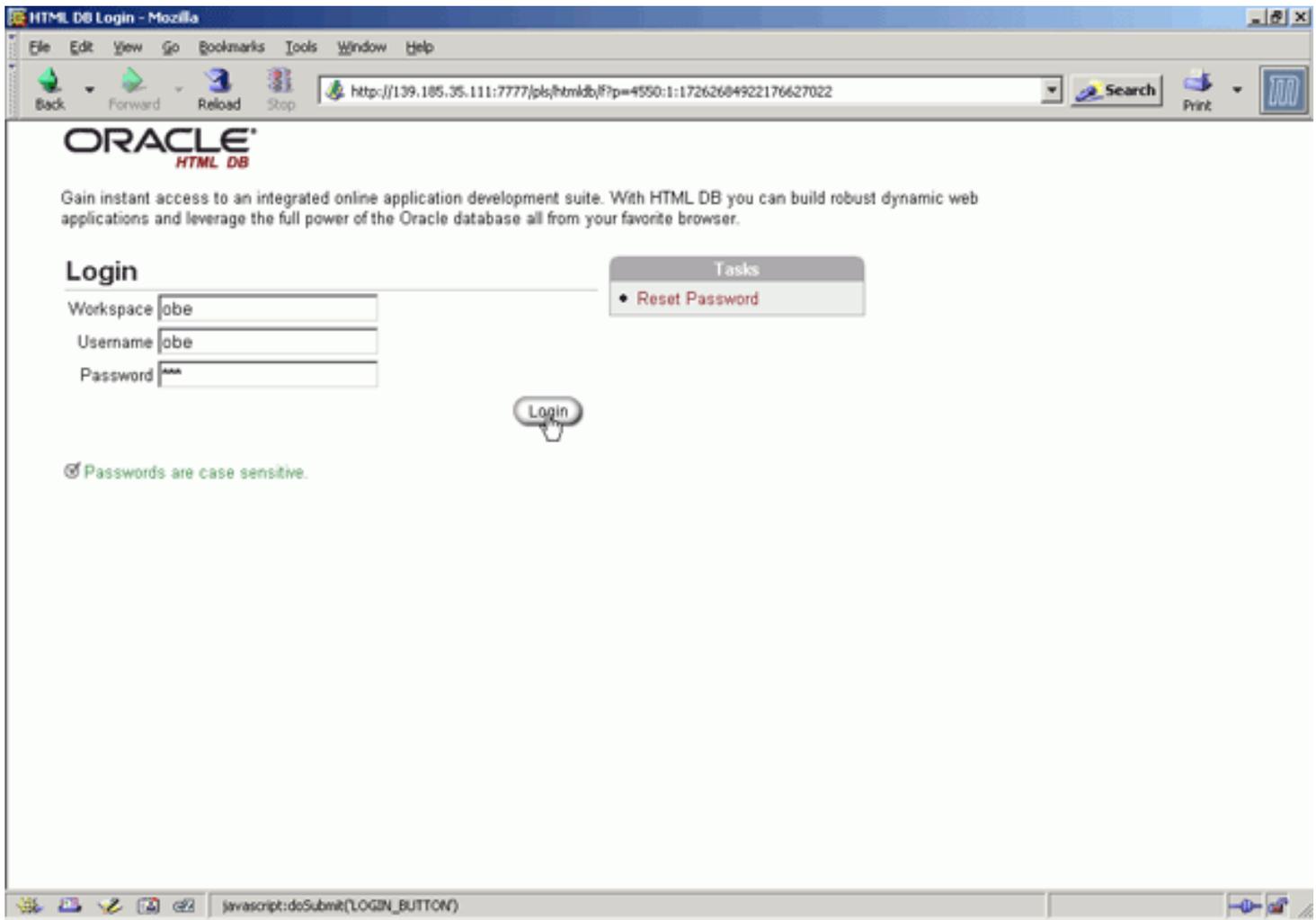
3. You first want to create the table that the application will be based on. Click **Data Workshop** .

4. You want to create the table based on a spreadsheet, click **Import Spreadsheet Data** .

5. Make sure Import To is set to **New table** and Import From is set to **Copy and paste (up to 30KB)** and click **Next** .
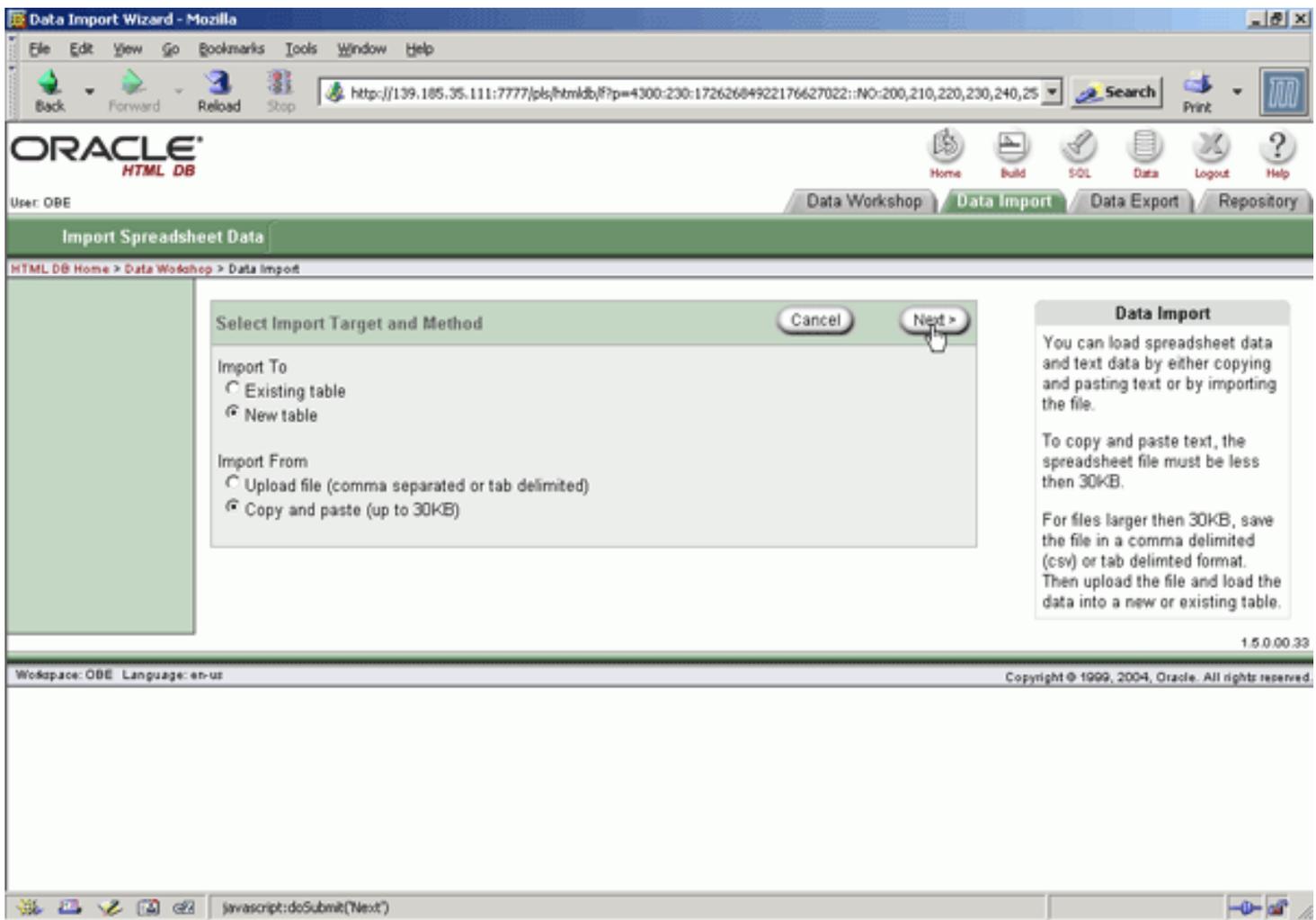
6. Open **hardware.xls** in OpenOffice. Select all the data in the spreadsheet and click **ctrl-c** to copy the data to the clipboard.

7. Switch back to your browser where you are logged in to HTML DB. Click in the data field and click **ctrl-v** to paste the data into the field. Then click **Next** .

8.   The Table Information window will appear which shows the columns in the table and their format, as well as the data that will be inserted into the table once the table is created. Enter the table name **Inventory** and click **Next** .
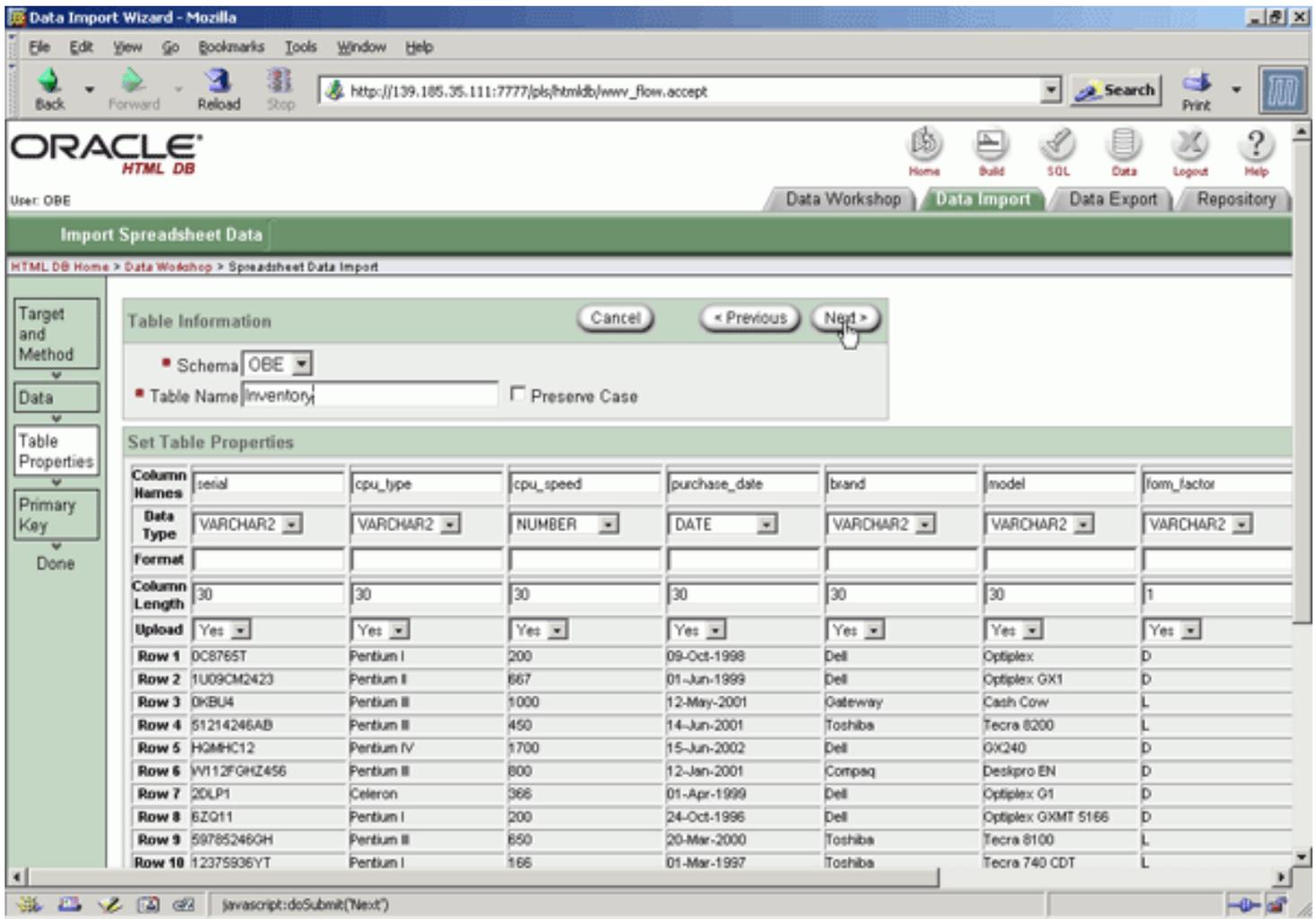
9. Accept the defaults and click **Import Data** .
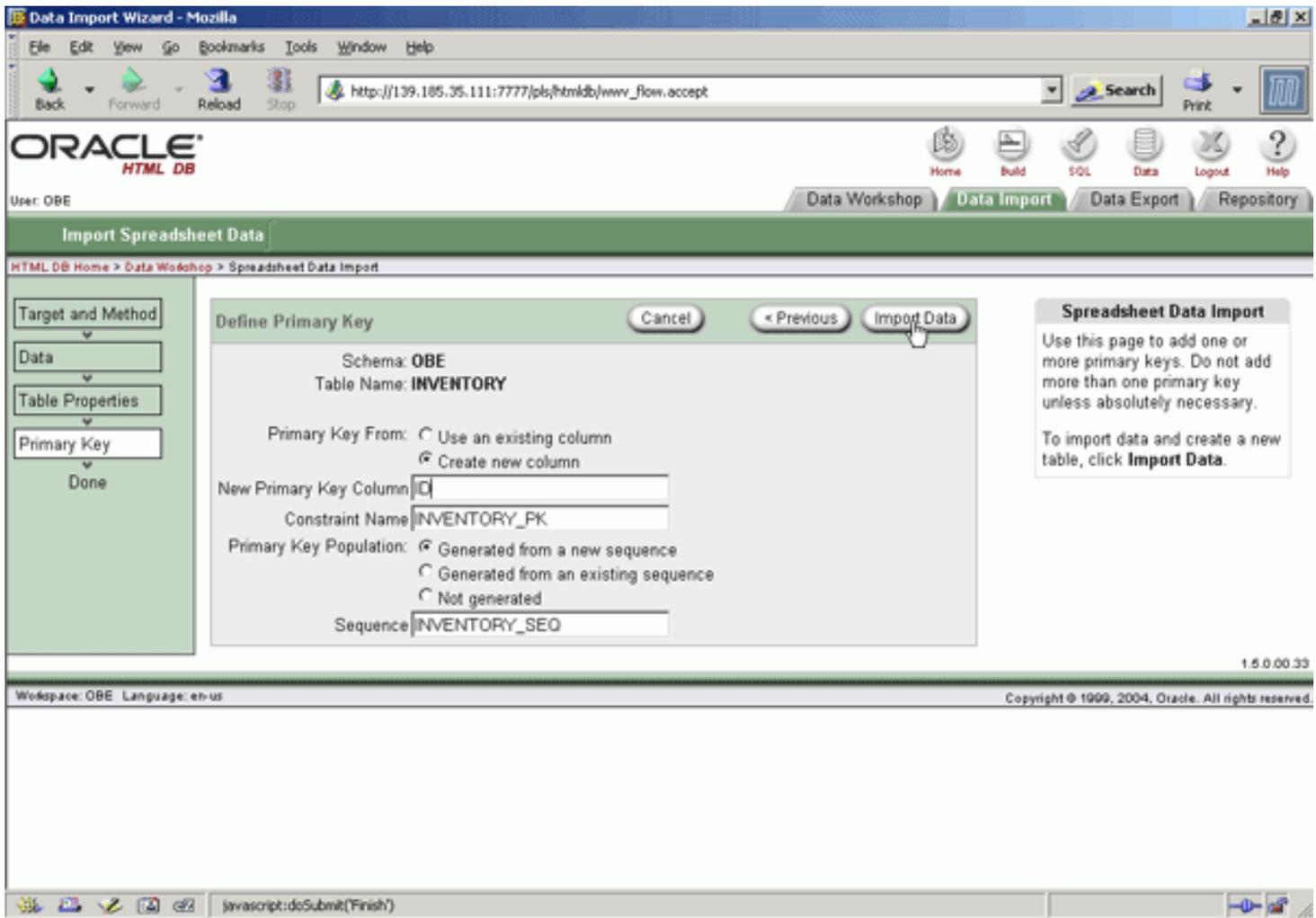
Once the table is created and the data loaded, click **INVENTORY** to review the results.

10.
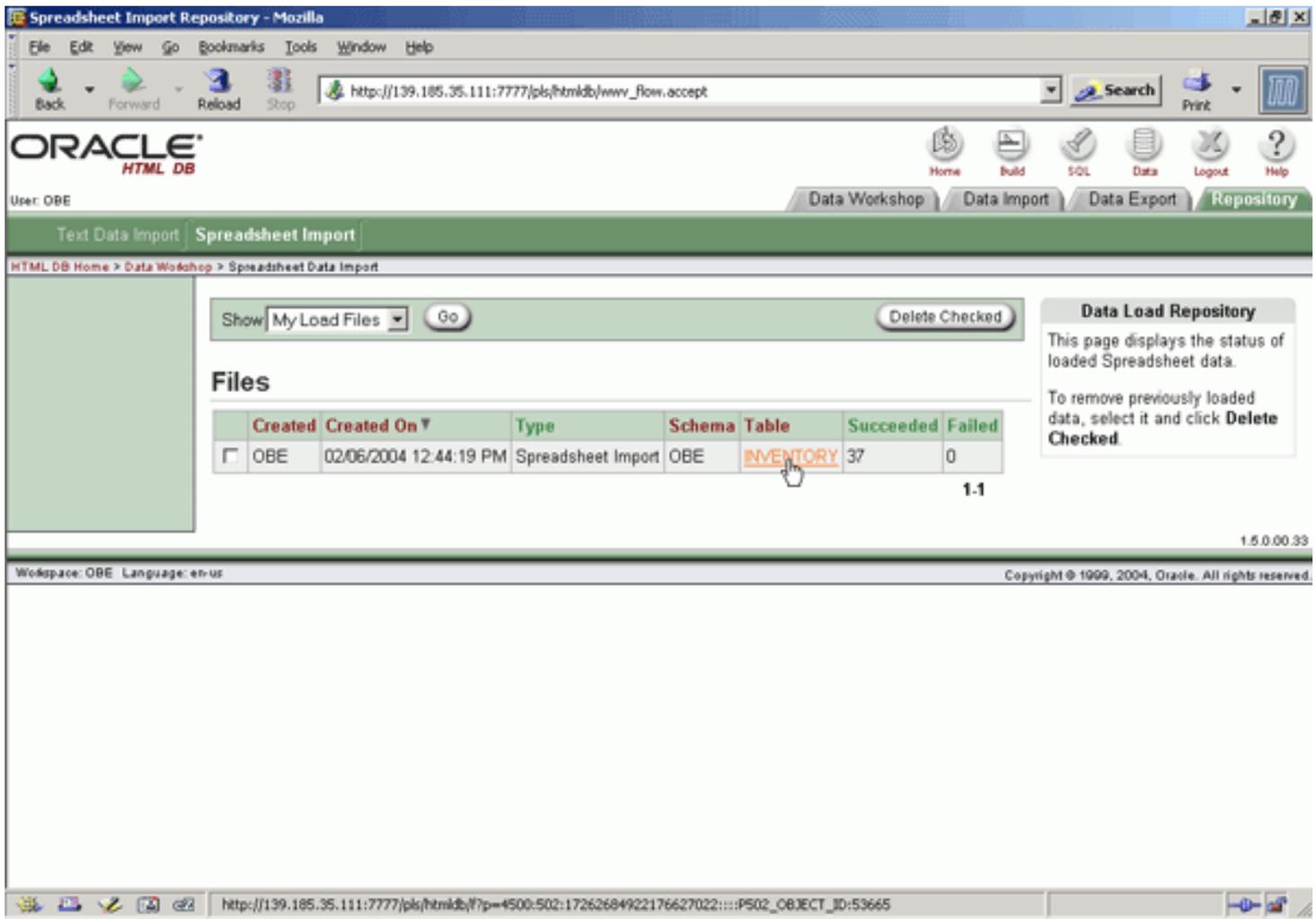
This window shows the table definition itself. To view the data, click **Query by Example** .

11.

Click the **Check All** checkbox and click **Query** .

12.

13. You see the result of your query. You can change any of the data in the database from this window. At this point, you want to go back to the summary window. Click **SQL Workshop** .

Adding a Lookup Table

You will create a lookup table on the Brand column. Perform the following:

1. Select **Tables.**

2. Select **OBE** for the schema and **Tables** for the Object Type. Then select the magnifying glass next to the **INVENTORY** table to edit the table definition.

3. Click **Create Lookup Table** .

4. Click the **Brand** column radio button and click **Next** .
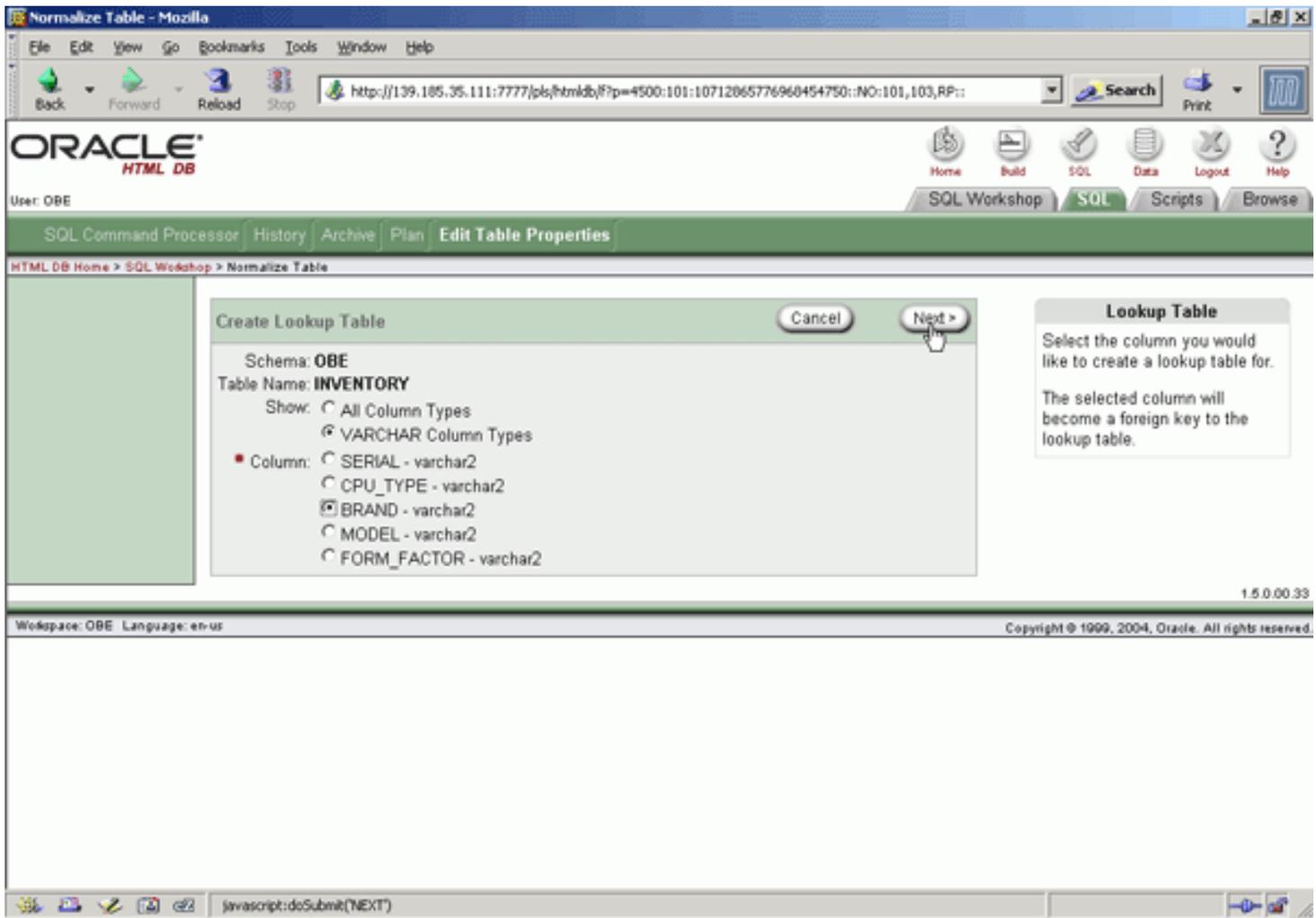
5. Enter **INV_BRAND_LKUP** for the New Table Name and **SEQ_INV_BRAND** for the New Sequence and click **Next** .
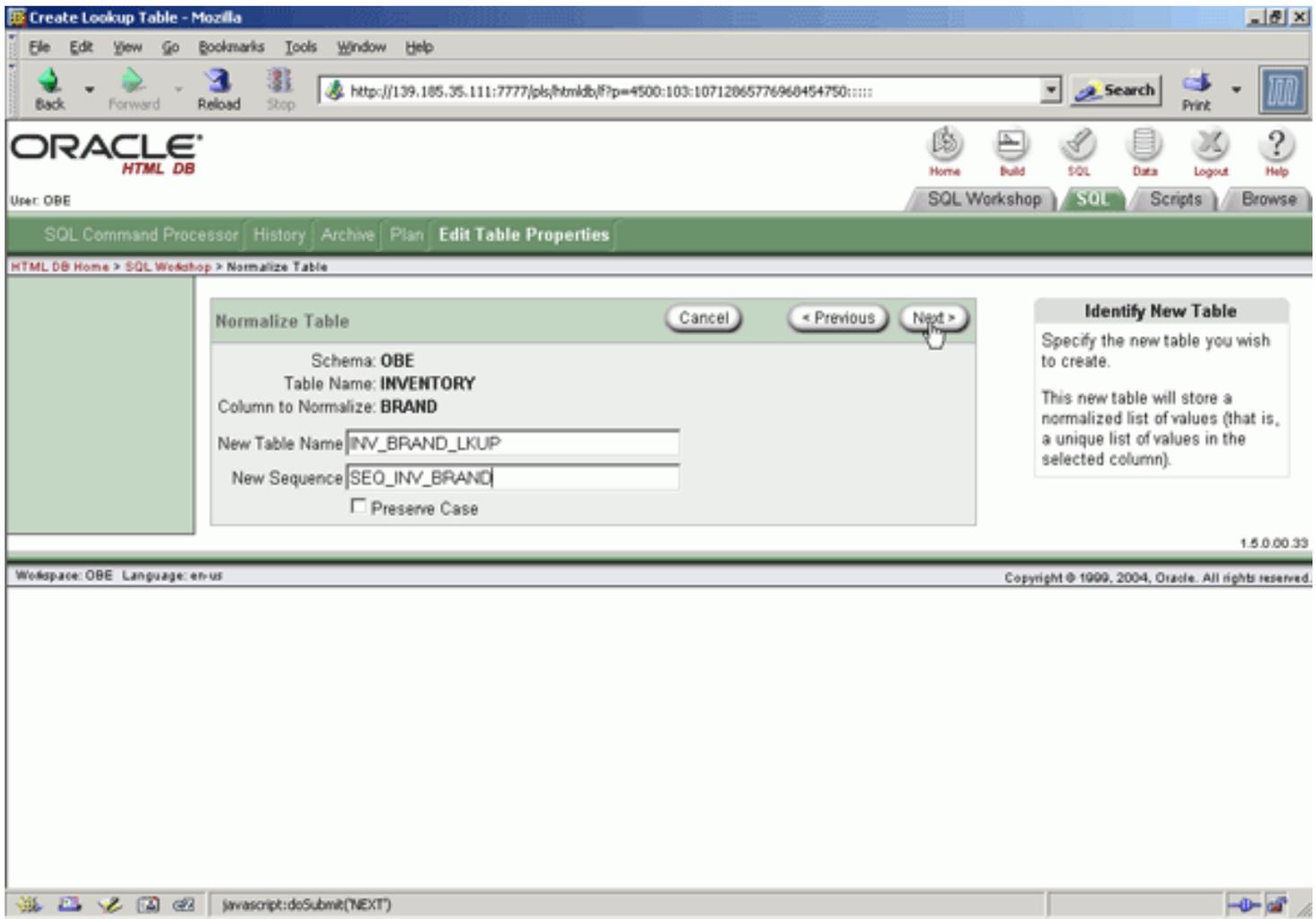
6. Click **Finish** .
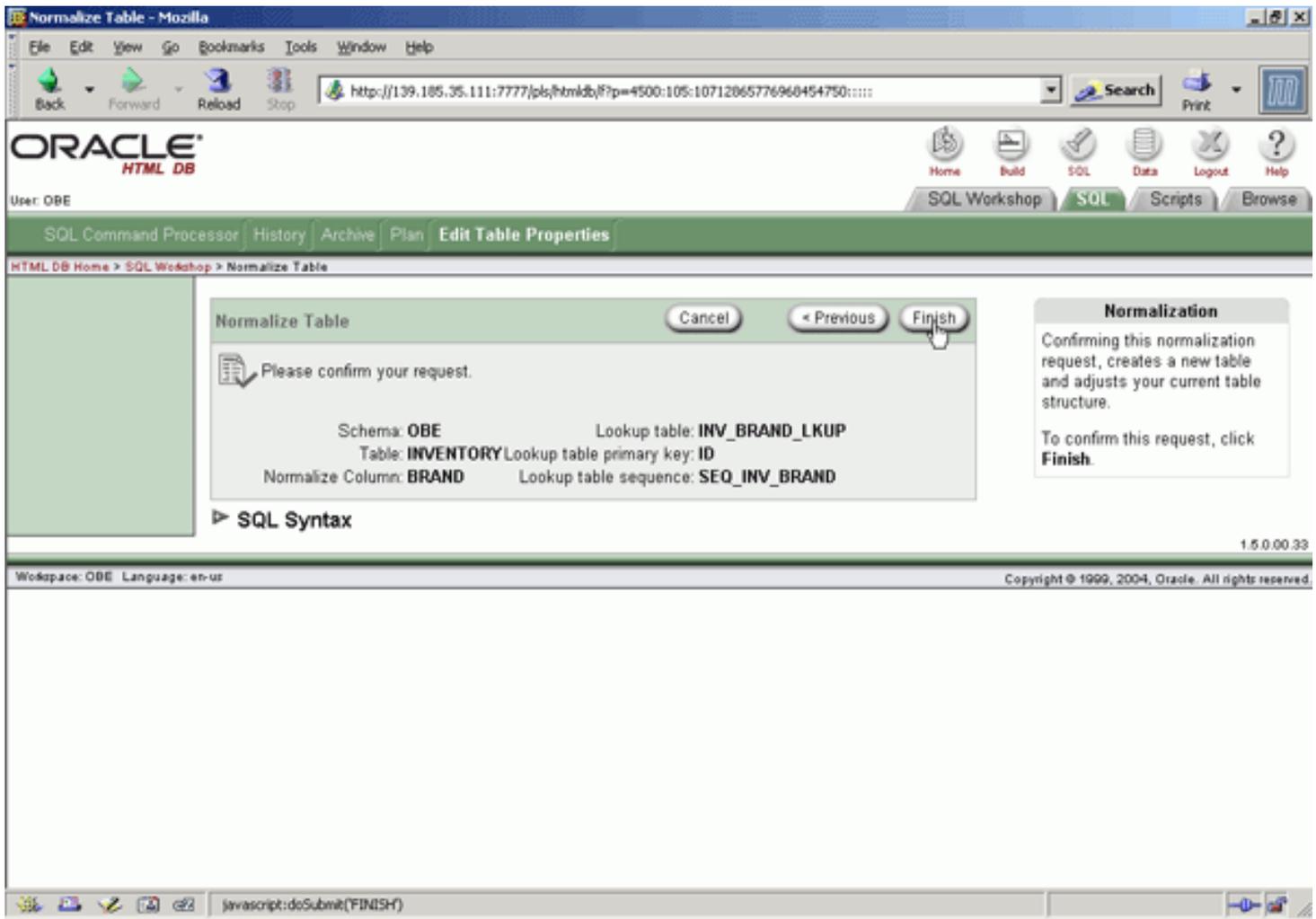
7. Scroll down to the bottom of the Table Summary window and expand **Foreign Key (Tables INVENTORY References).**

8. Select the Ref Table **INV_BRAND_LKUP** .

9. Click **Query by Example** .

Click the **Check All** checkbox and click **Query** .

10.

The query results are shown. Next you will create the application. Click the **Build** icon at the top of the window.

11.

Creating an Application

You will first need to create an application. Perform the following:

1. From the main Builder window, click **Create Application** .

2. You will create a Application from scratch, click **Next** .
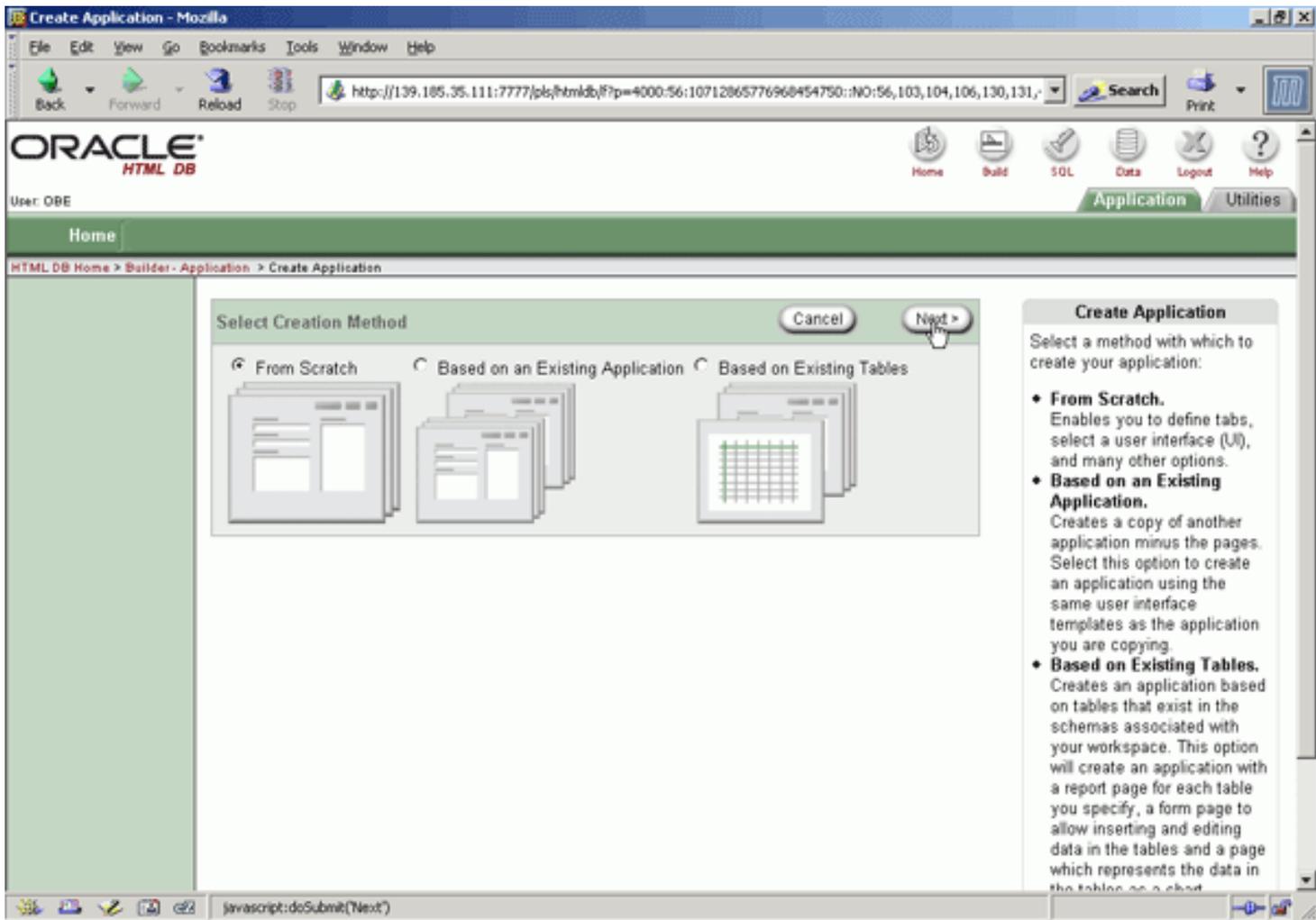
3. Enter **Inventory Application** in the Name field, then click **Next** .
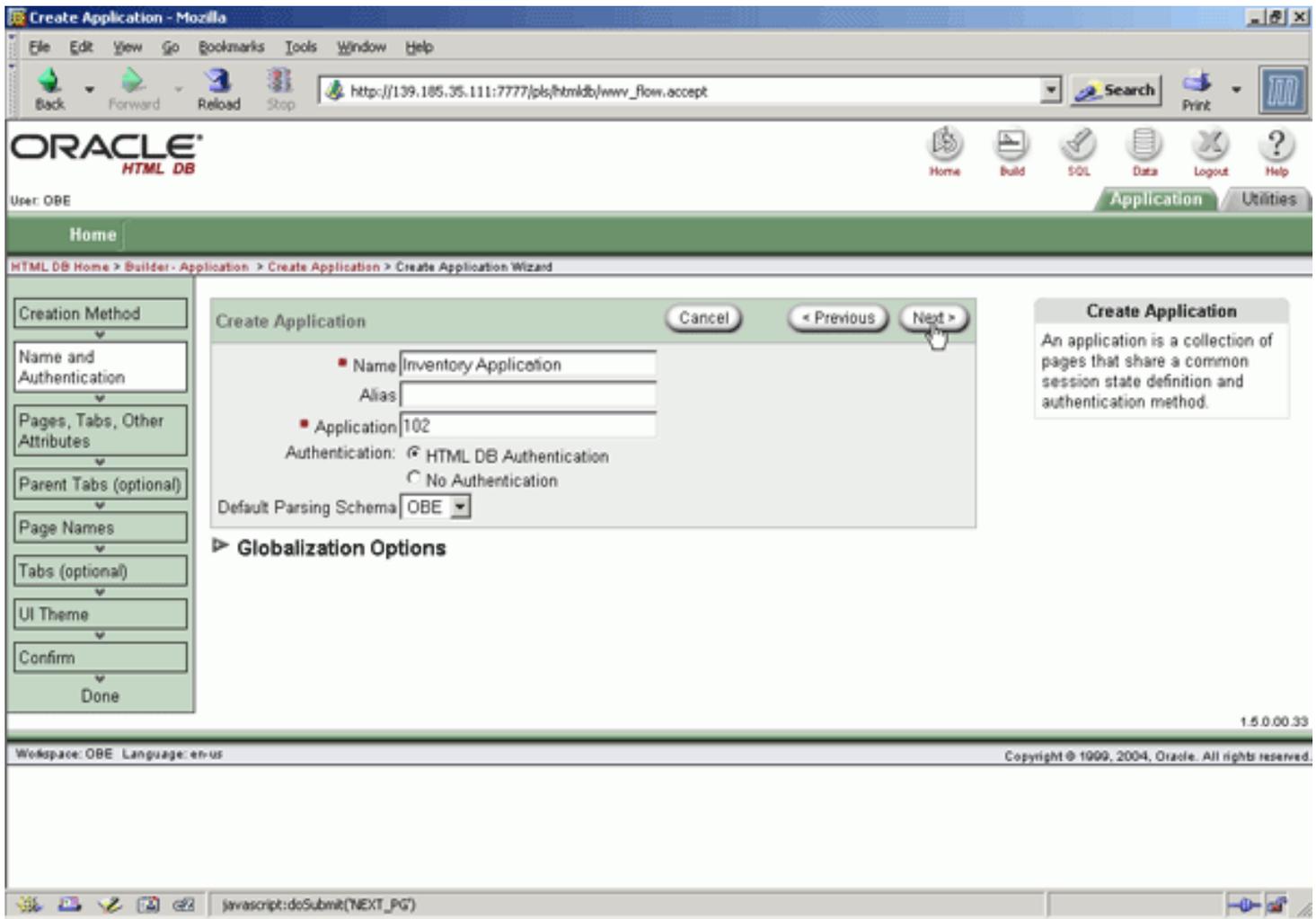
4. Make sure One Level of Tabs is selected, then click **Next** .

5. For Page Name #1 enter **Inventory Report** and for Page Name #2 enter **Manage Inventory** . Then click **Next** .
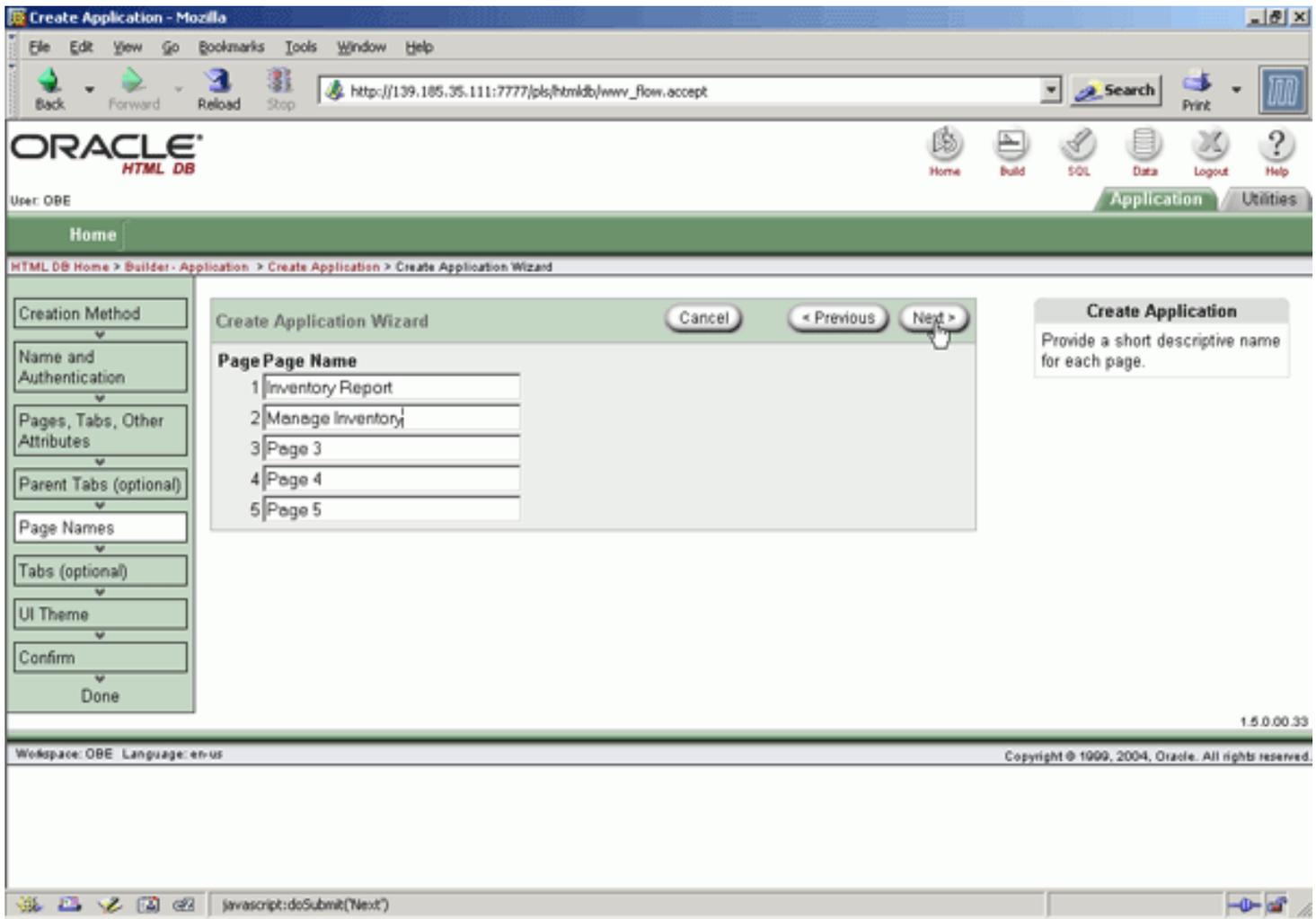
6. Make sure that the Tab Name is the same as the page name and click **Next** .

7. Click the Theme **Red** and click **Next** .

8. Review the attributes you selected and click **Create Application** .

9. Your application has been created. Click **Run** to see the application.
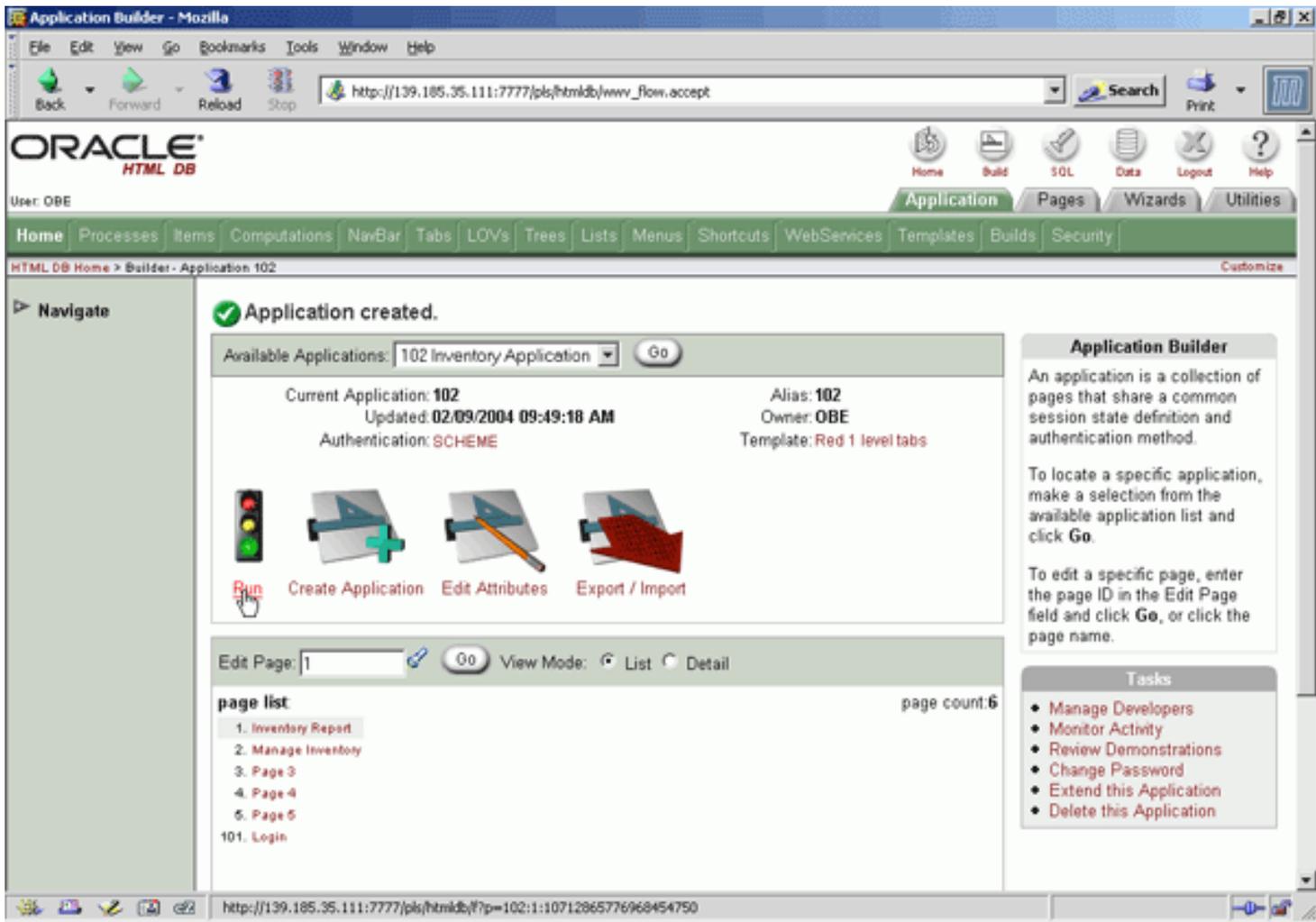
Enter your username and password and click **Login** .

10.
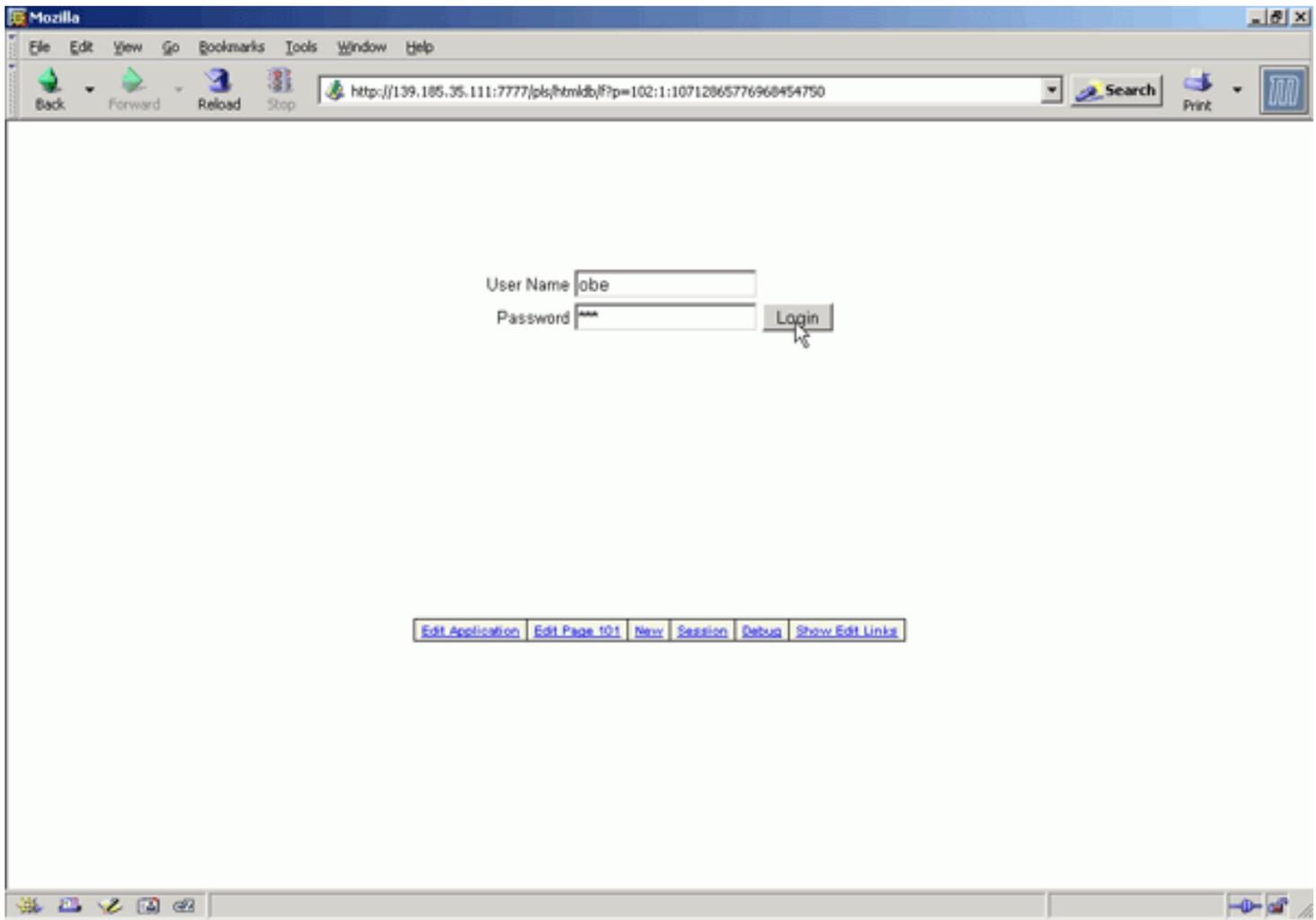
11. You see that the skeleton application was created with the tabs you specified through the wizard screens. Click the **Manage Inventory** tab.
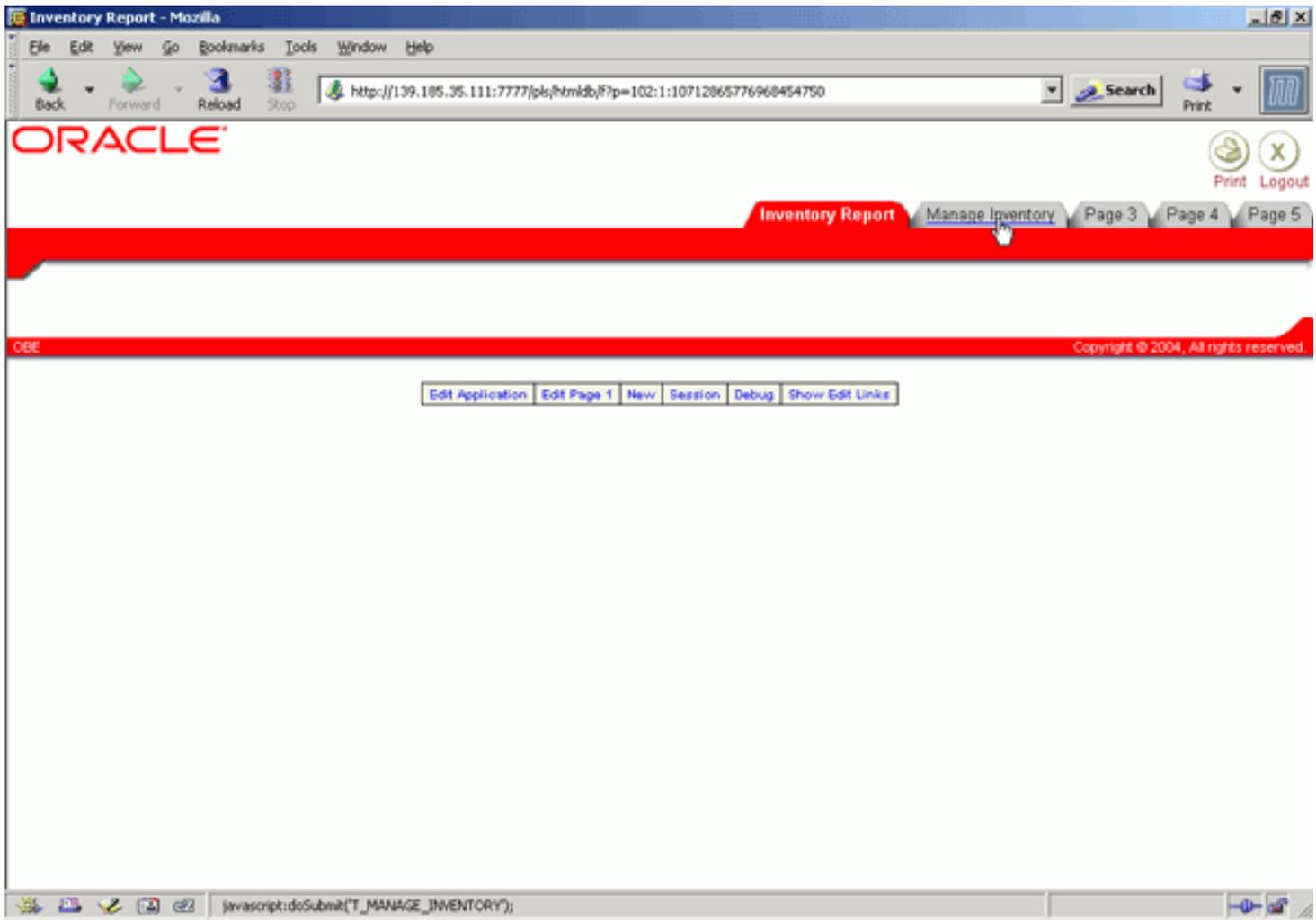
You will now add a report to the Inventory Report tab. Click **Inventory Report** .

12.
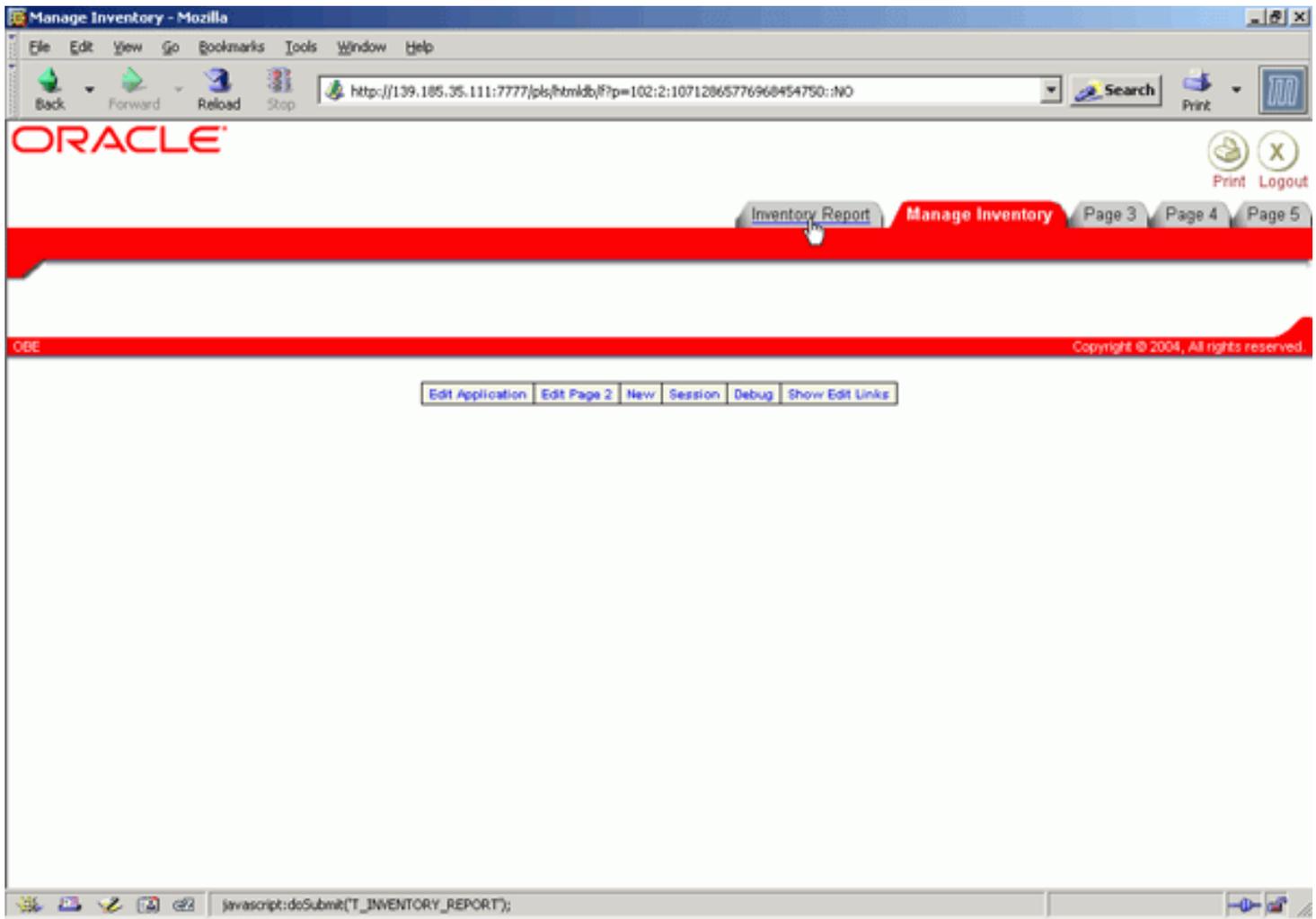
Adding a Report

You will create a new report on the Inventory Report tab. Perform the following:

1. Click the **New** link to create a new component on this page.
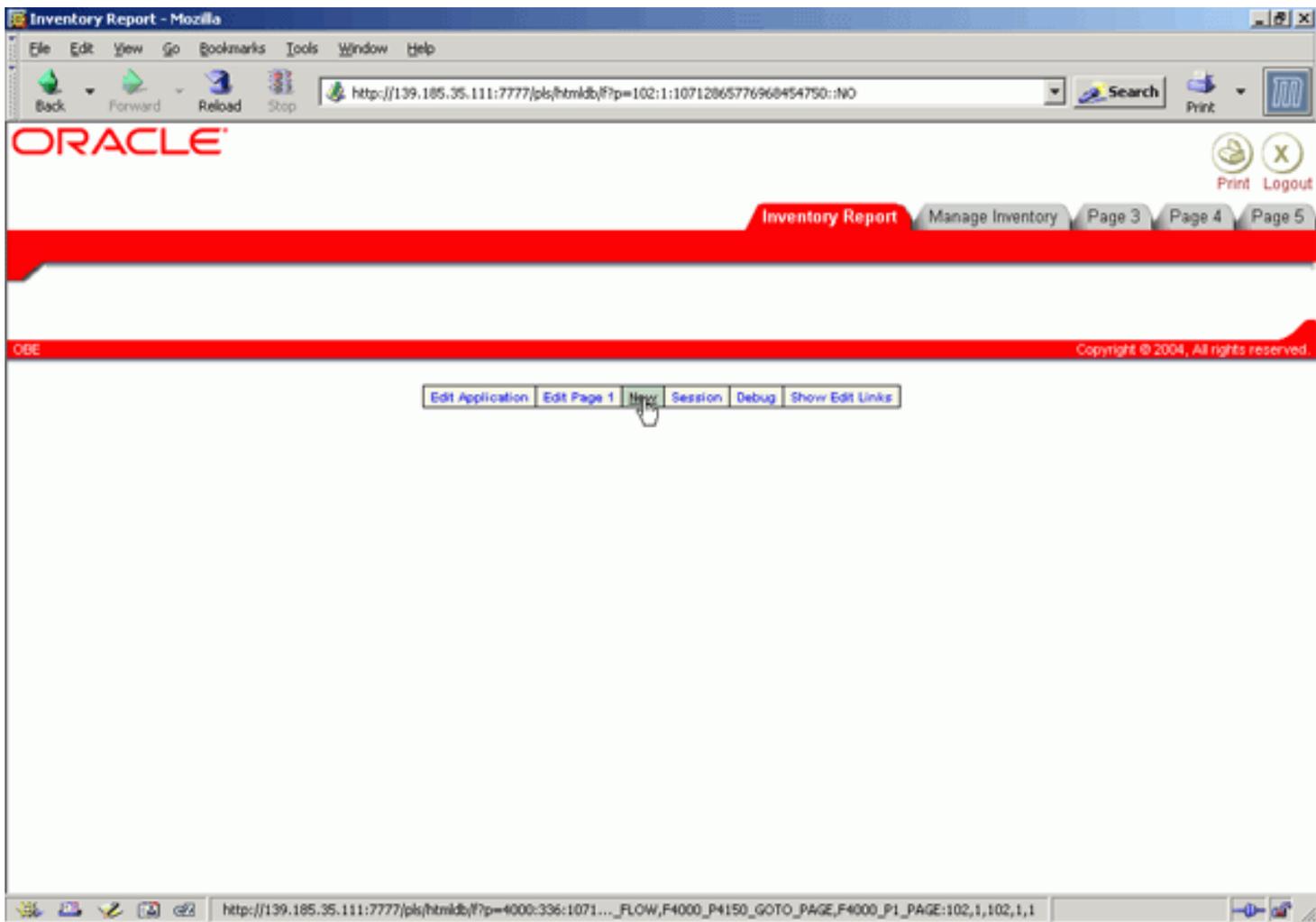
2. Make sure that the **Component** radio button is selected. Then click **Next** .
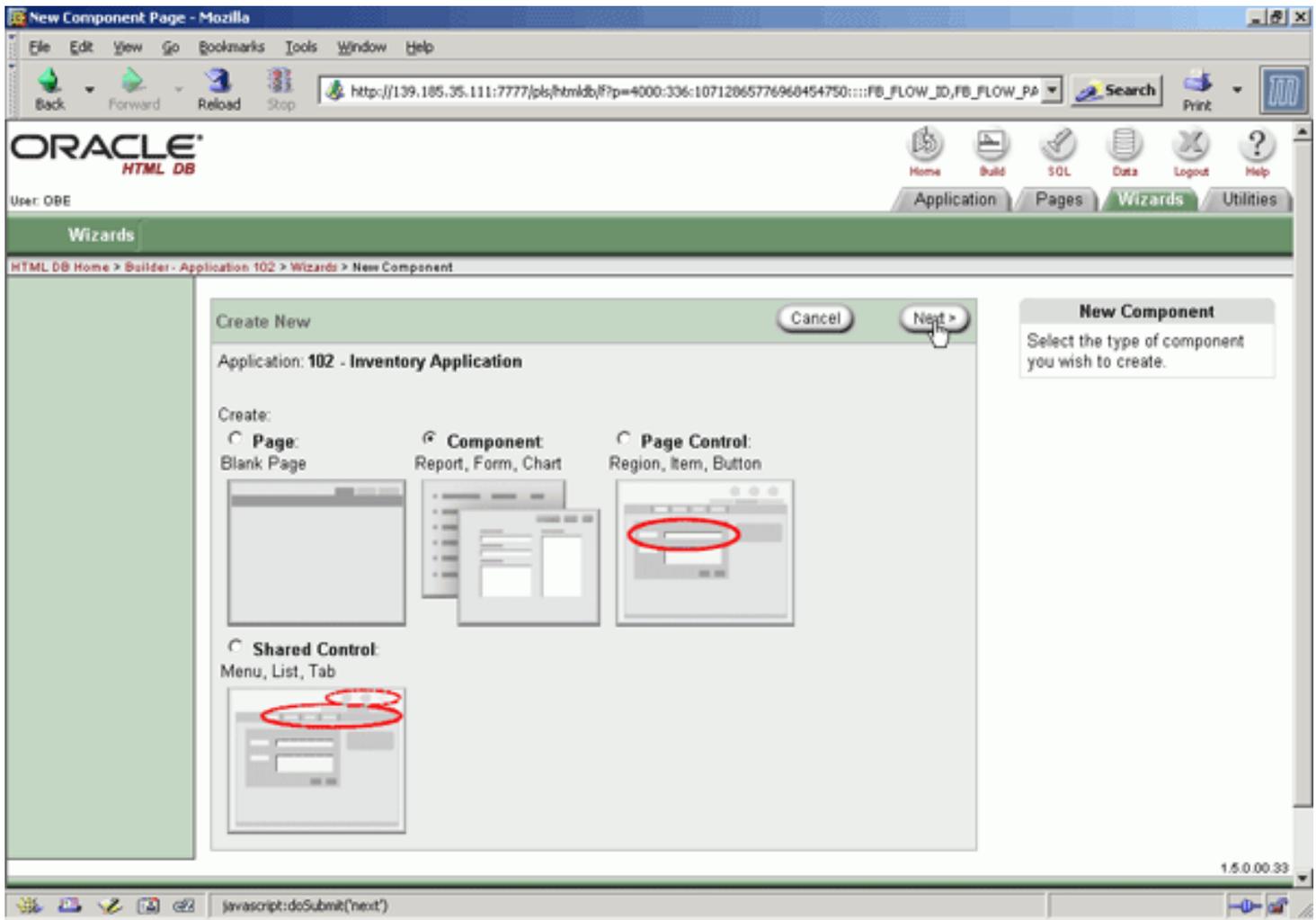
3. Make sure that the **Report** radio button is selected. Then click **Next** .
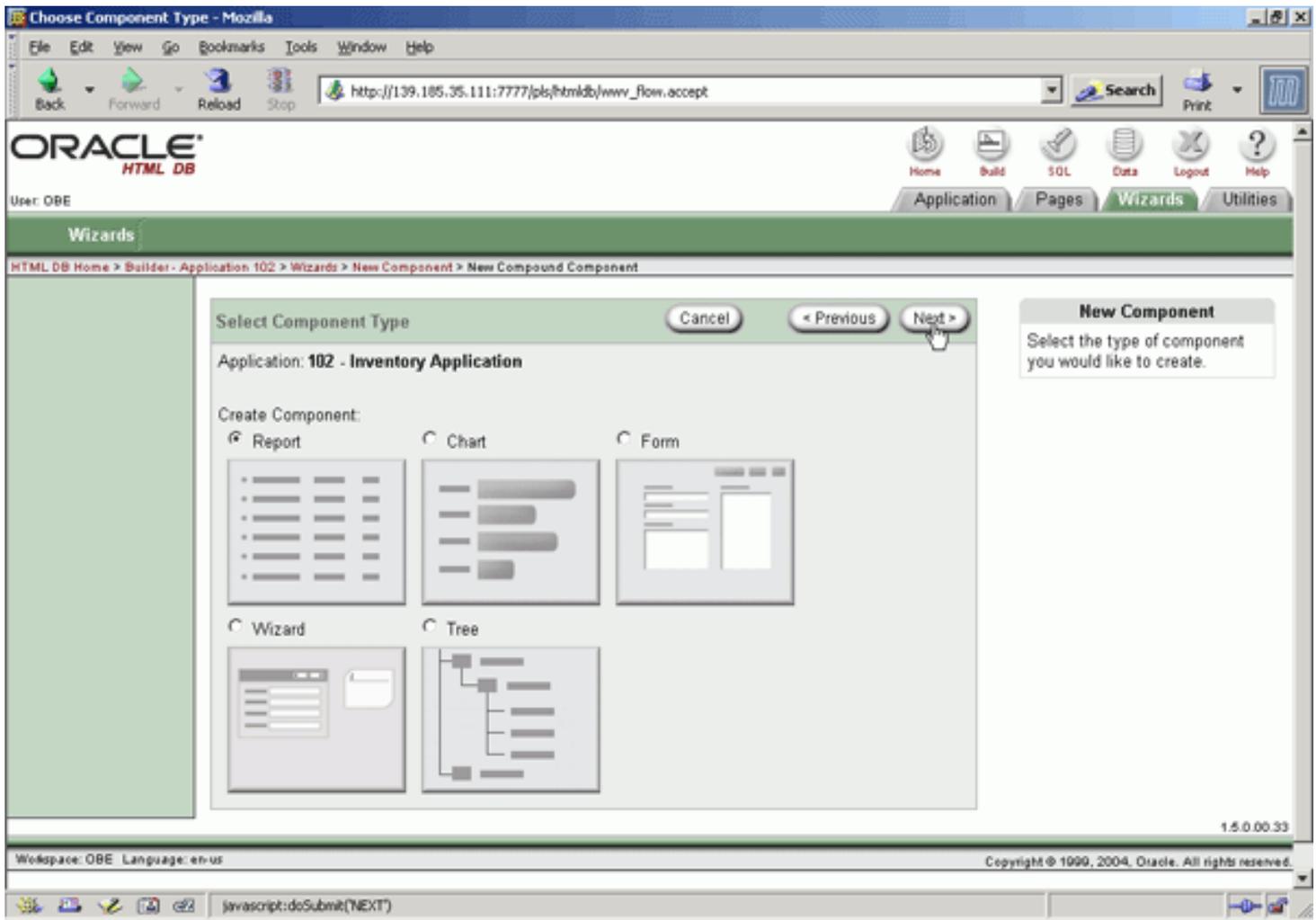
4. Make sure that the **Easy Report** radio button is selected. Then click **Next** .
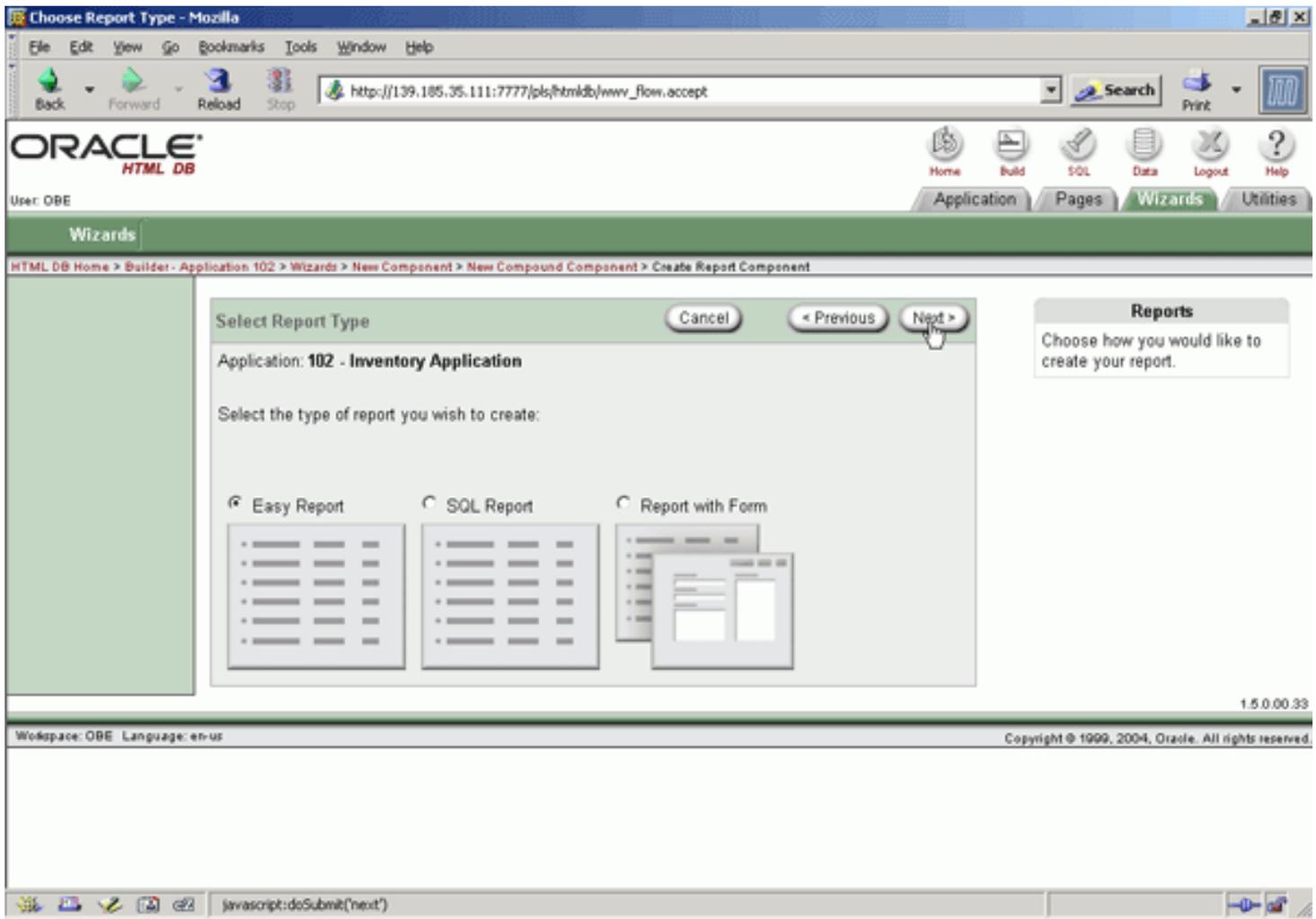
5. Enter **Report** for Page Title and **Hardware Inventory** for Region Title. Then click **Next** .
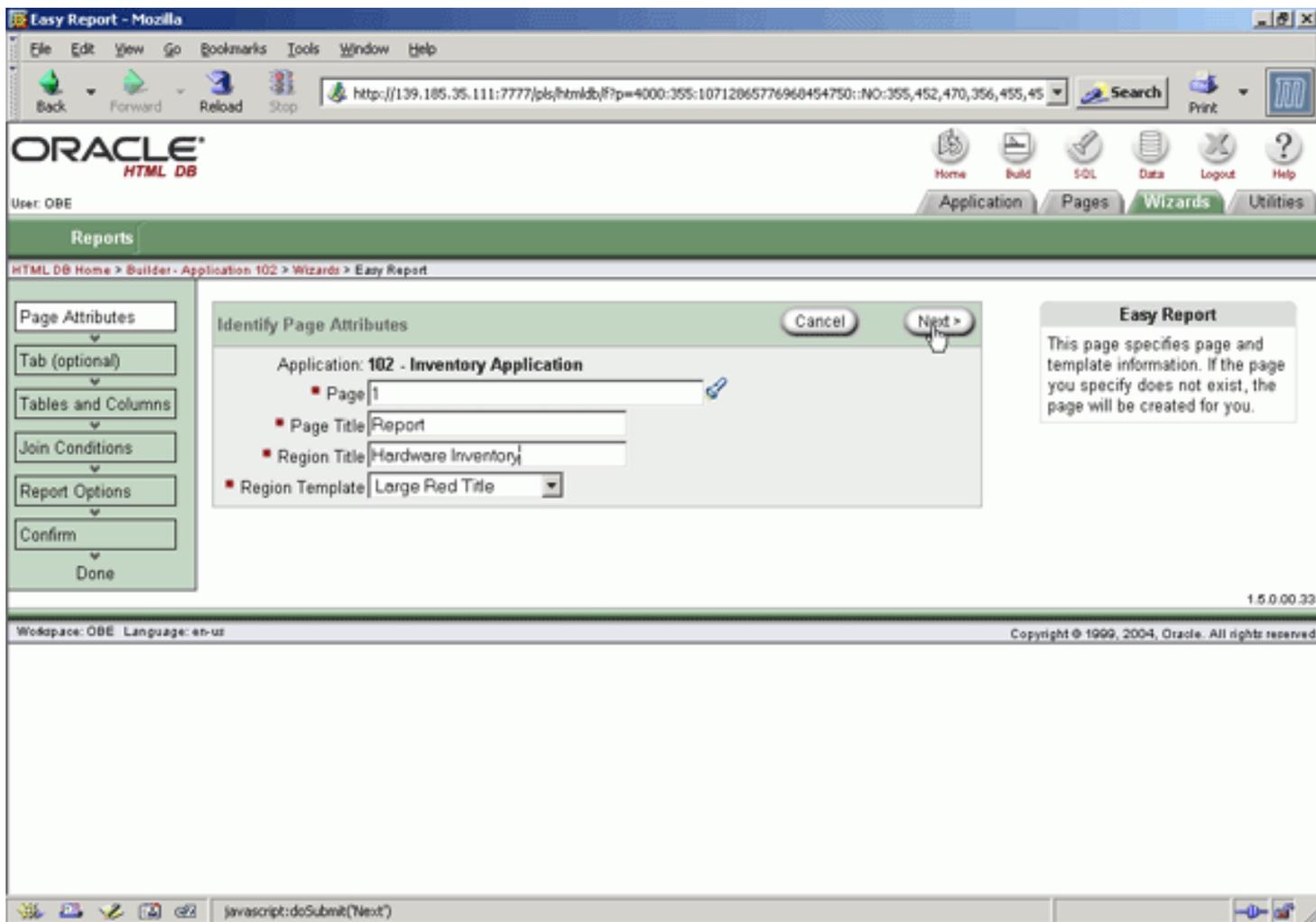
6. Make sure **INVENTORY** is select for Table/View. Select **all the columns** in the Available Columns *except* for BRAND_ID then click **>.**
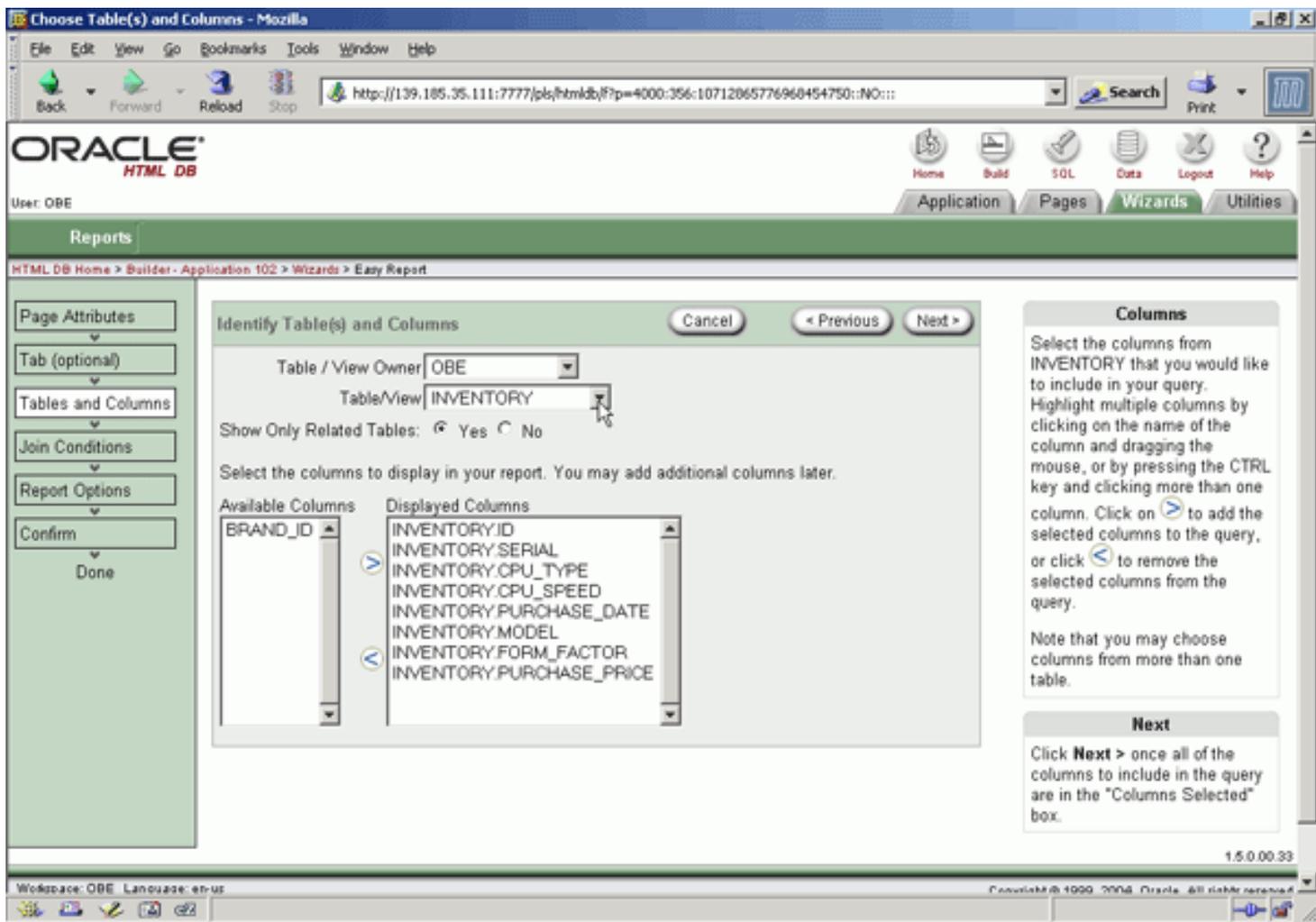
7. Select the table **INV_BRAND_LKUP** from the Table/View drop down list box. Select **Brand** from the list of the Available Columns and click **>** . Then click **Next.**

8. Click **Next** to accept the default Join condition.
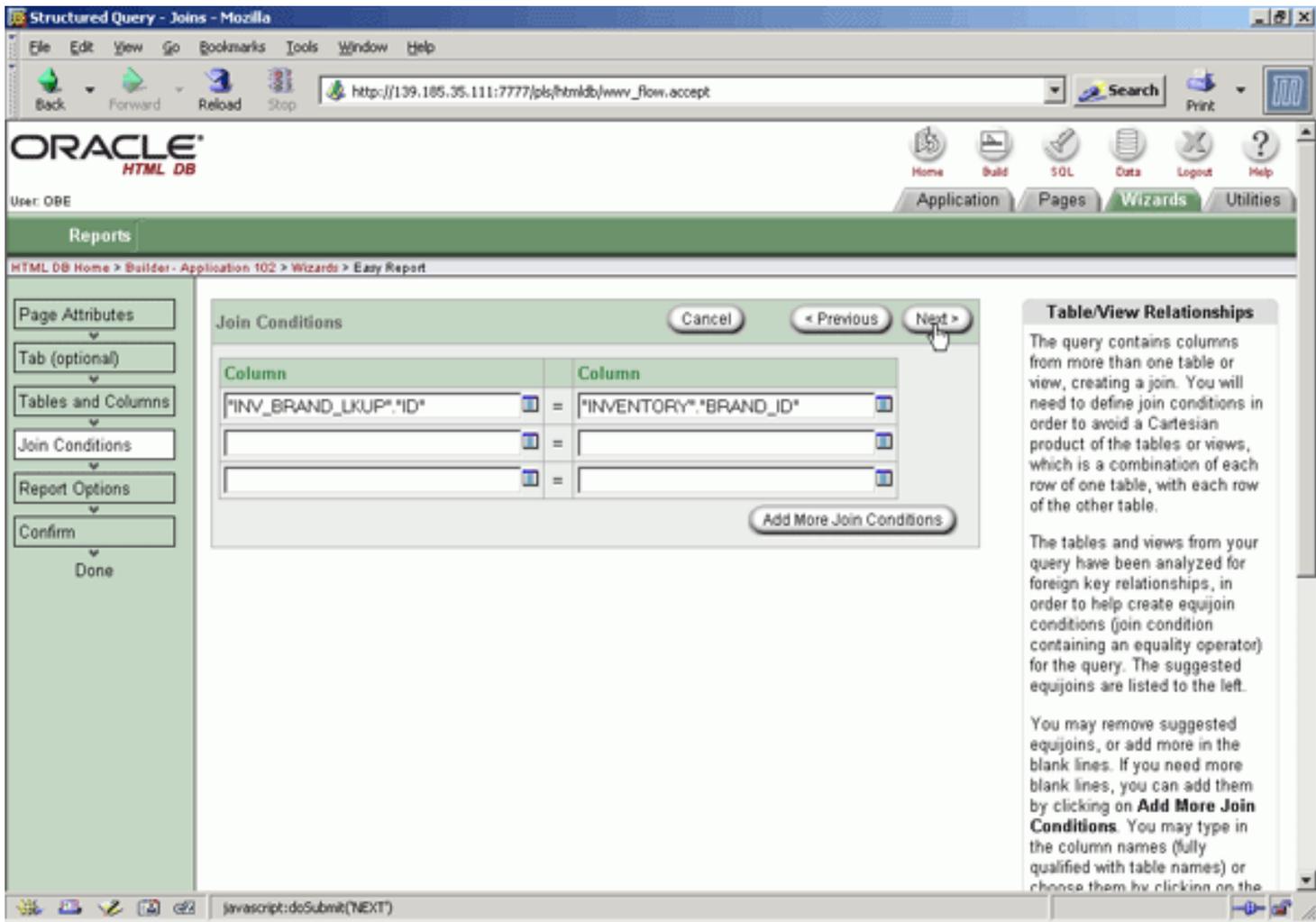
9. Click the **Use Column Heading Sorting** checkbox. Click **Next** .
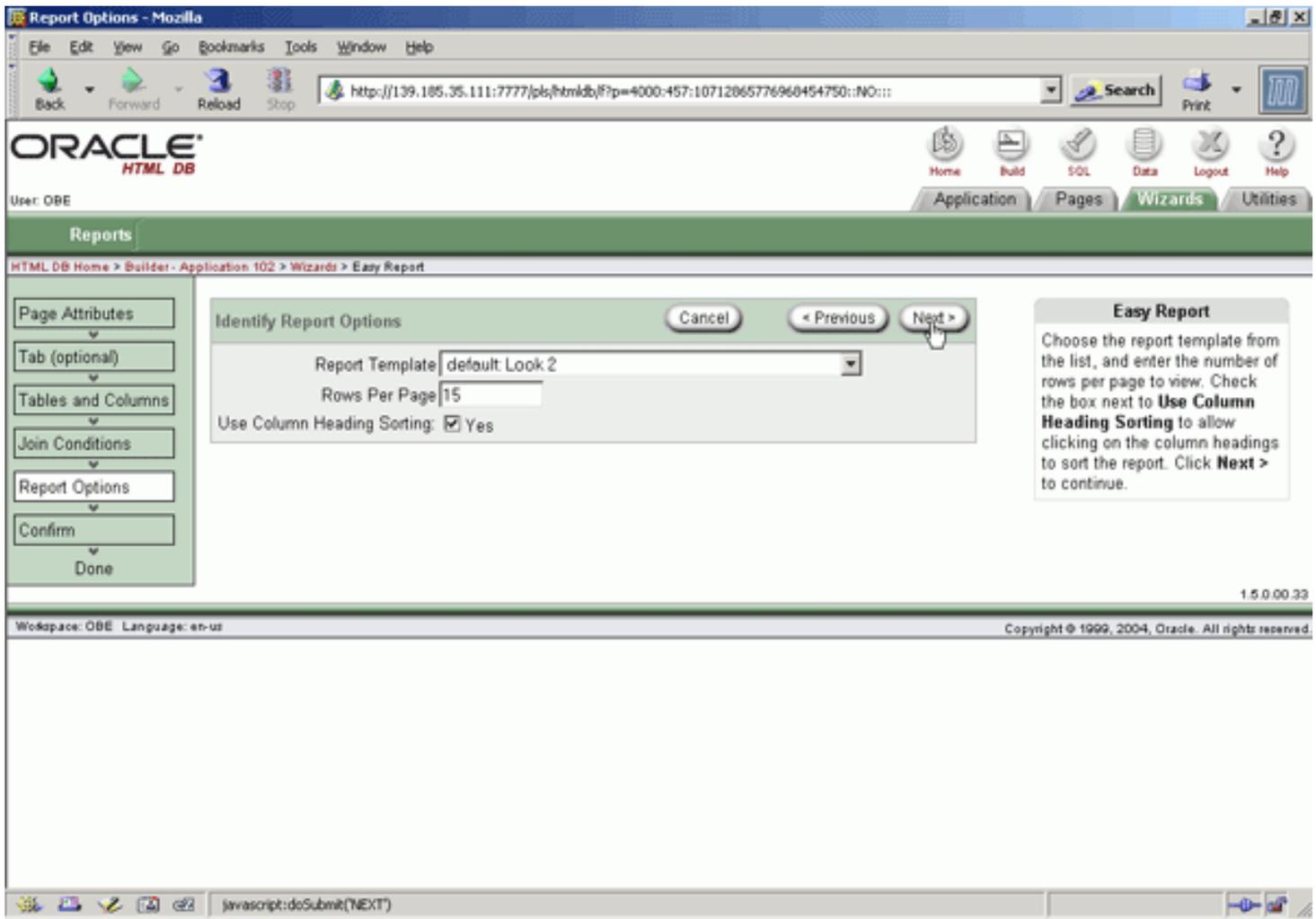
Review the reporting attributes and click **Create Report Page** .

10.
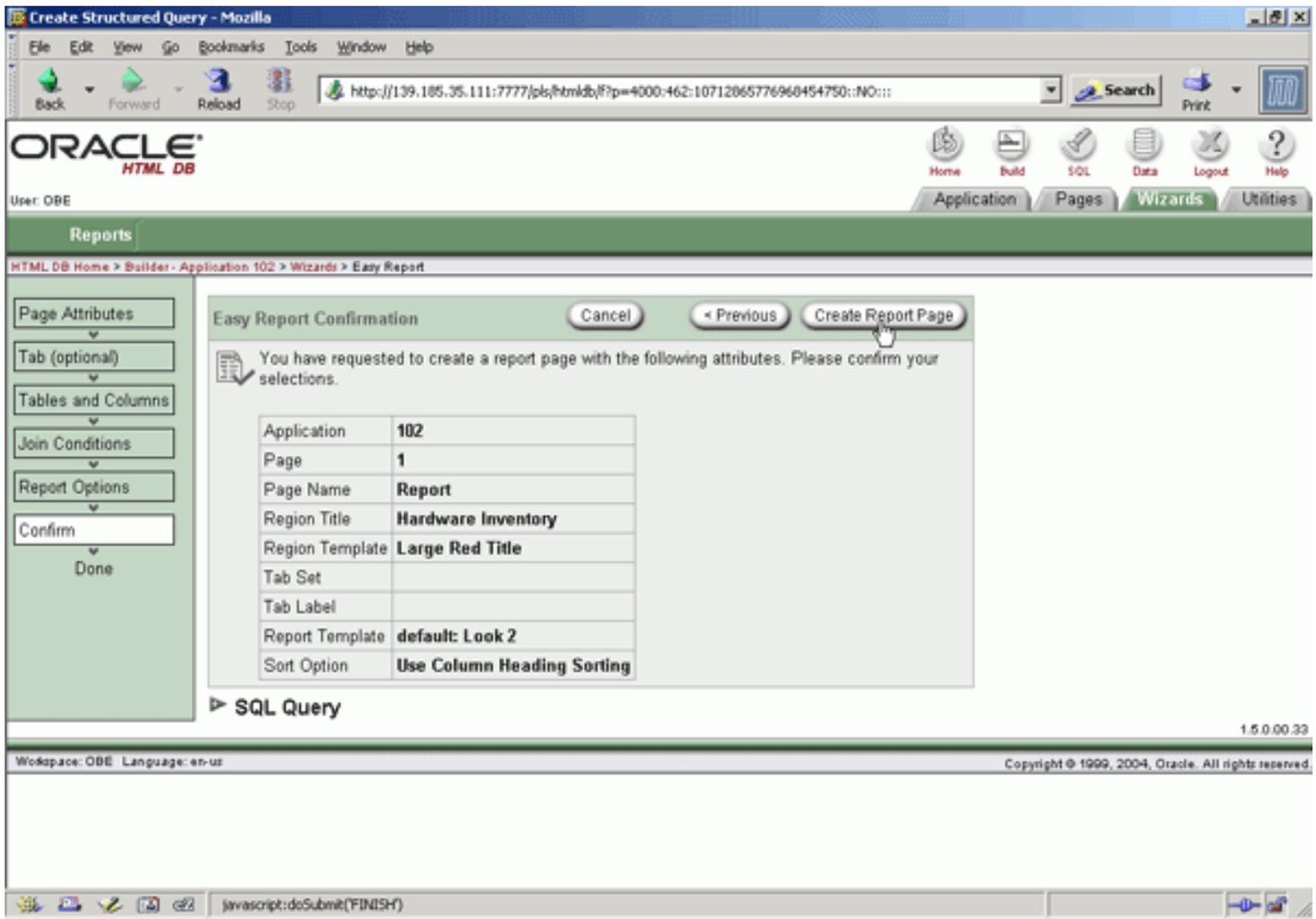
Click **Run Page** .

11.
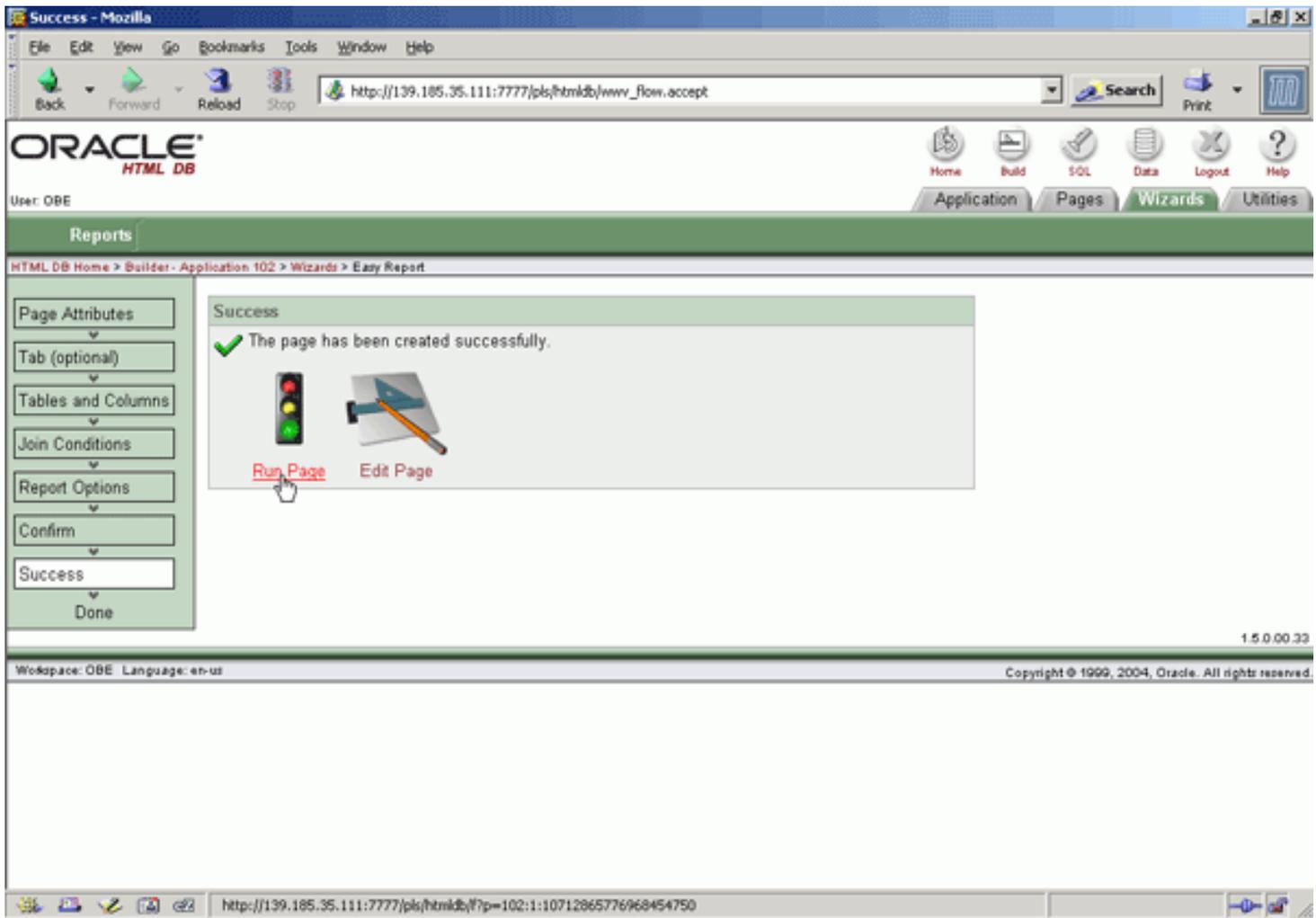
12. The report you just created appears. All the data is retrieved from the Inventory table you created previously. All the code was automatically generated by HTML DB! Click **Next** link at the bottom to show the next 15 rows.

You can sort by a particular column. Click **Cpu Type** to sort.

13.

Adding a Form

You will want the user to be able to change the data in the table so the application needs to contain a form. Perform the following:

1. Click the **Manage Inventory** tab. This is the page where you will add the form.

2. Click the **New** link to create a new component on this page.

3.   Make sure that the **Component** radio button is selected. Then click **Next** .
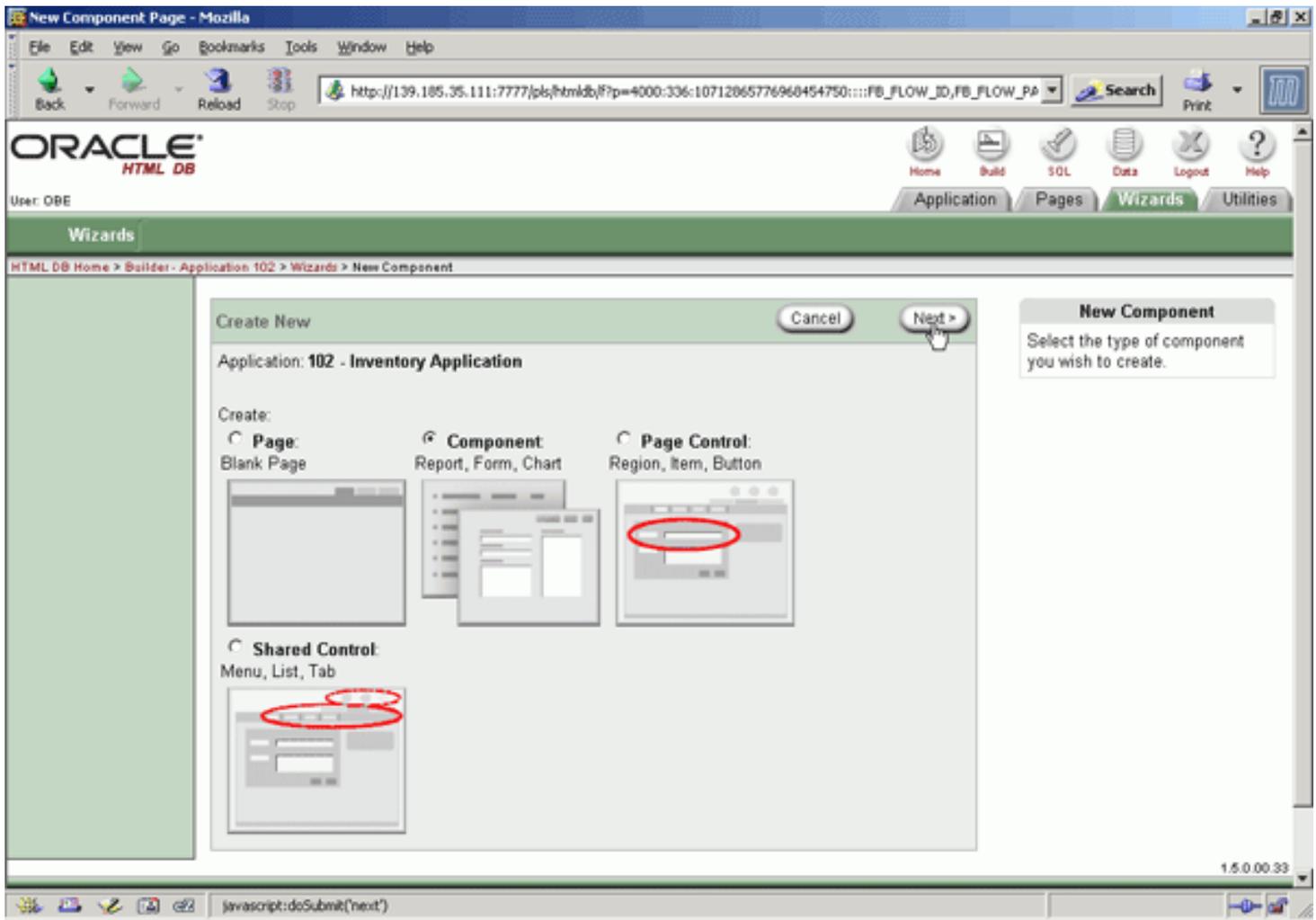
4. Click the **Form** radio button is selected. Then click **Next** .
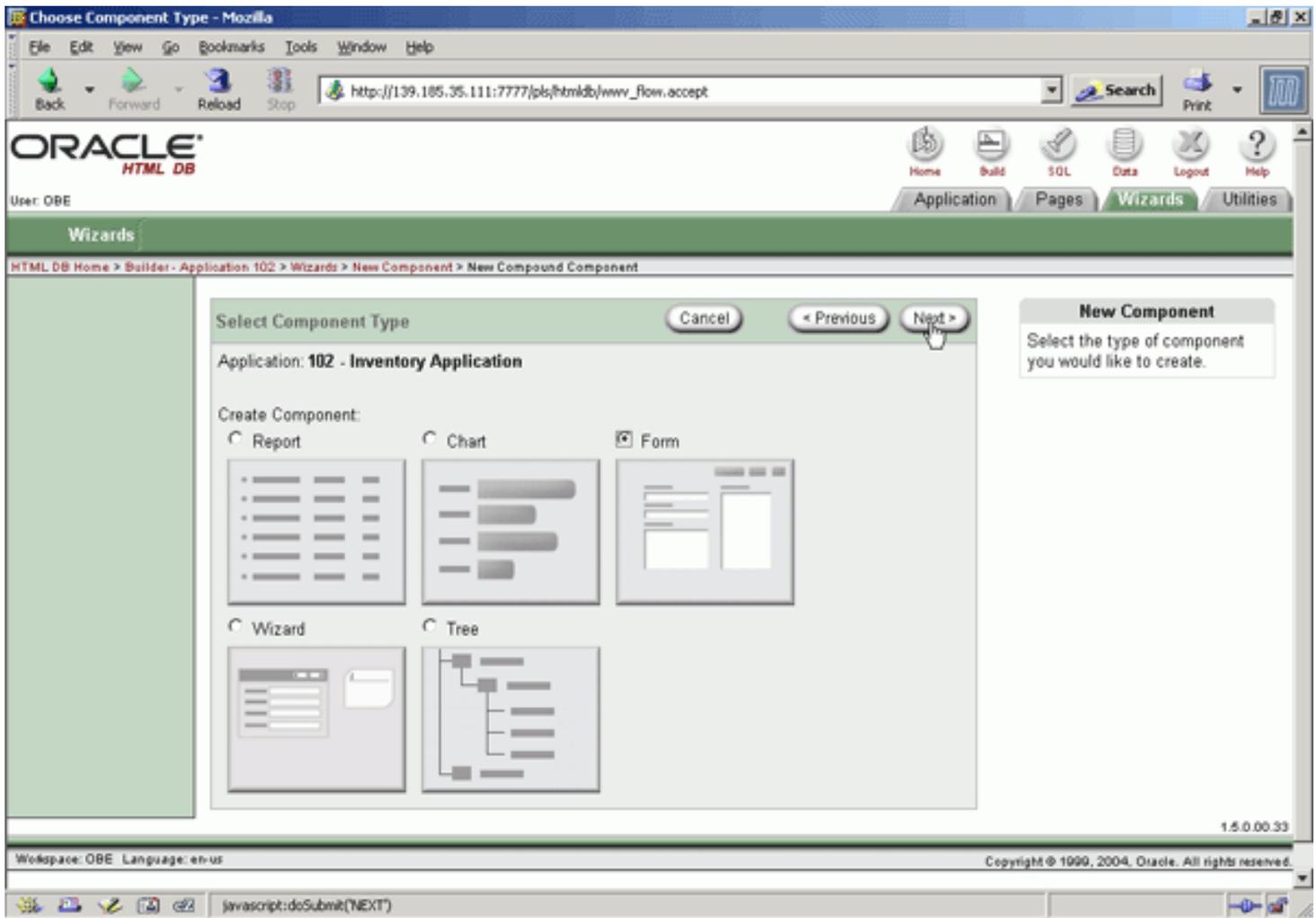
5. Make sure that the **Table** radio button is selected. Then click **Next** .
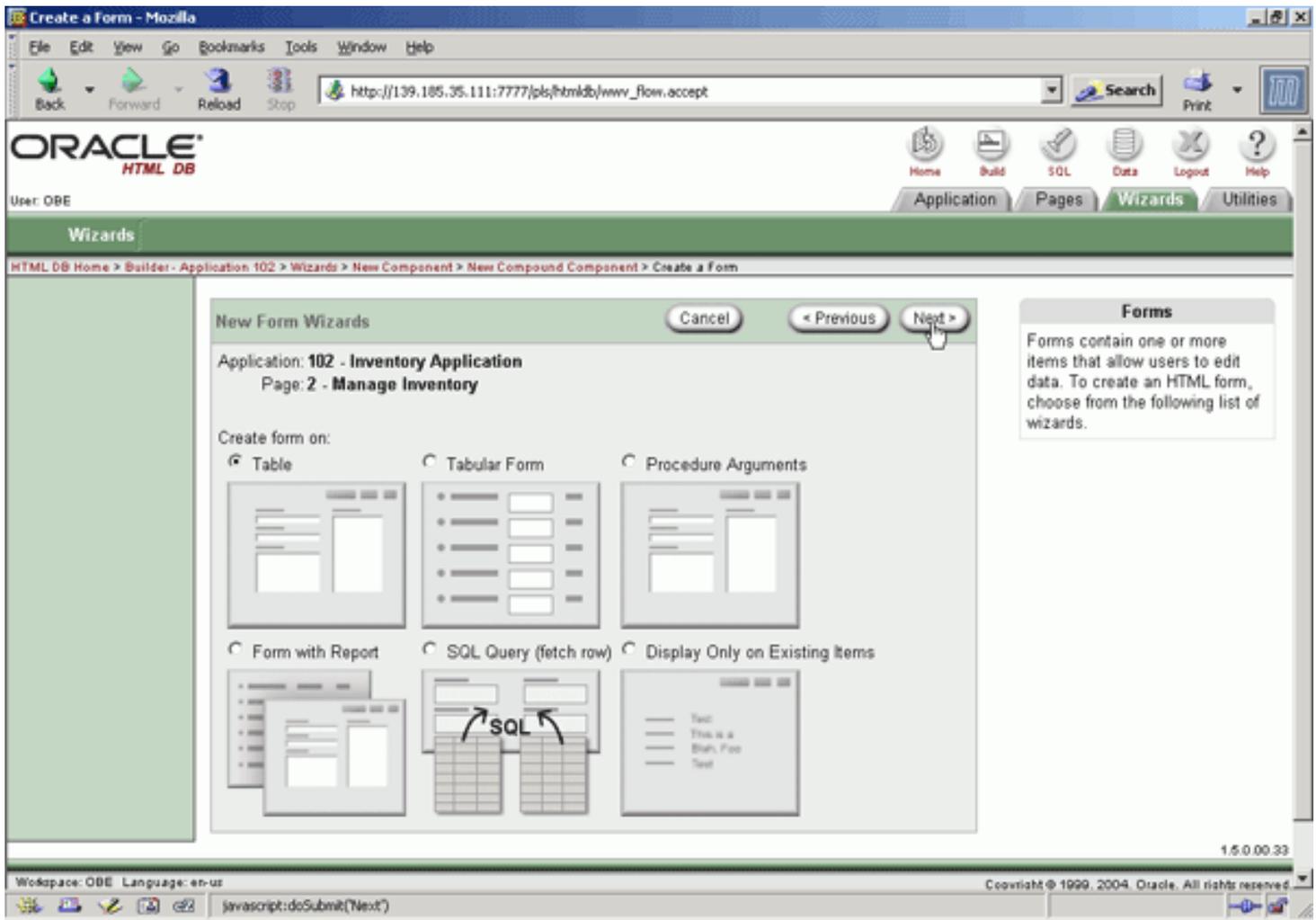
6. You should be listed as the Table / View Owner. Click **Next.**
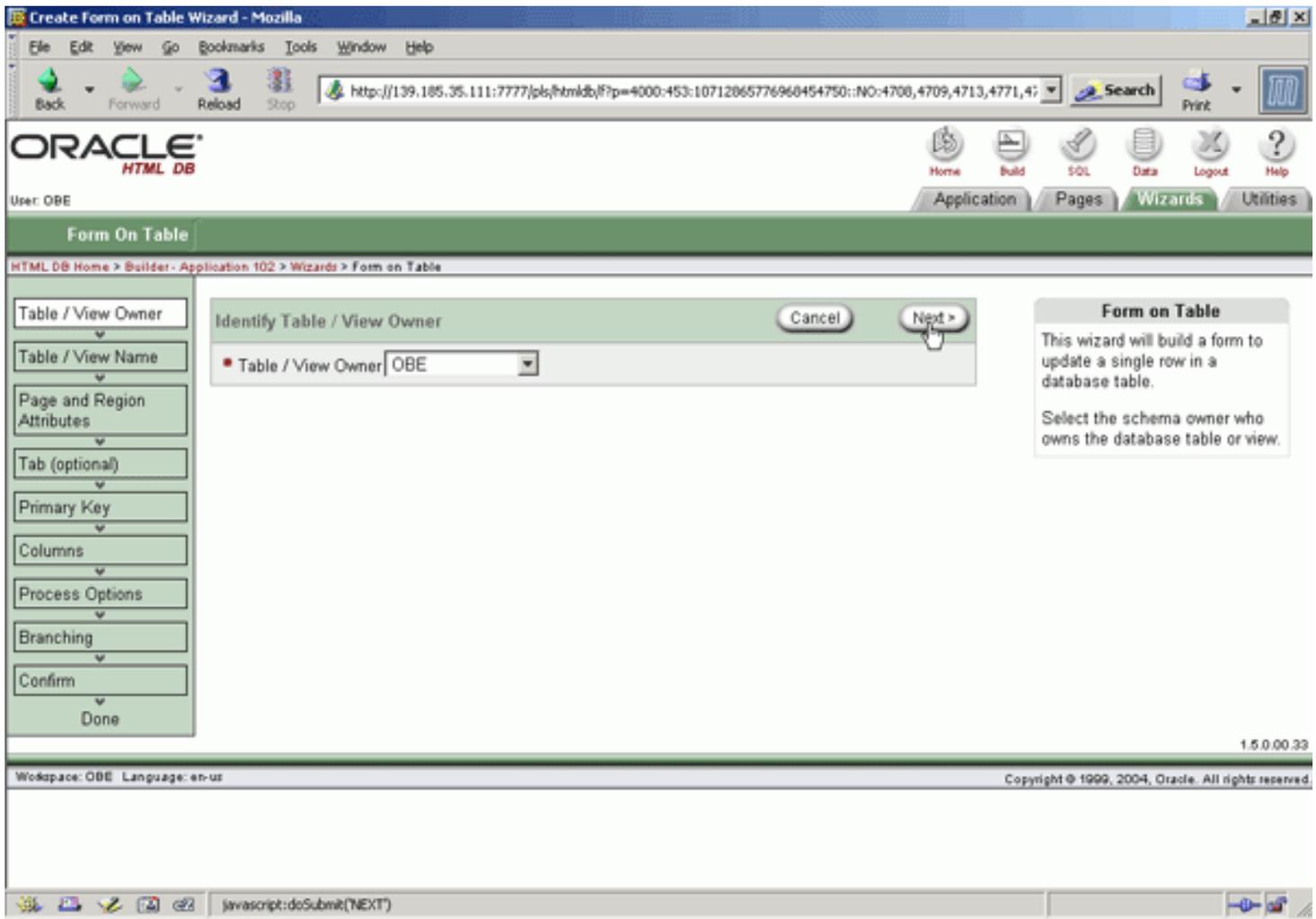
7. Select the **search light** icon to select the table that you want to base this form on.
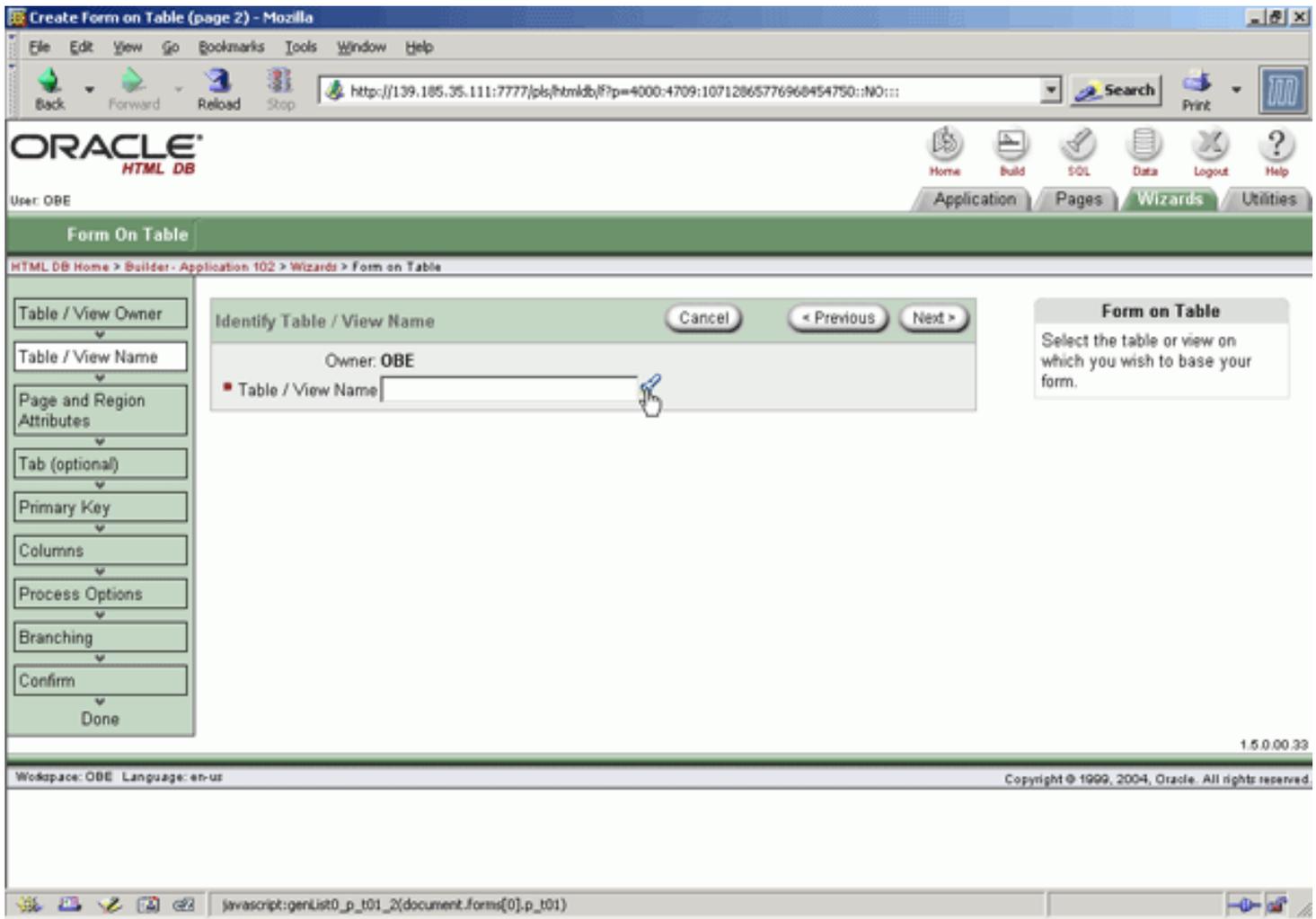
8. Select the **INVENTORY** table from the list.

9. Click **Next** .
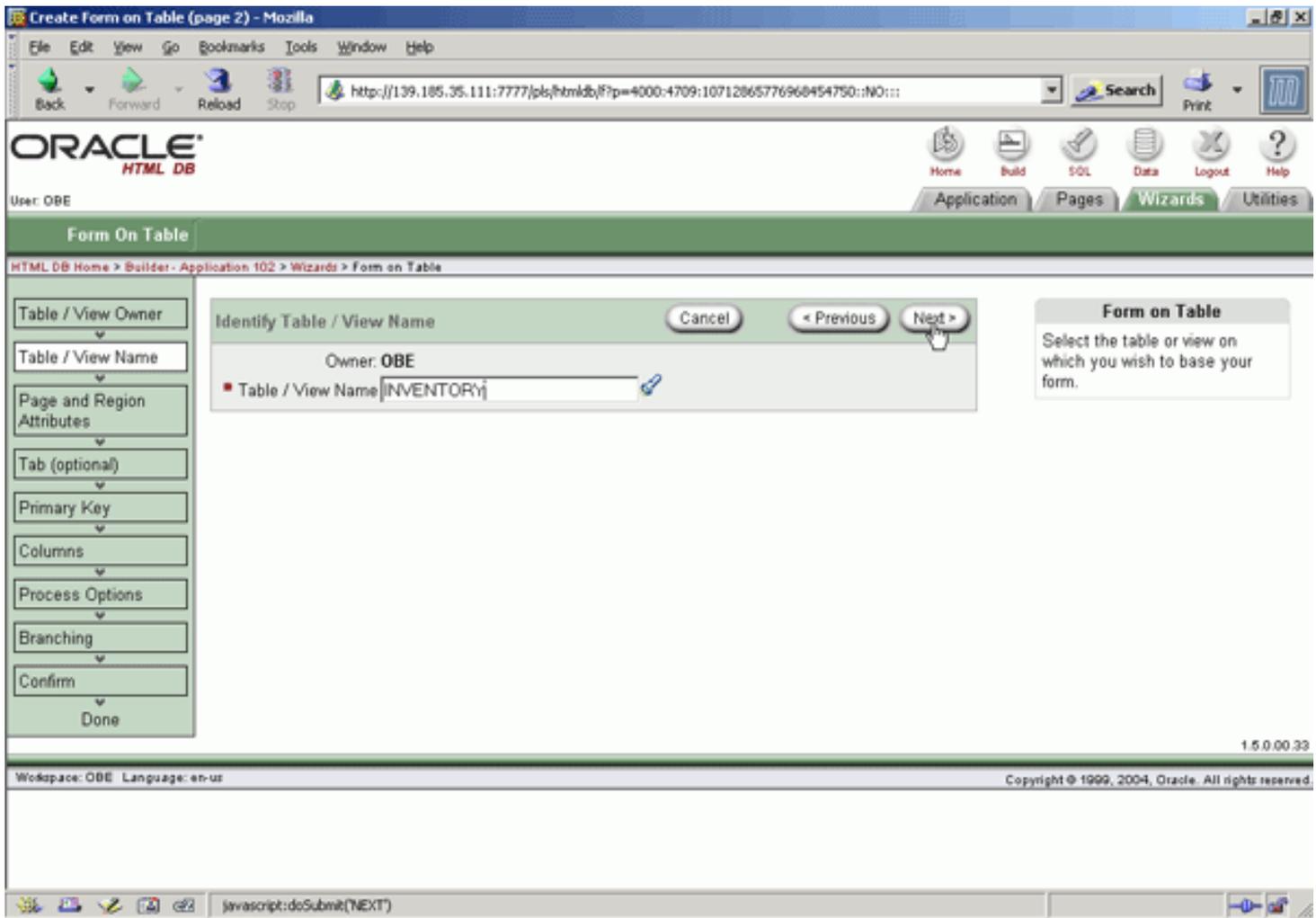
Enter **Form** for the Page Name and **Edit Inventory Item** for the Region Title and click **Next** .

10.
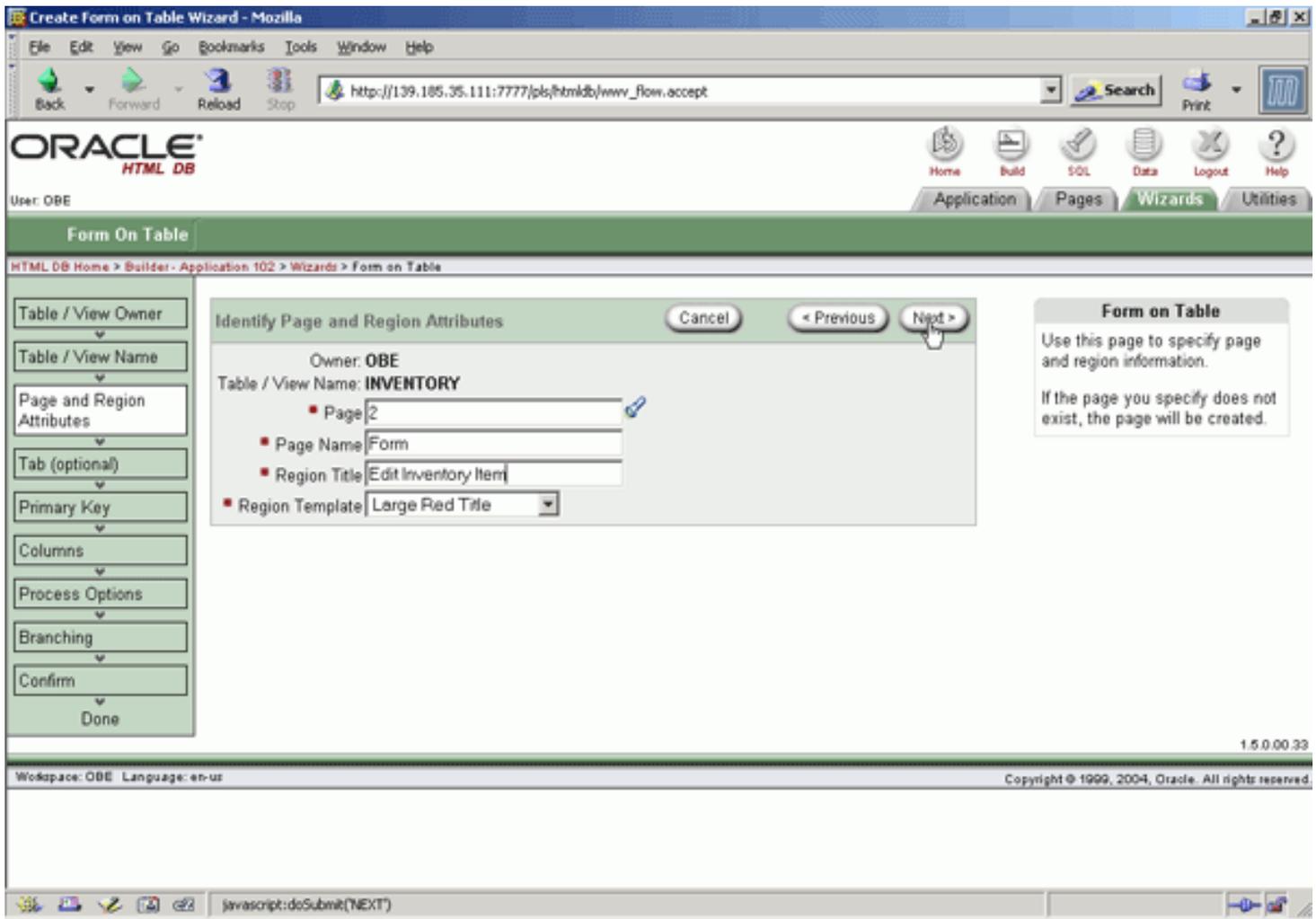
Accept the defaults and click **Next** .

11.
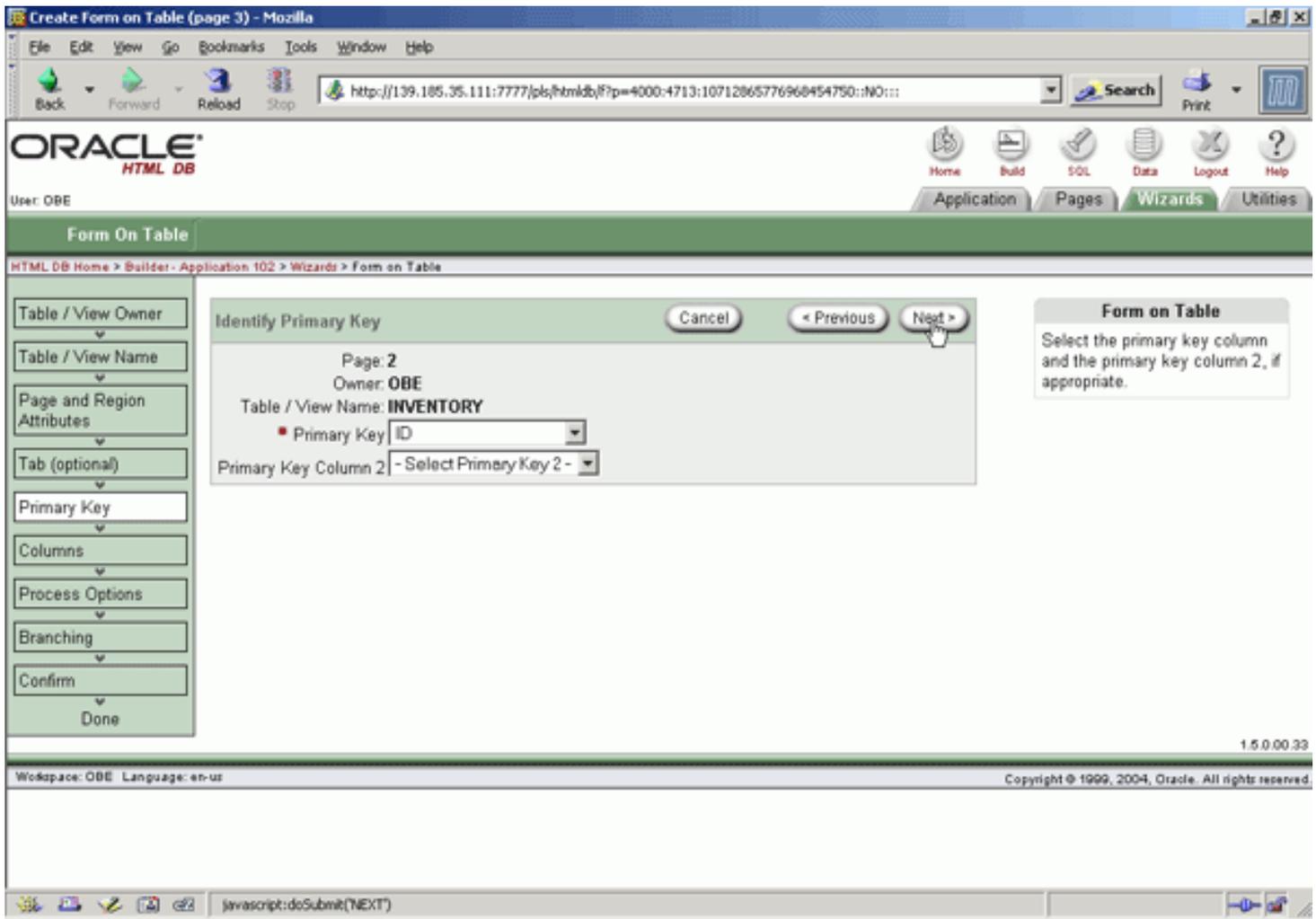
Click **Next** .

12.
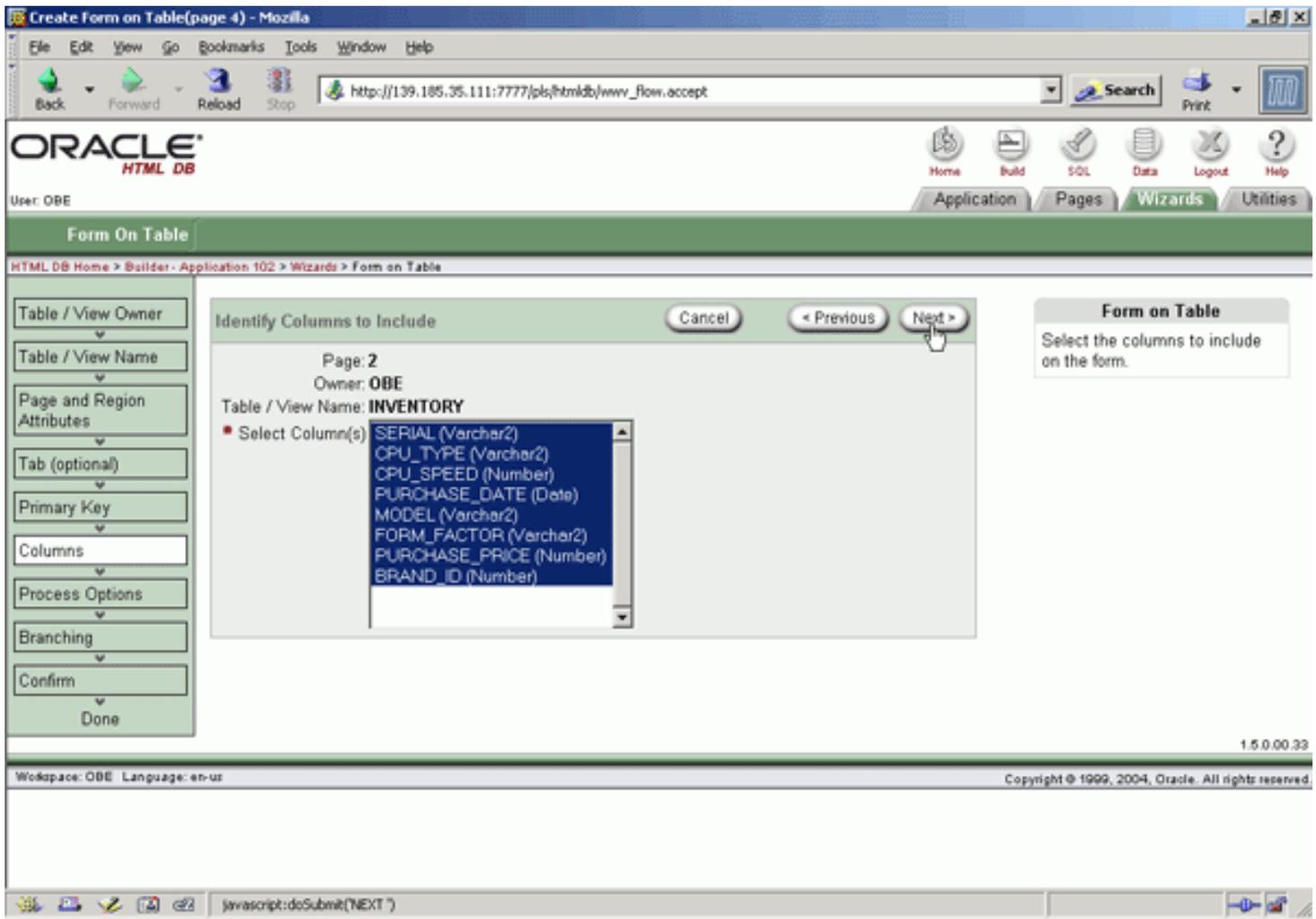
Change the Save Button Label to **Save** and click **Next** .

13.
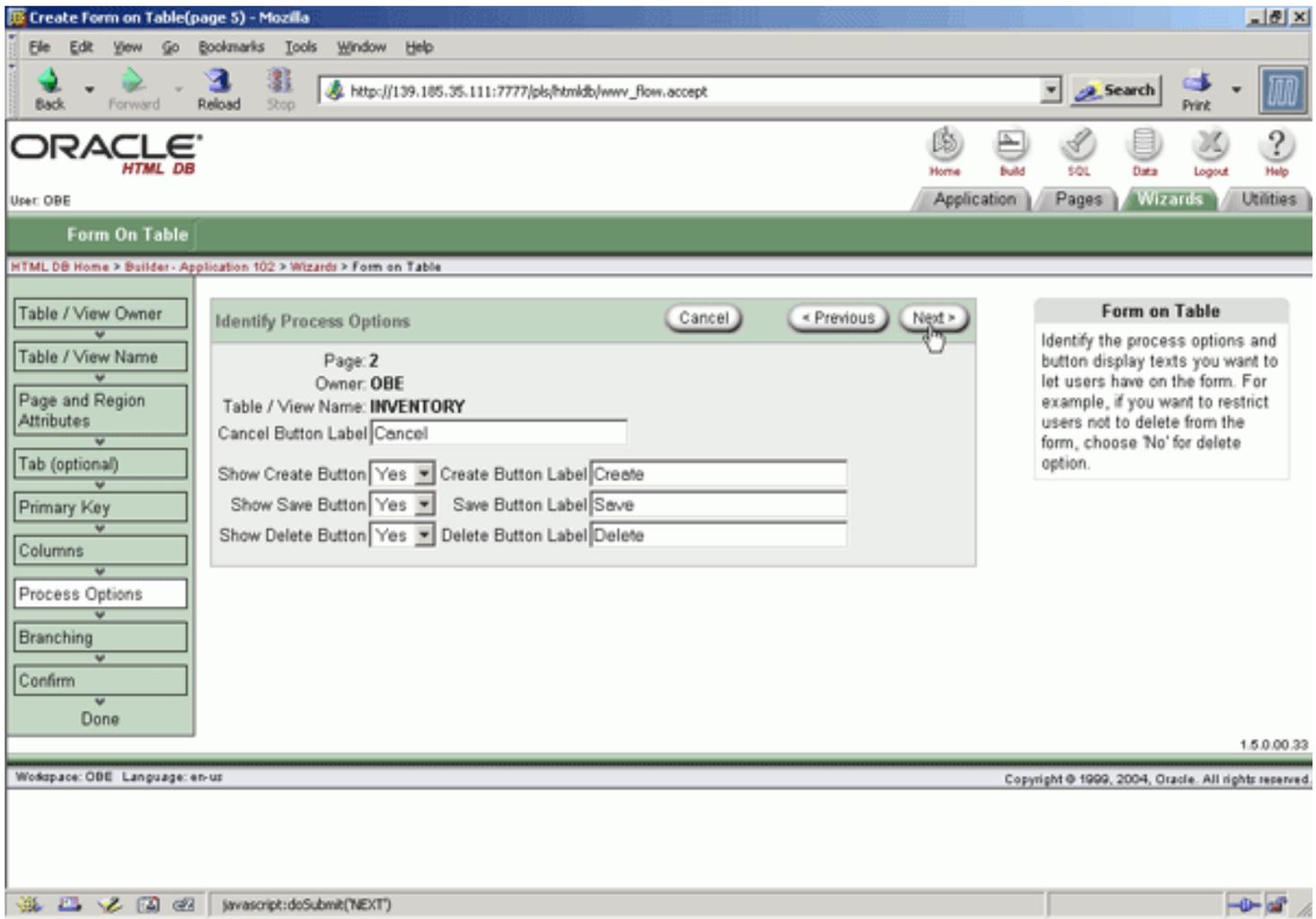
14. Enter **1** for both After Page Submit and Processing Branch to Page and When Cancel Button Pressed Branch to this Page and Click **Next** .
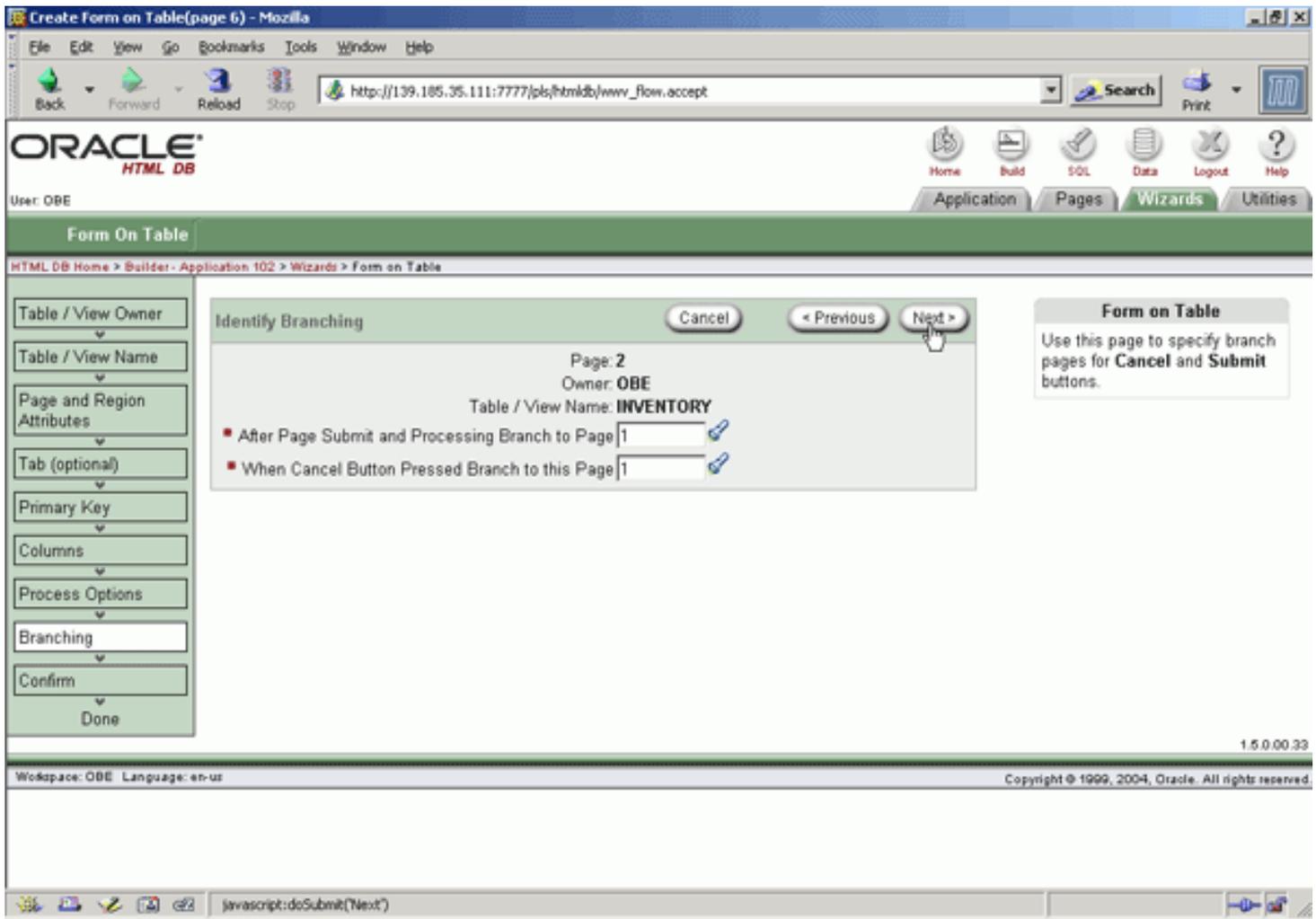
At the confirmation window, click **Finish** .

15.
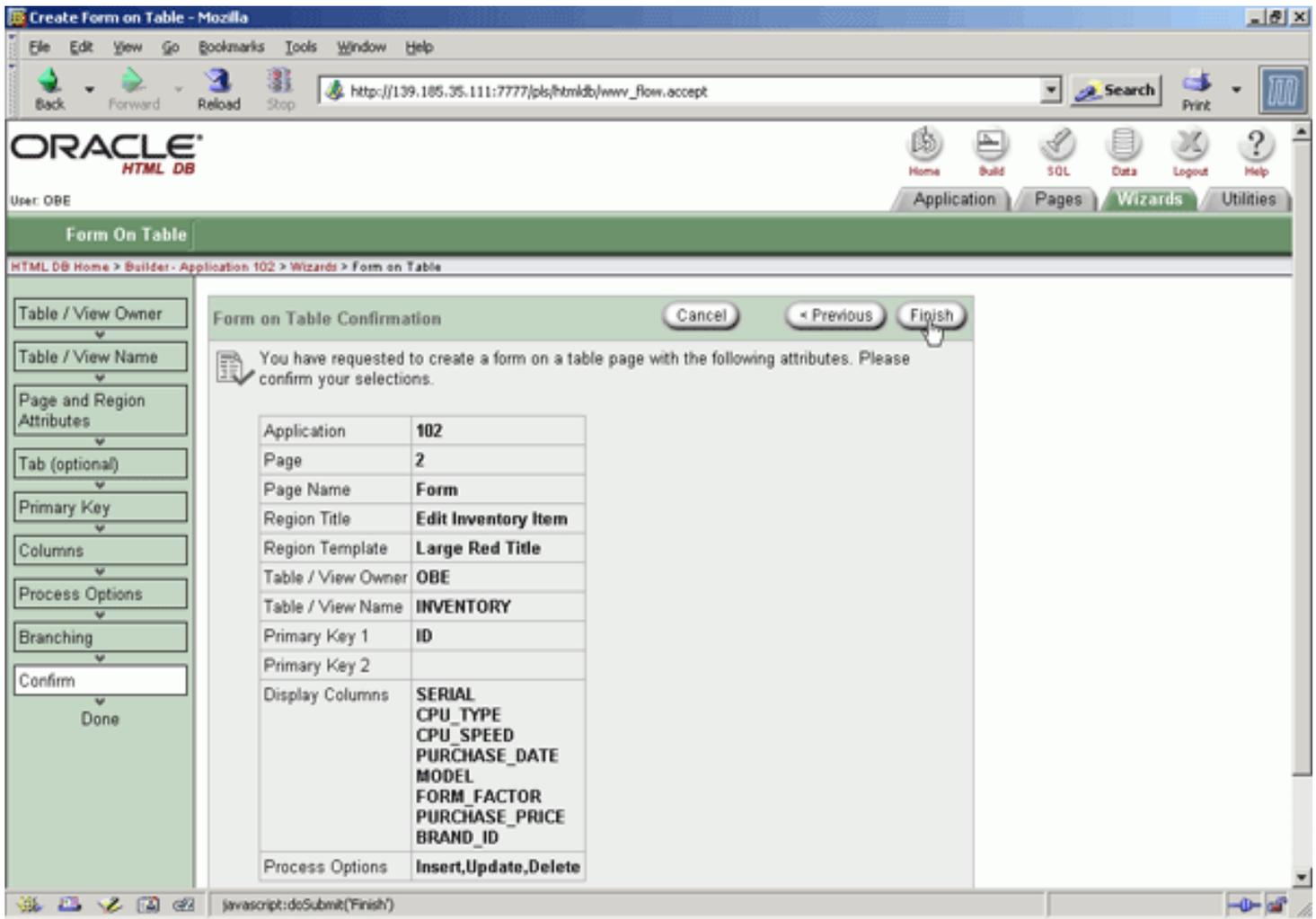
Click **Run Page** .

16.
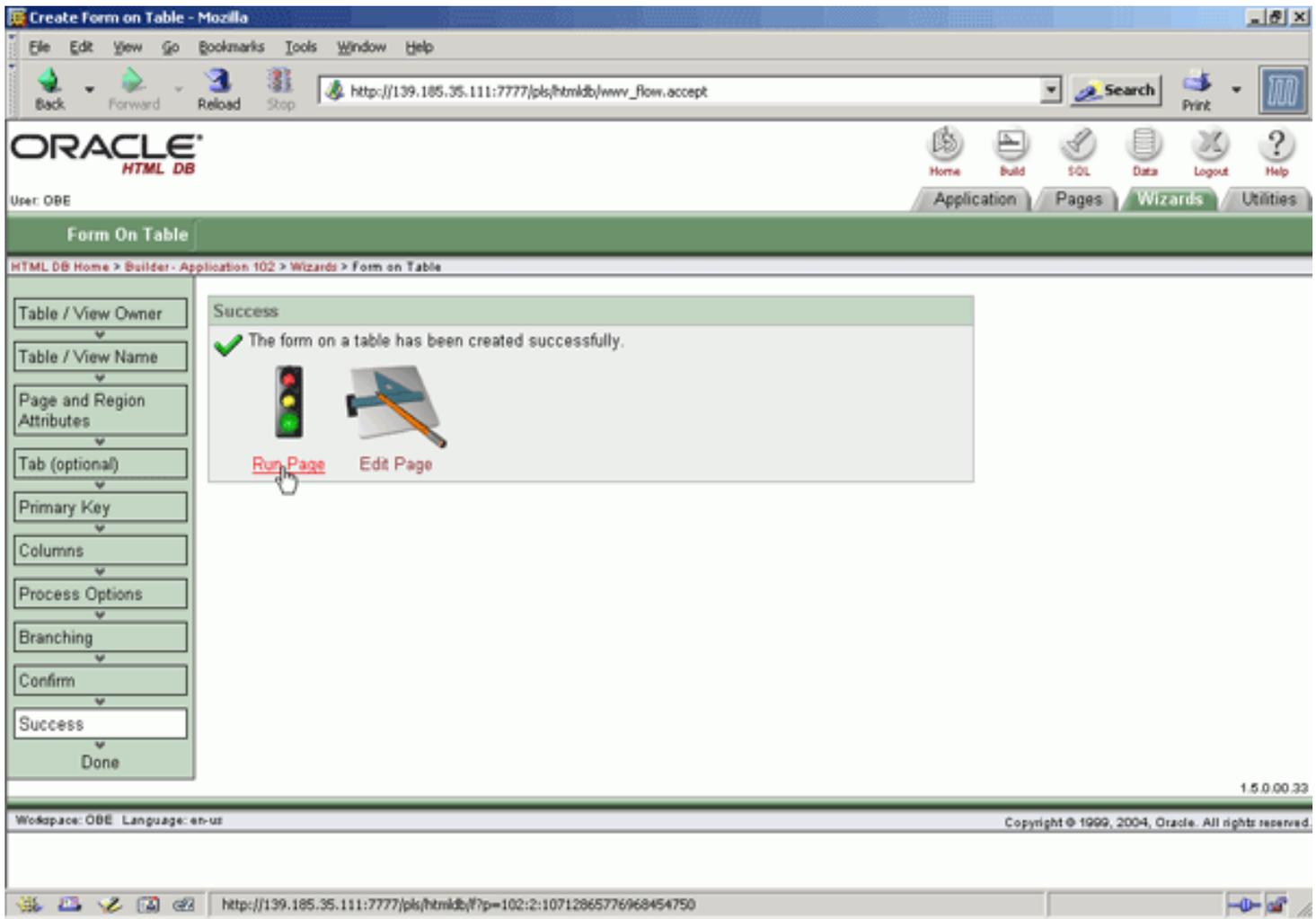
17. Enter **ABC12345** for Serial, **Pentium IV** for Cpu Type and **2000** for Cpu Speed, then click the calendar button to select a Purchase Date.
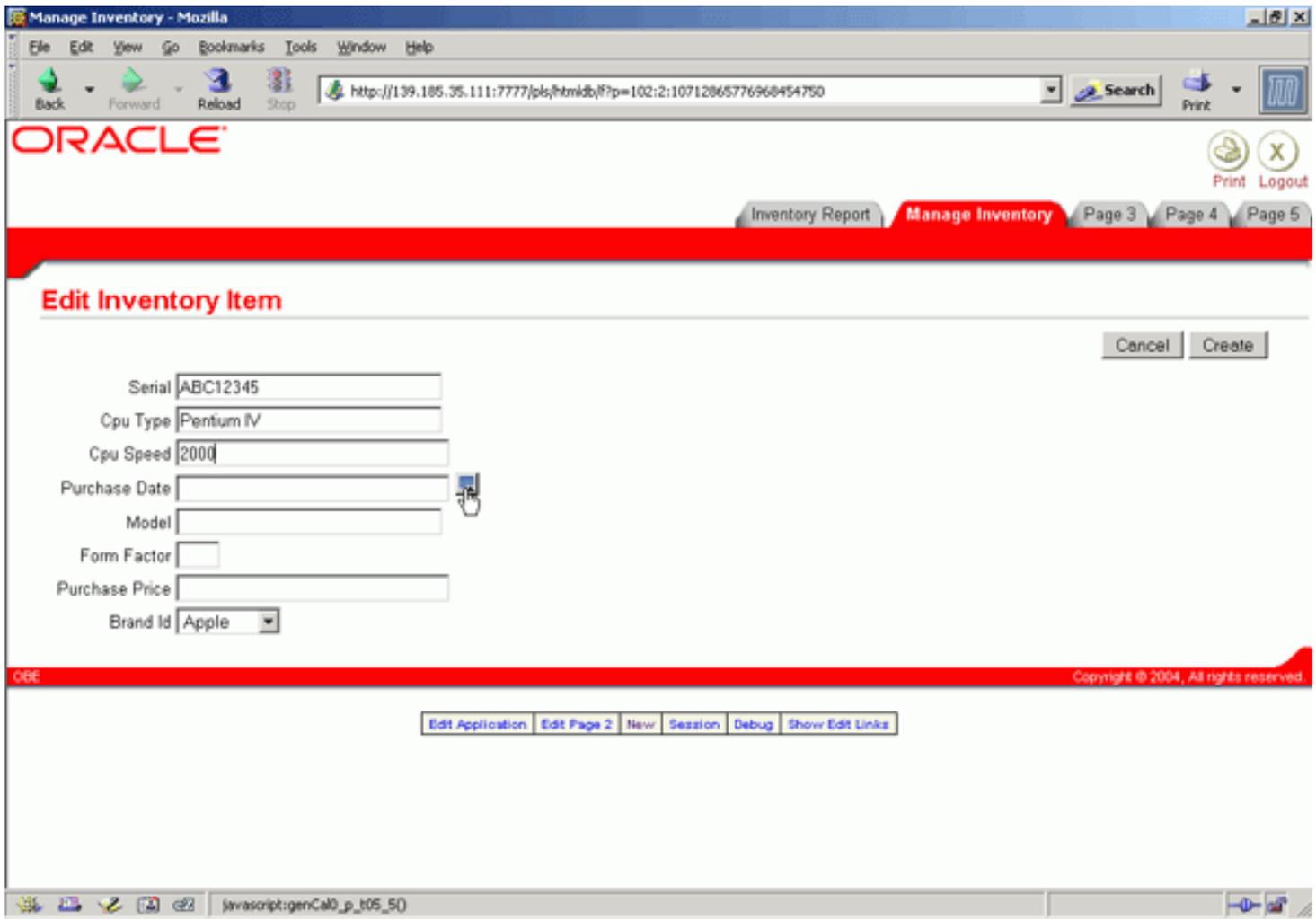
Select a Date.

18.
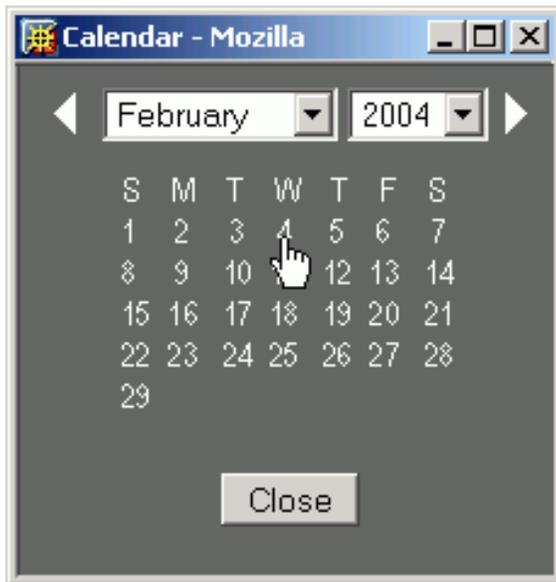
19. Enter **Tecra** for the Model, **L** for the Form Factor and **4300** for the Purchase Price. Select the Brand **Toshiba** from the Brand drop down list box and then click **Create** .

20. A row was inserted into the INVENTORY table and you were branched to the Inventory tab which is page one. You specified that you wanted this to happen after submit. Click on the **Previous** link to return to the first page of data.

Click on the header **Cpu Speed** to sort by this column in descending order.

21.

You see that your row was inserted. Click **Edit page 1** at the bottom of your window.

22.

## Creating and Applying a New Page Template

You would like to change the look and feel of the application. In order to do this, you need to create a new page template and then apply the template as the default for your application. Perform the following:

1. In the left navigator, expand **Navigate** .


2. Click **Templates** .

3. Click **Create / copy >** next to Page Templates.

4. Make sure that the **Choose one from the HTML DB Repository** radio button is selected. Then click **Next** .
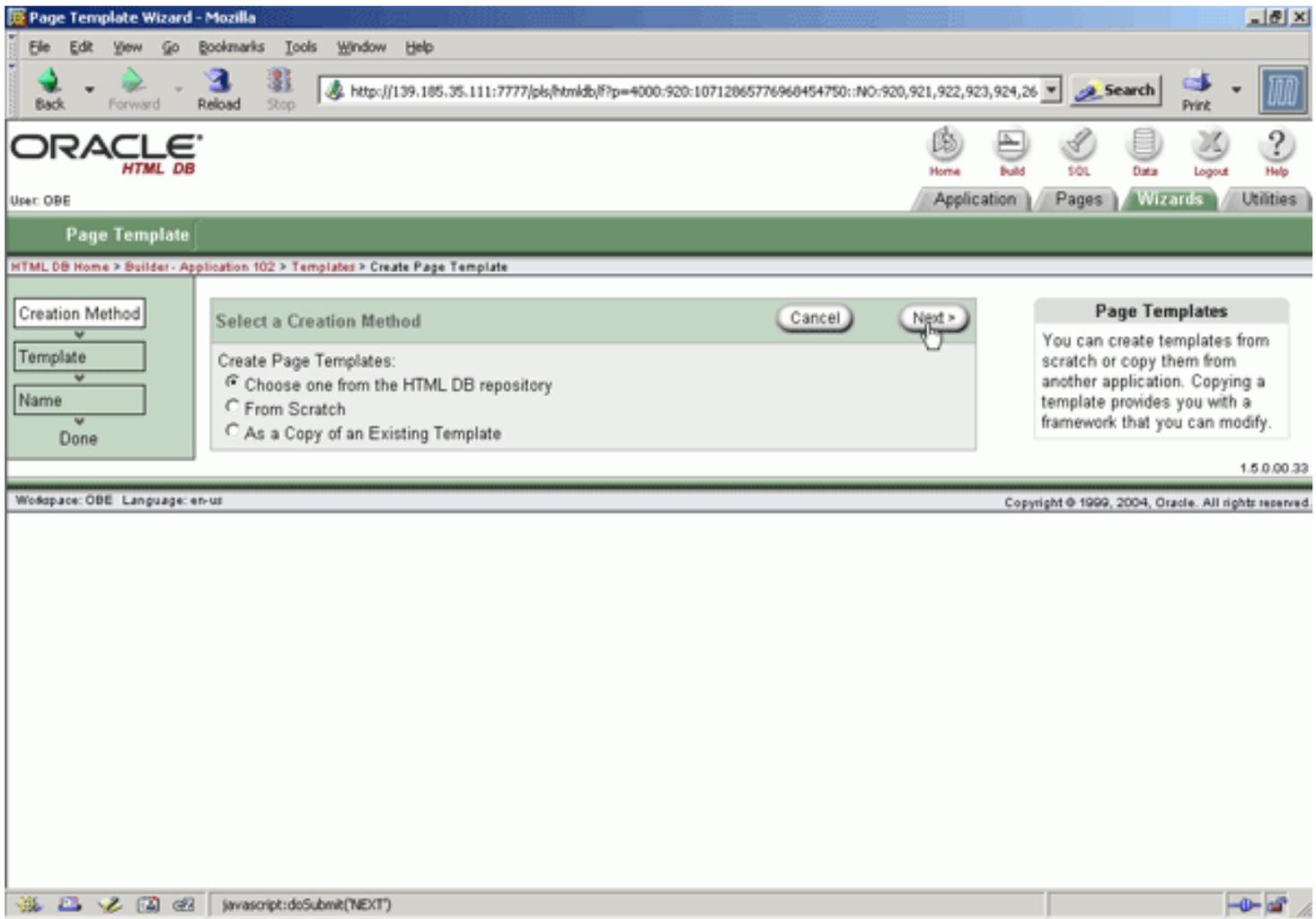
5. Scroll down to the bottom.
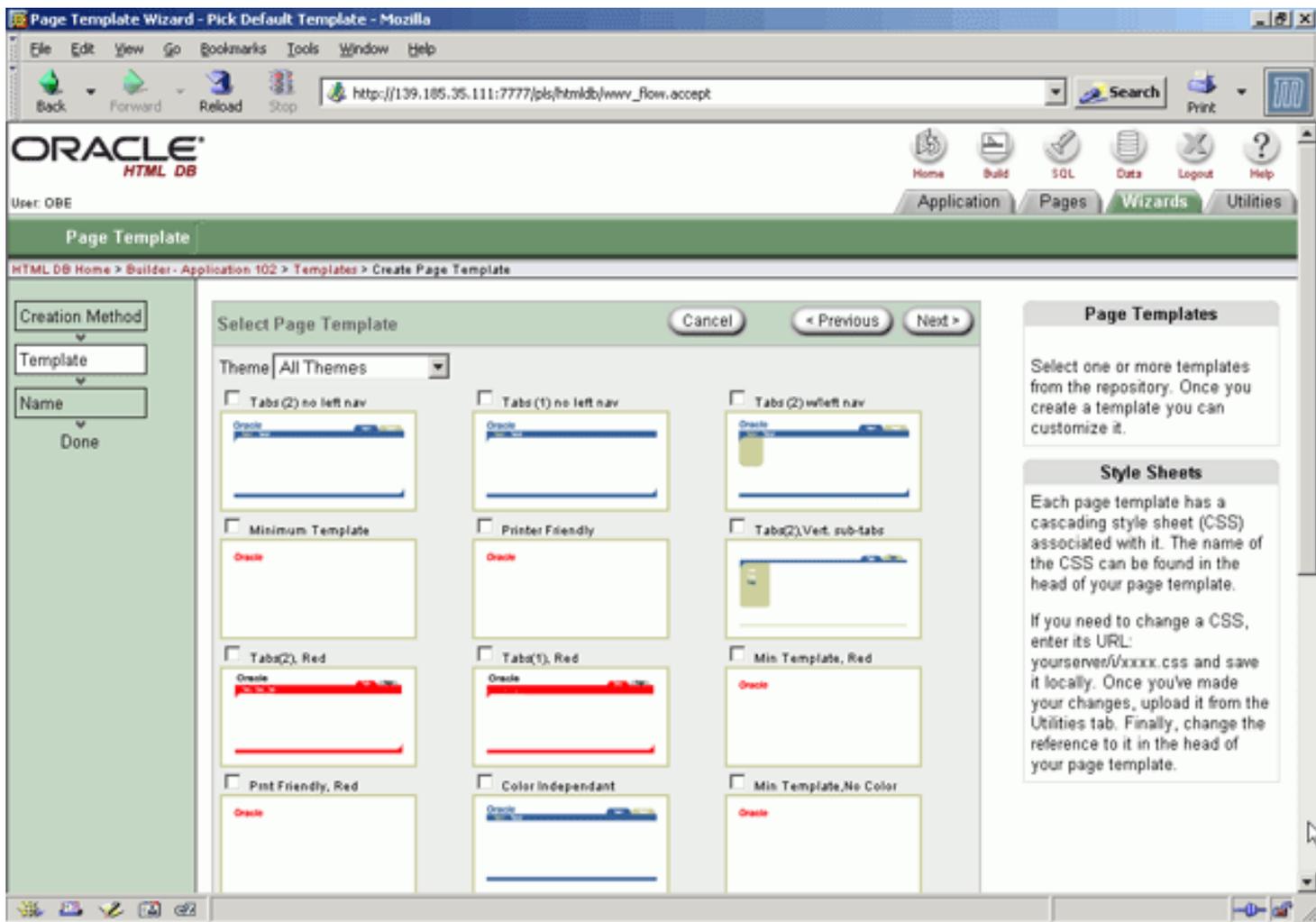
**6.** Select the **Tabs(1) Simple Blue** checkbox and scroll up to the top of the page.
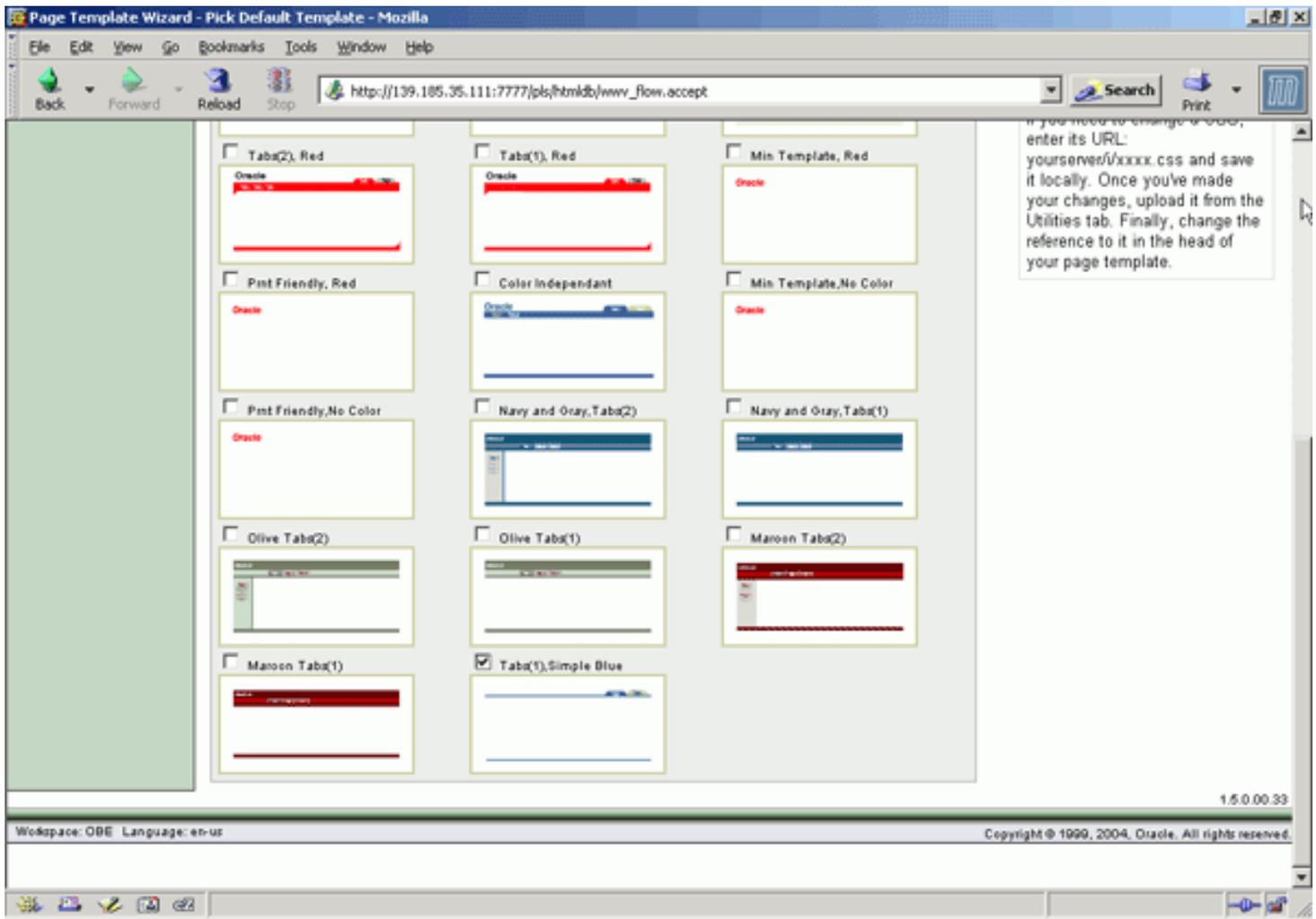
7. Click **Next** .
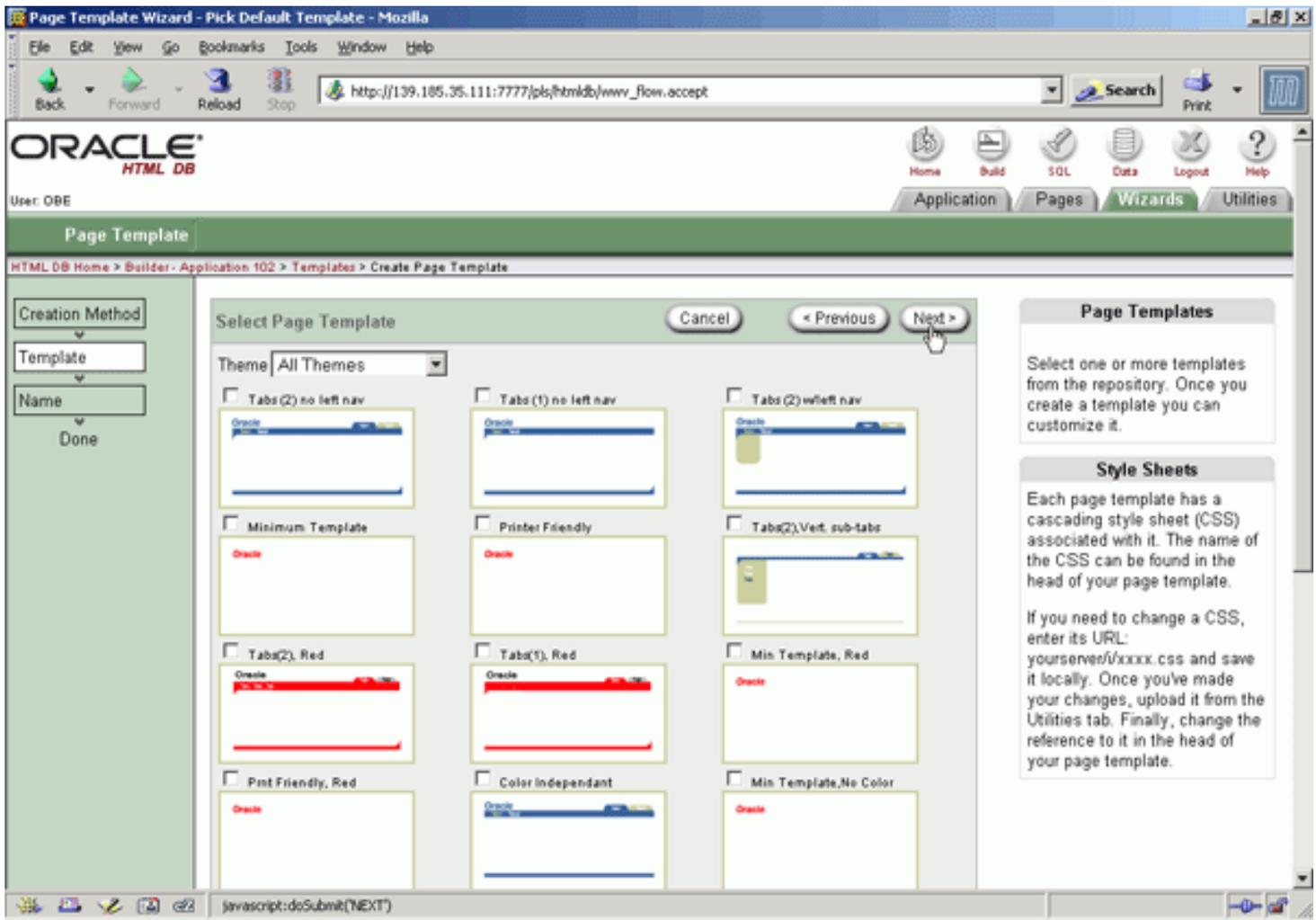
8. Enter **OBE Template** for the Actual Name and click **Create** .
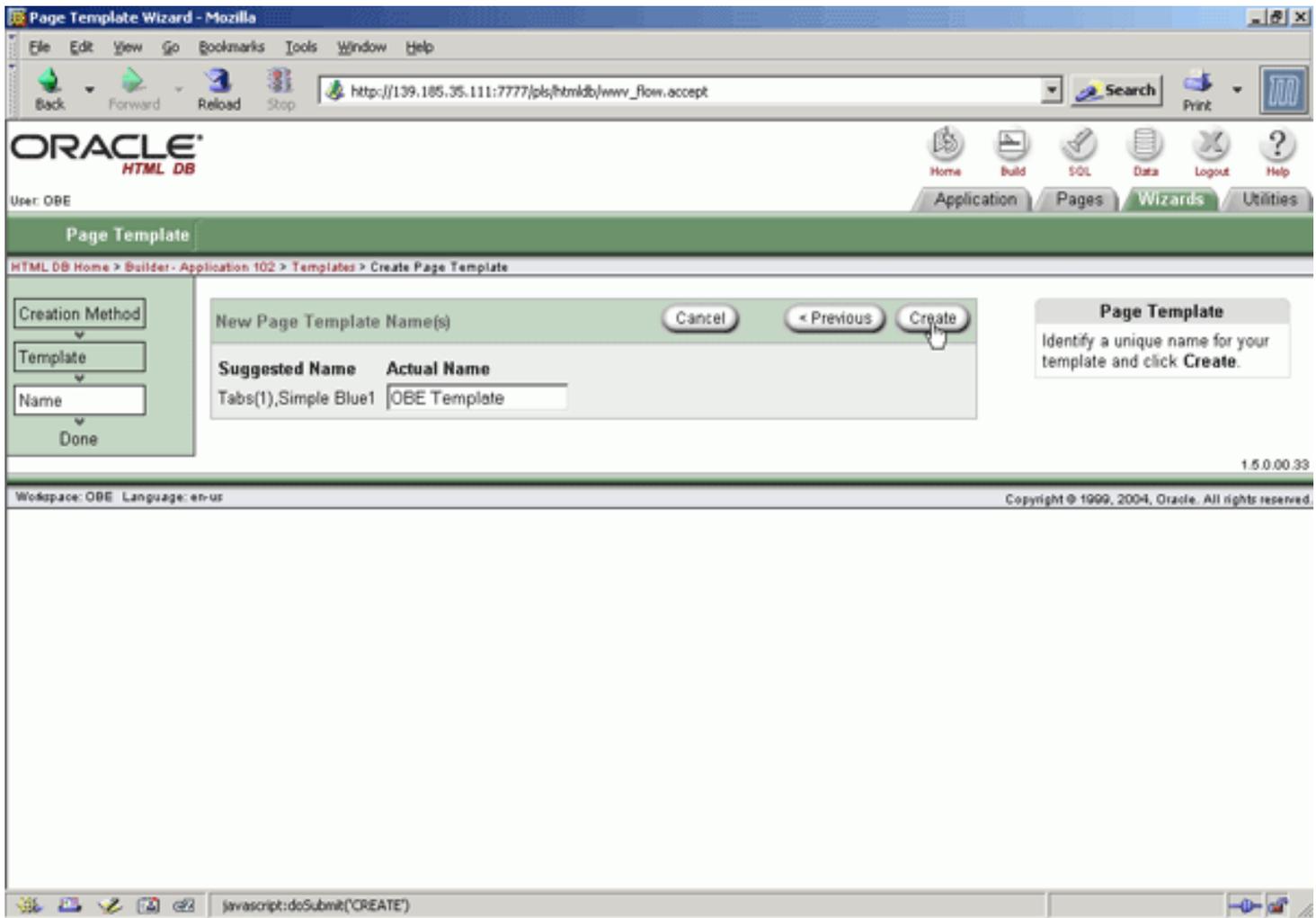
9. You can now apply the page template to your application. Click the breadcrumb **Builder - Application <number>** .
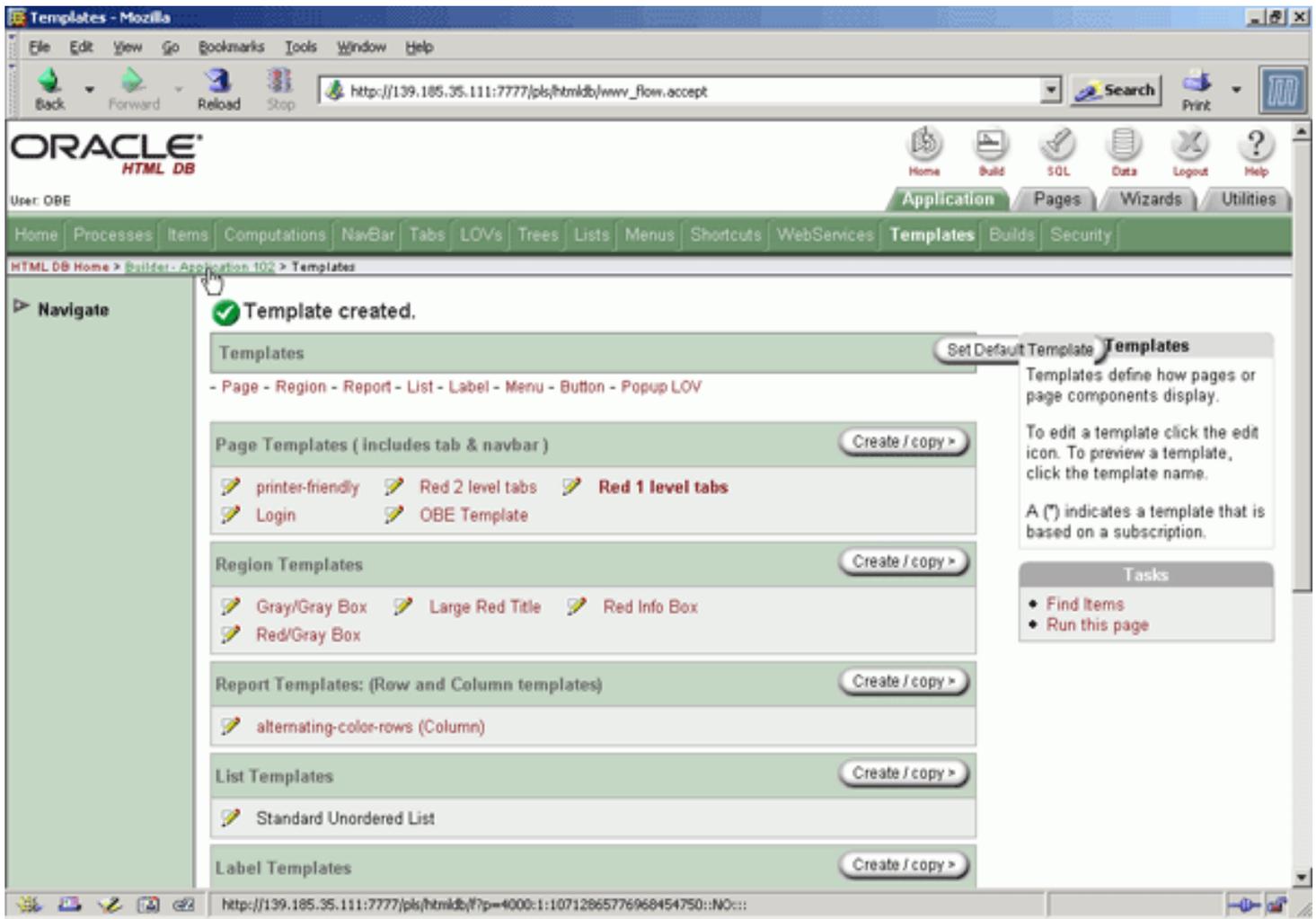
Click **Edit Attributes** .

10.

Select the **Templates** link to go to that section.

11.
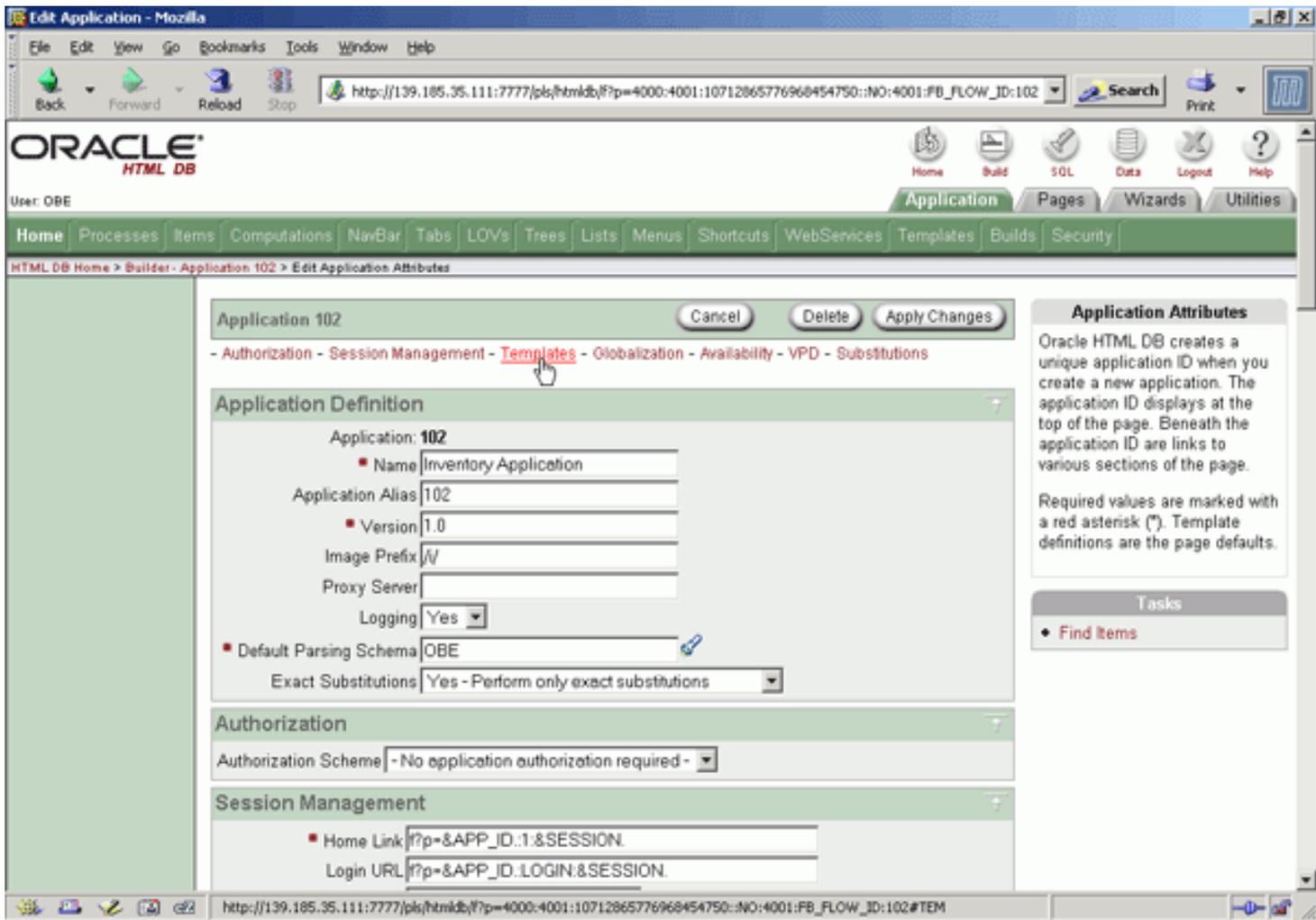
Select **OBE Template** as the Default Page Template and click **Top** to move back up to the top of this form.

12.

Click **Apply Changes** .

13.

Click **Run** to see the next template applied.

14.

15.	You will see the next template. Click the **Manage Inventory** tab. You will see the template has been applied to all pages.

Editing Application Objects

Since you may want to make changes to how your objects function and display, you might find being able to edit your objects in runtime mode to be helpful. Perform the following:

1. To be able to edit fields in runtime mode, click **Show Edit Links** .
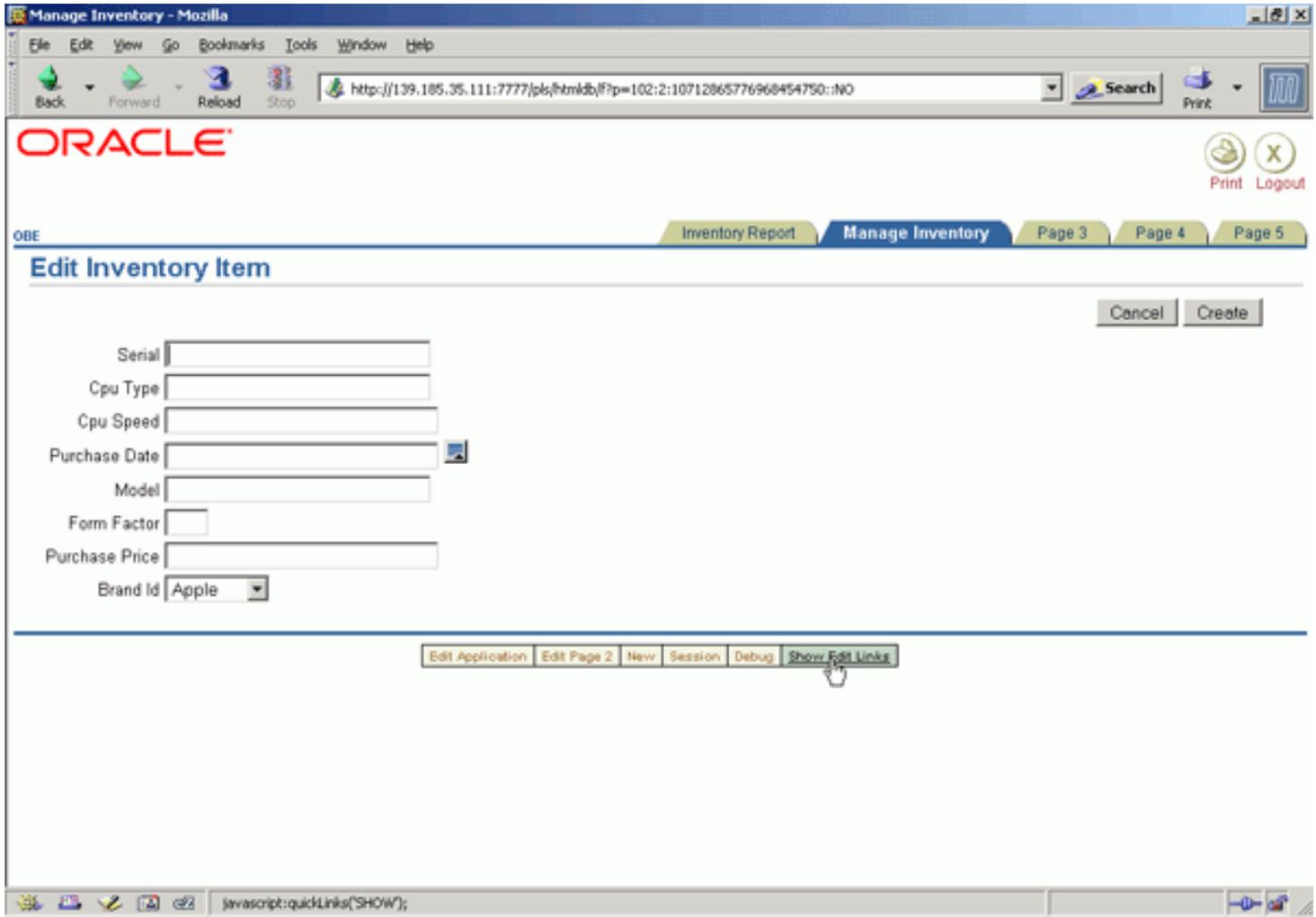
2. Click the edit icon next to **Serial** .
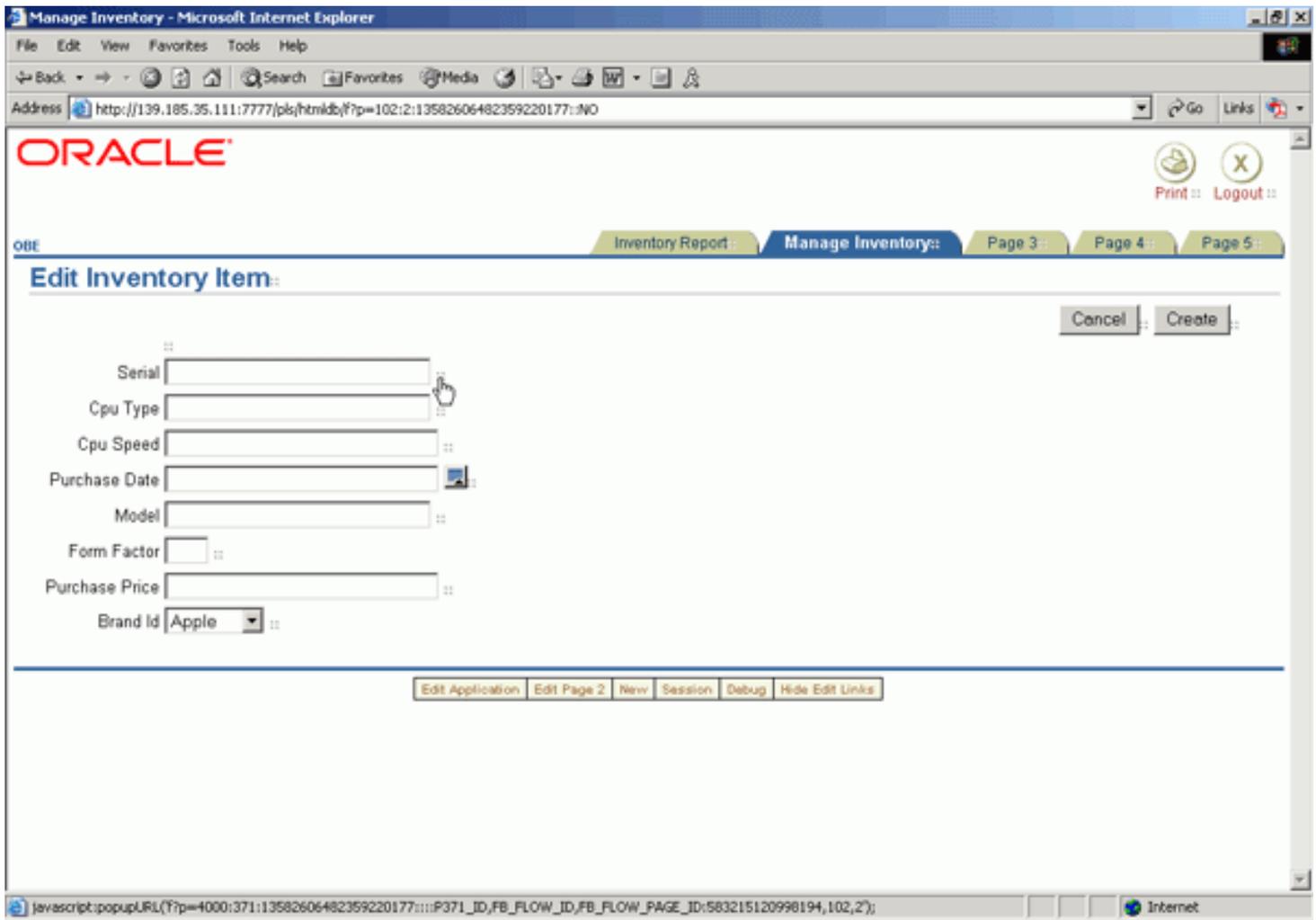
3. Change the Label to **Serial Number,** click on the **Refresh** checkbox and click **Apply Changes** .

4. Click **Cancel** to close the window.

5. Click the edit icon next to **Cpu Type** .
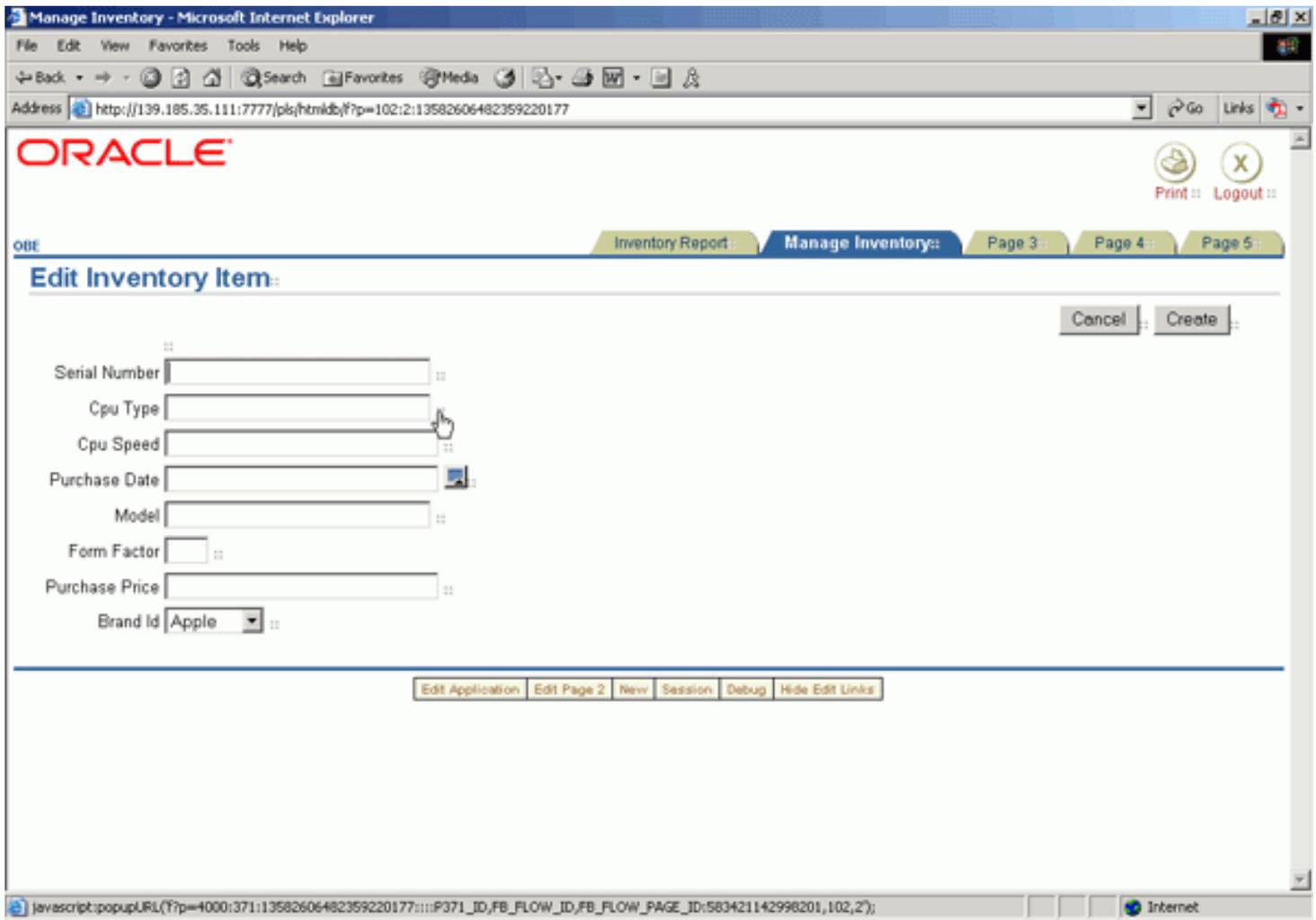
6. In the Page Item section, click the **Popup LOV** link.

7. The Display as field will change to a Popup LOV. Click on the **LOV** link at the top of the window.

8. In the LOV Query field, enter the following, then click **Top** .

```
select distinct cpu_type d, cpu_type r from inventory
```

9.   Make sure **Refresh** is checked and click **Apply Changes** . Then click **Cancel** .

Click on the LOV icon next to Cpu Type.

10.
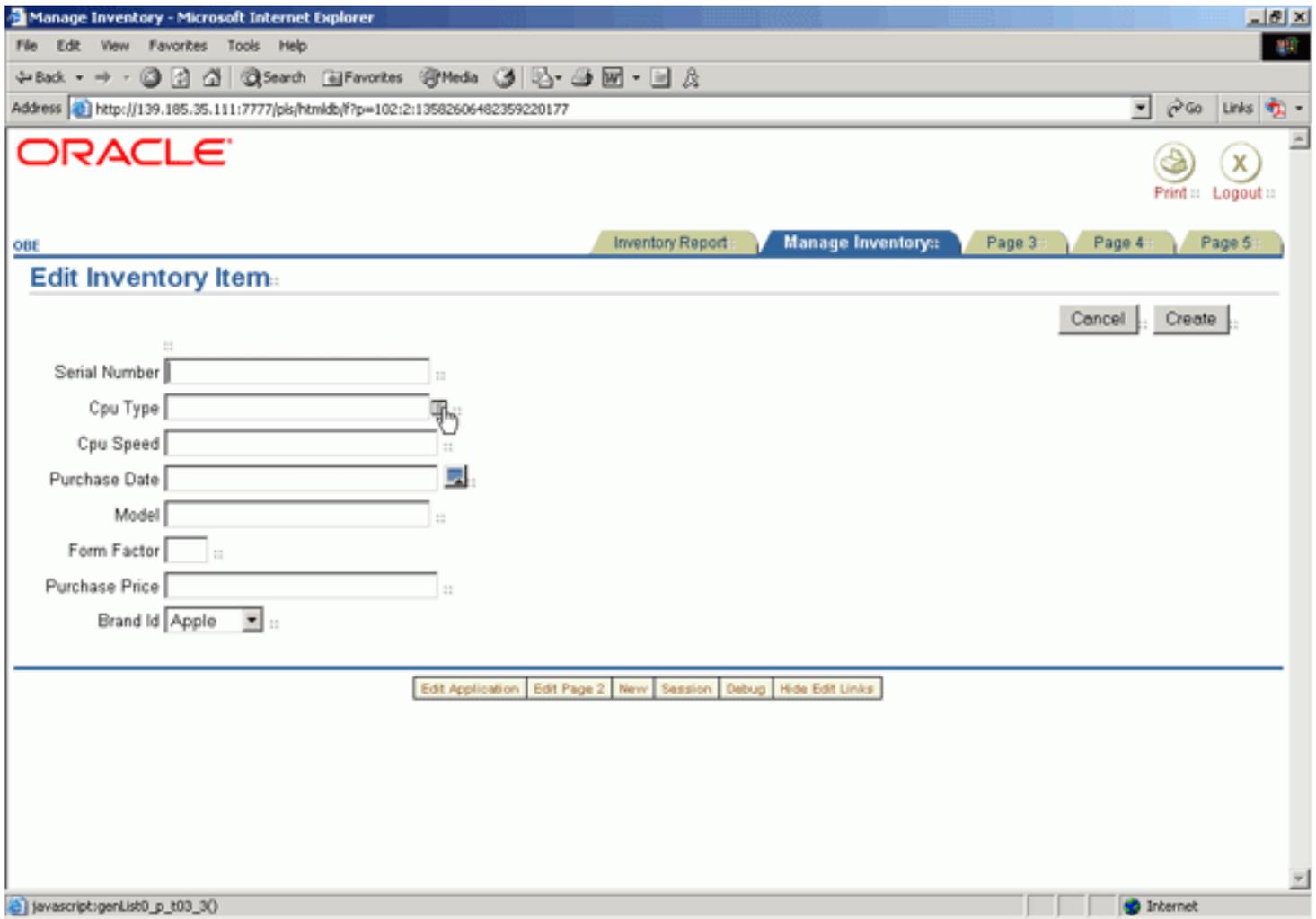
Select one of the values.

11.

12. You will see the value is inserted into the field. Now you want to link this form to the report you created earlier, click **Edit page 2** .
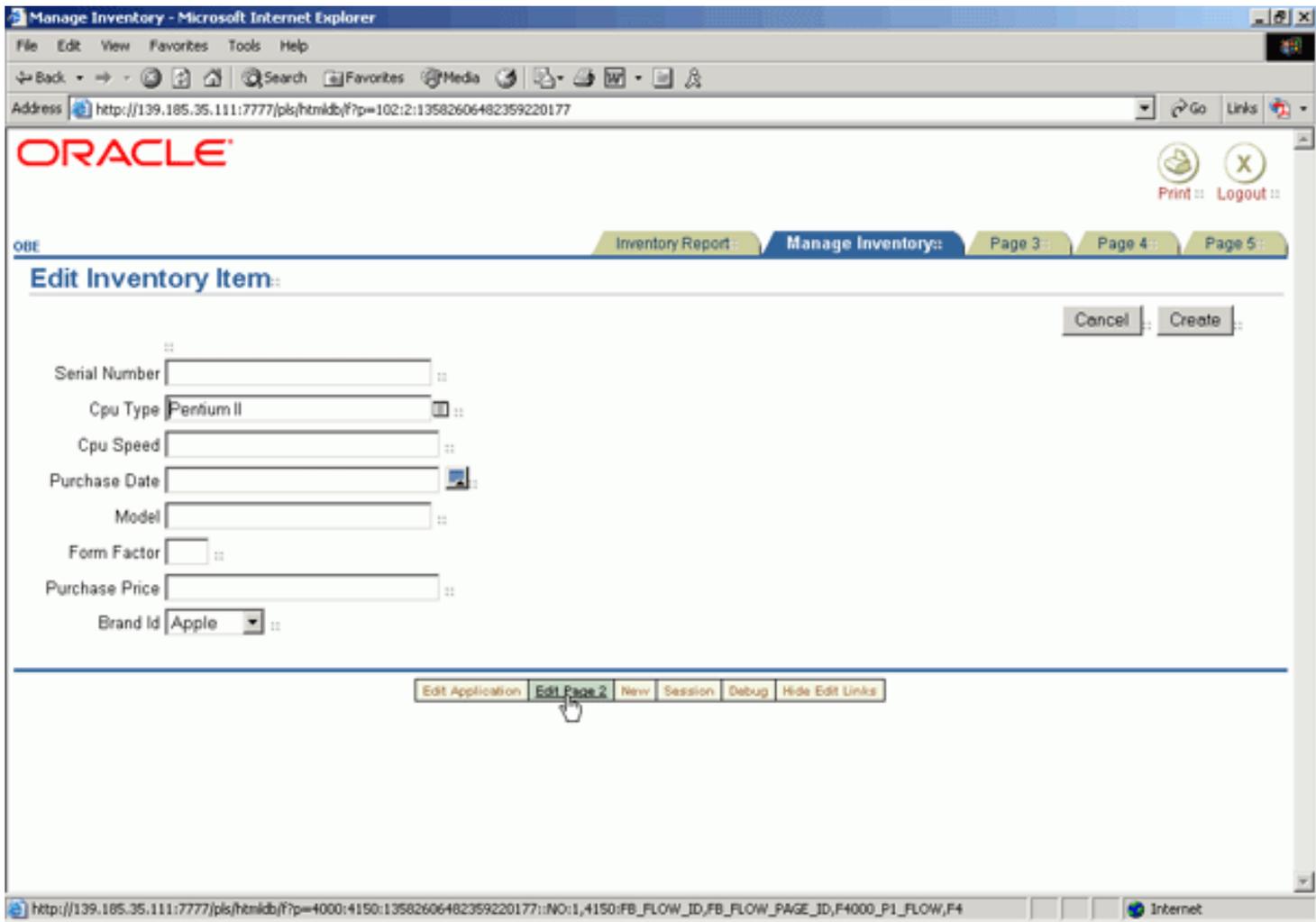
Linking your Report to your Form

Back to List

When the report is viewed, the user may want to change a value. To do this, you can setup the ID column as an edit column that will branch to the Manage Inventory page, and pass the values so that the user can edit them. Perform the following:

1. You need to start on page 1. Click the **<** button to navigate to page 1.

2. Click on **RPT** to edit the properties for the Hardware Inventory region.
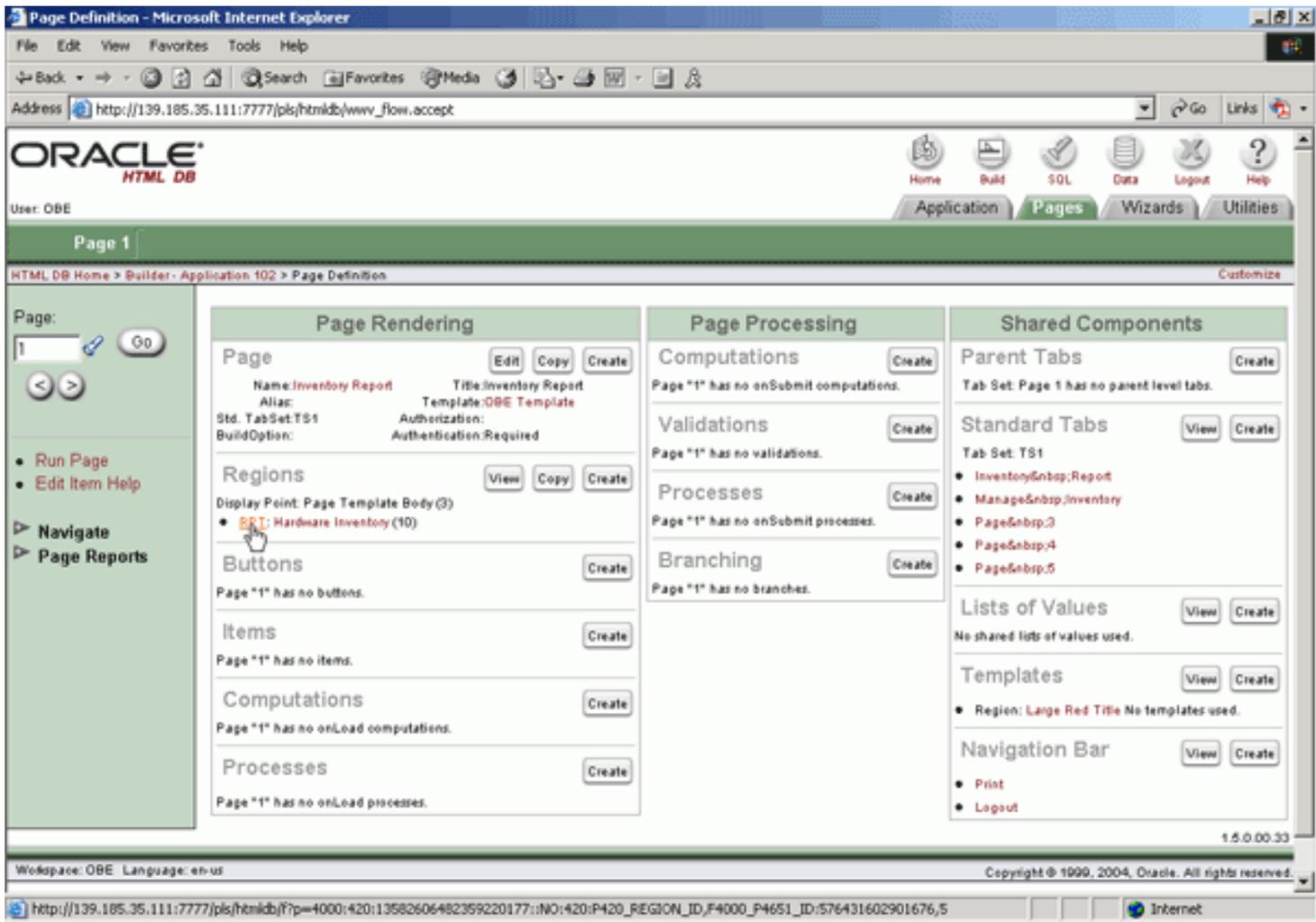
3. Click on the **Edit** icon next to ID.

4. Click **Link** .

5. Click the **search light** icon next to **Page** .
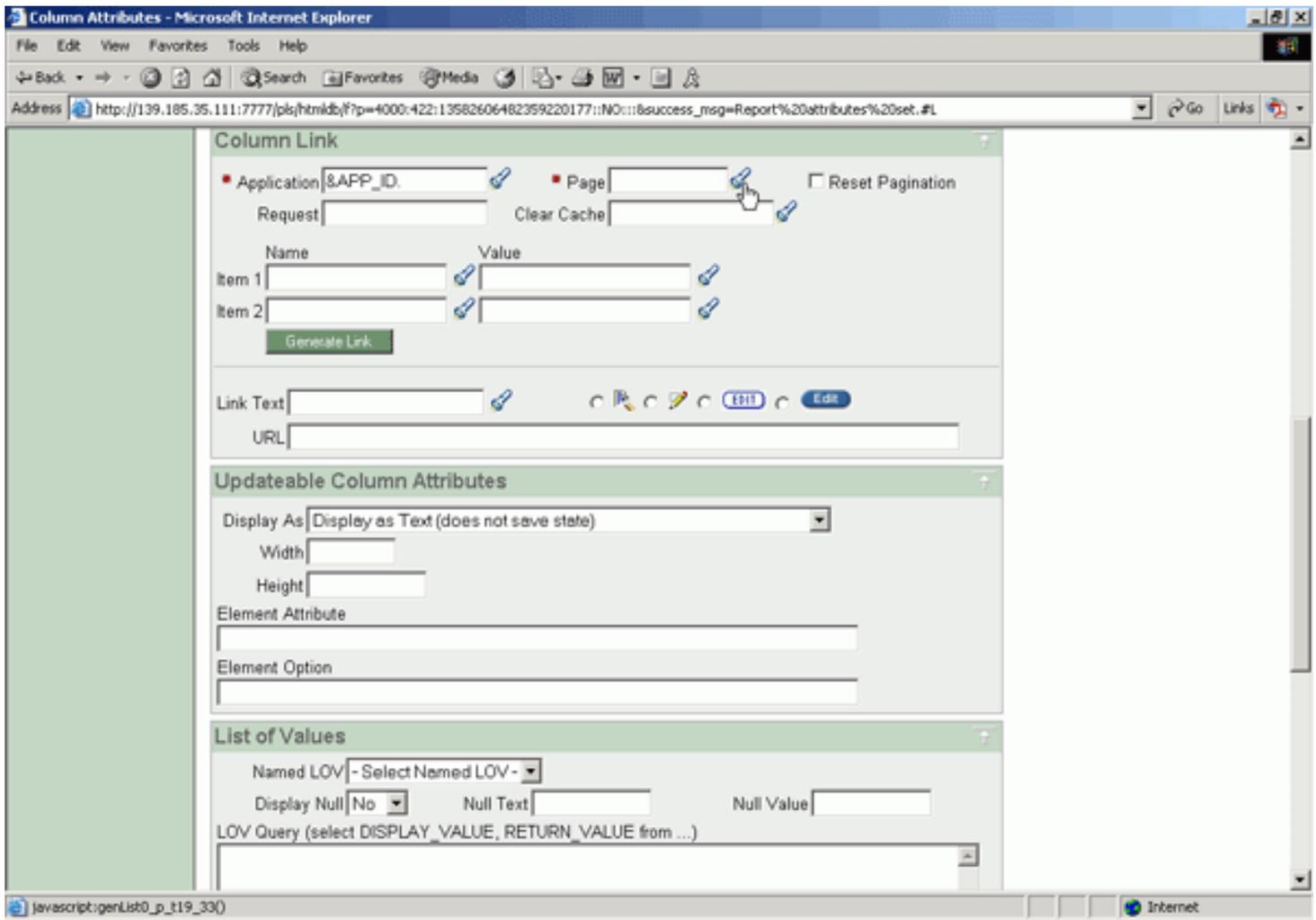
6. Click **2 Manage Inventory.**
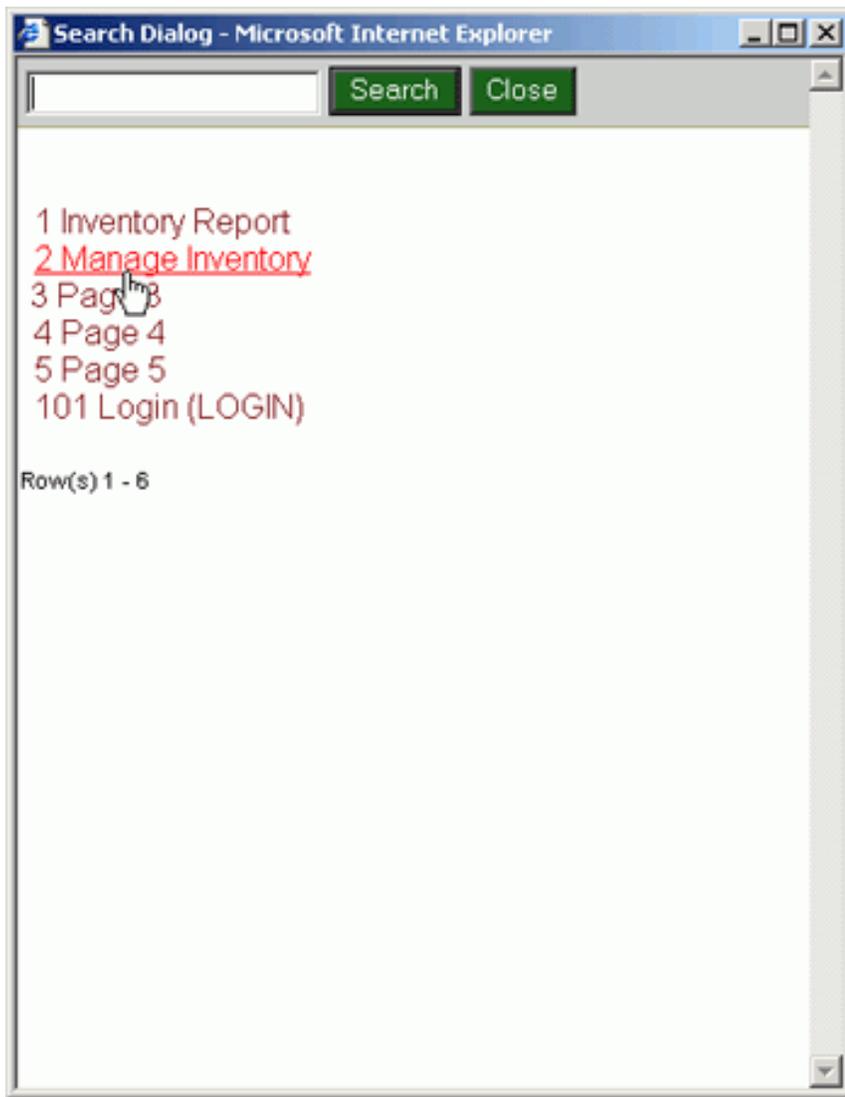
7. Click the **search light** for **Item 1 Name** .

8. Click **P2_ID** .

Item Finder - Microsoft Internet Explorer

Item Finder   Close

Search [   ] Page [2   ]   ✏ Rows [15 ▼]   (Go)

Items

Name	Type	Page
P2_BRAND_ID	Page Item	2
P2_CPU_SPEED	Page Item	2
P2_CPU_TYPE	Page Item	2
P2_FORM_FACTOR	Page Item	2
P2_ID	Page Item	2
P2_MODEL	Page Item	2
P2_PURCHASE_DATE	Page Item	2
P2_PURCHASE_PRICE	Page Item	2
P2_SERIAL	Page Item	2
	1 - 9	
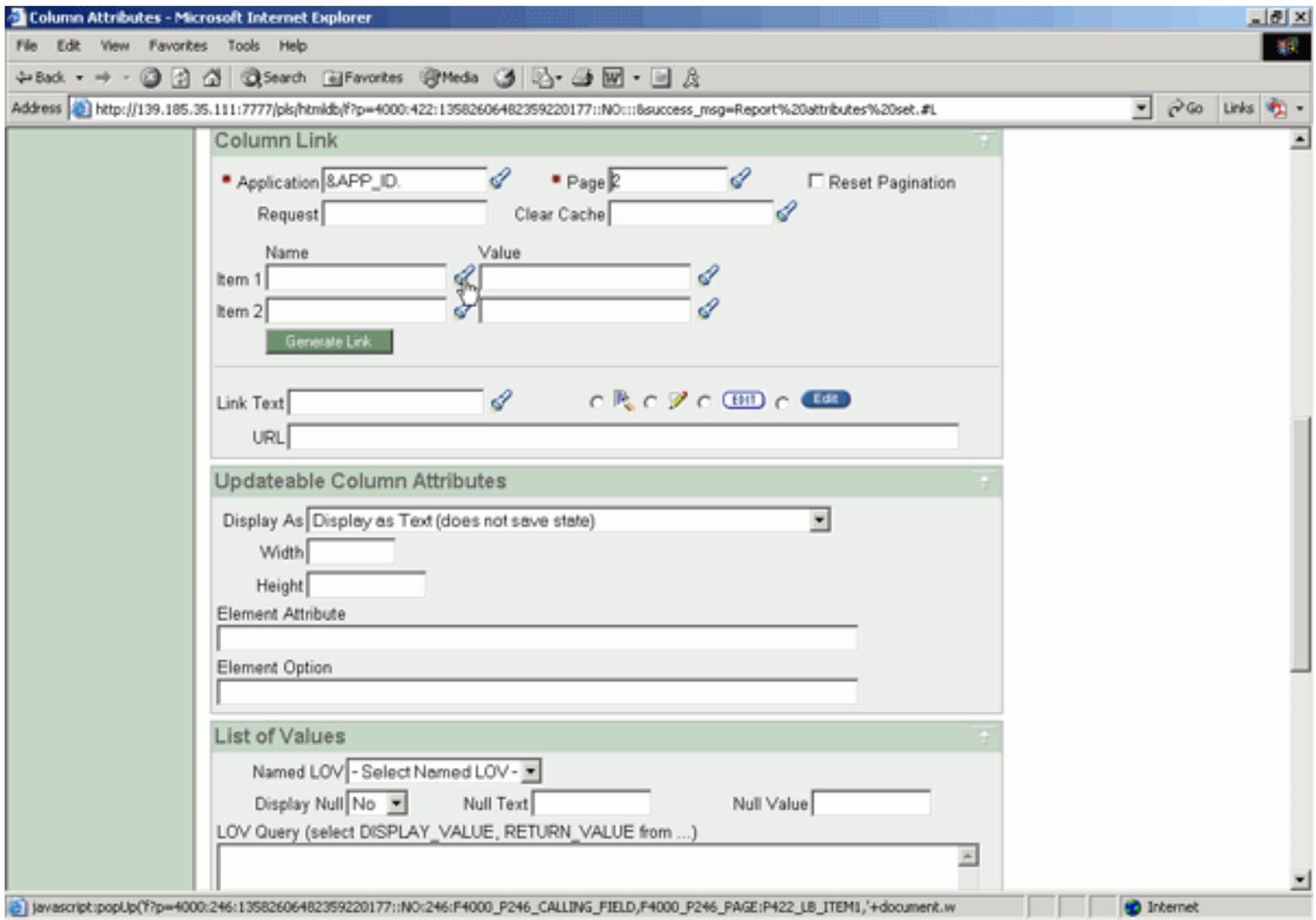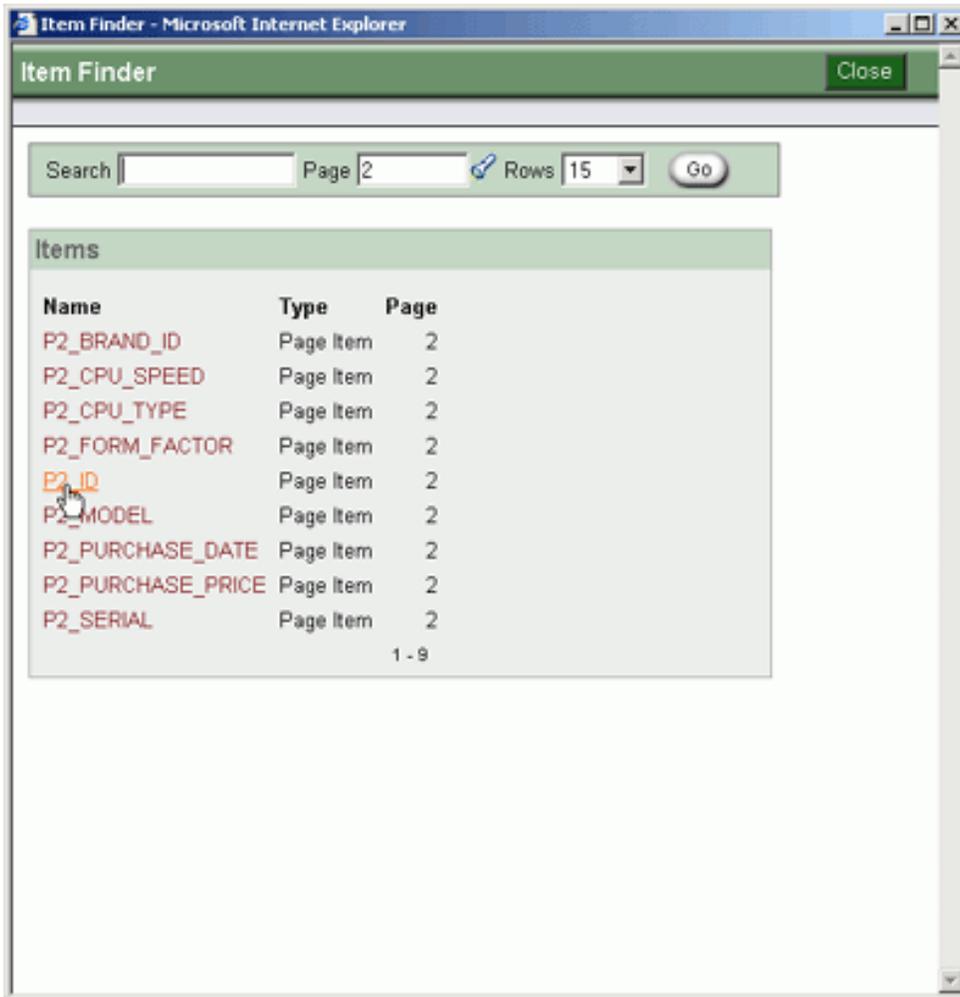
9. Click the **search light** for **Item 1 Value** .
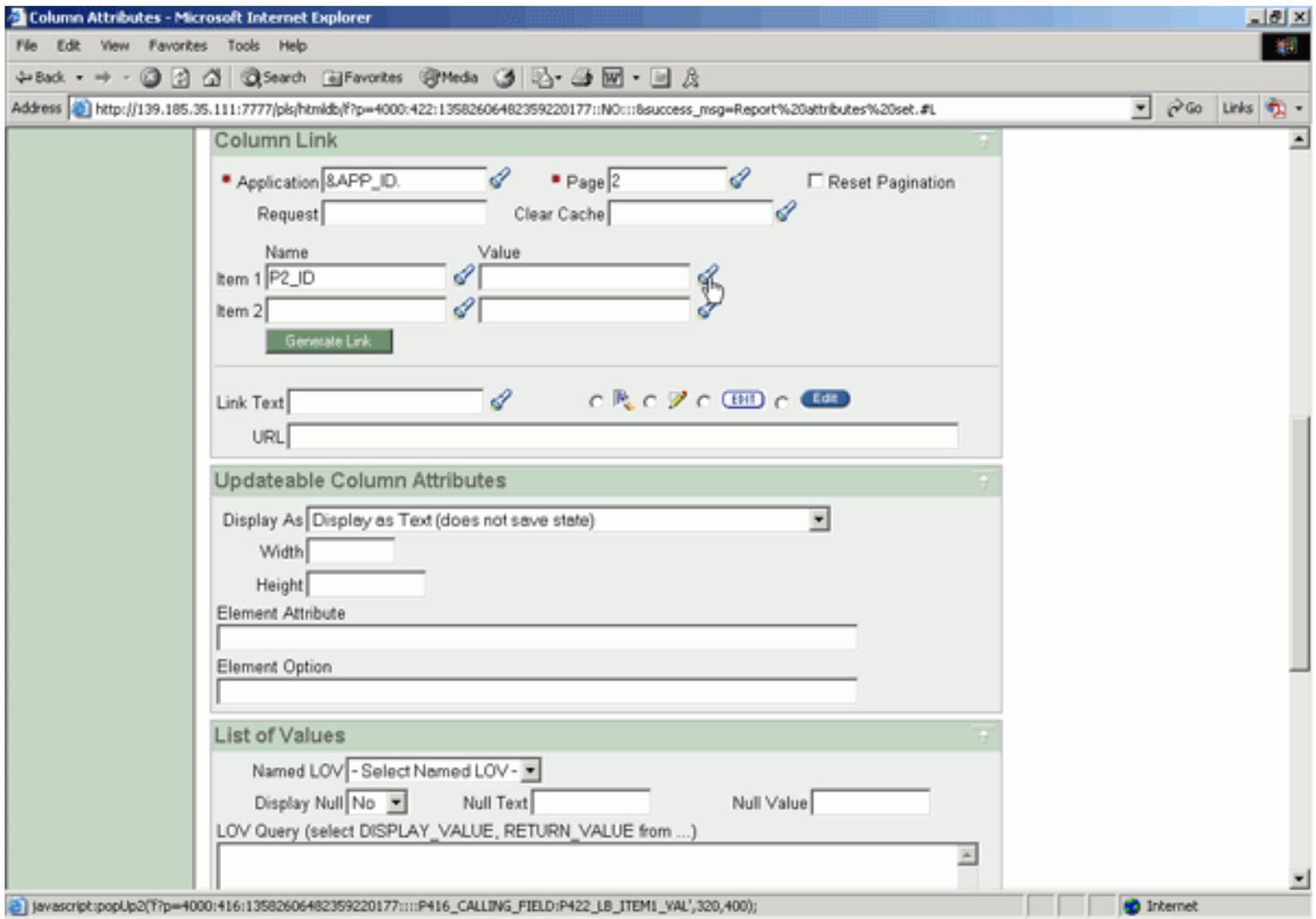
Click **#ID#** .

10.

Click **Generate Link** .

11.
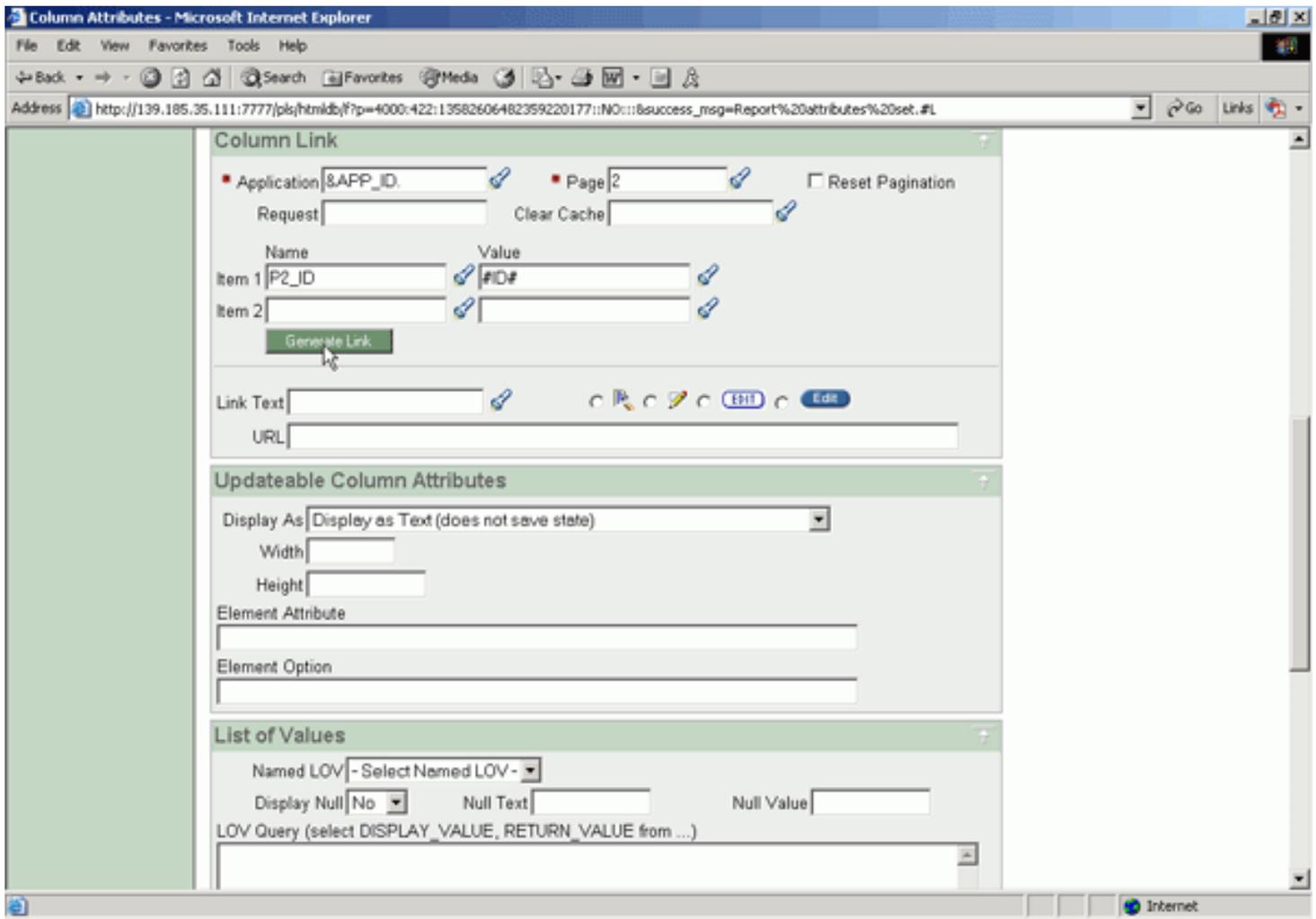
Click the **pencil edit** icon radio button. Then click **Top** .

12.
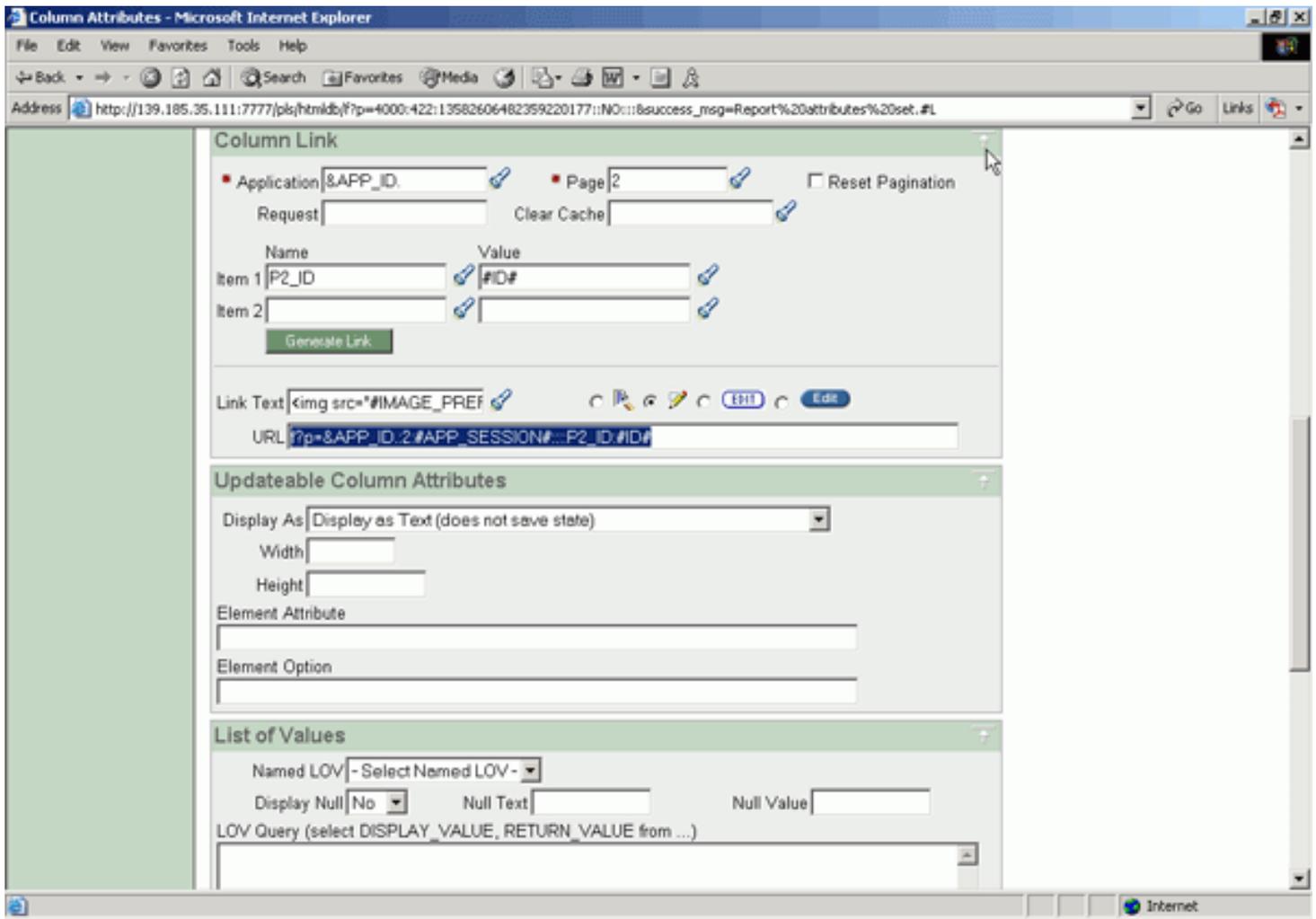
Click **Apply Changes** .

13.
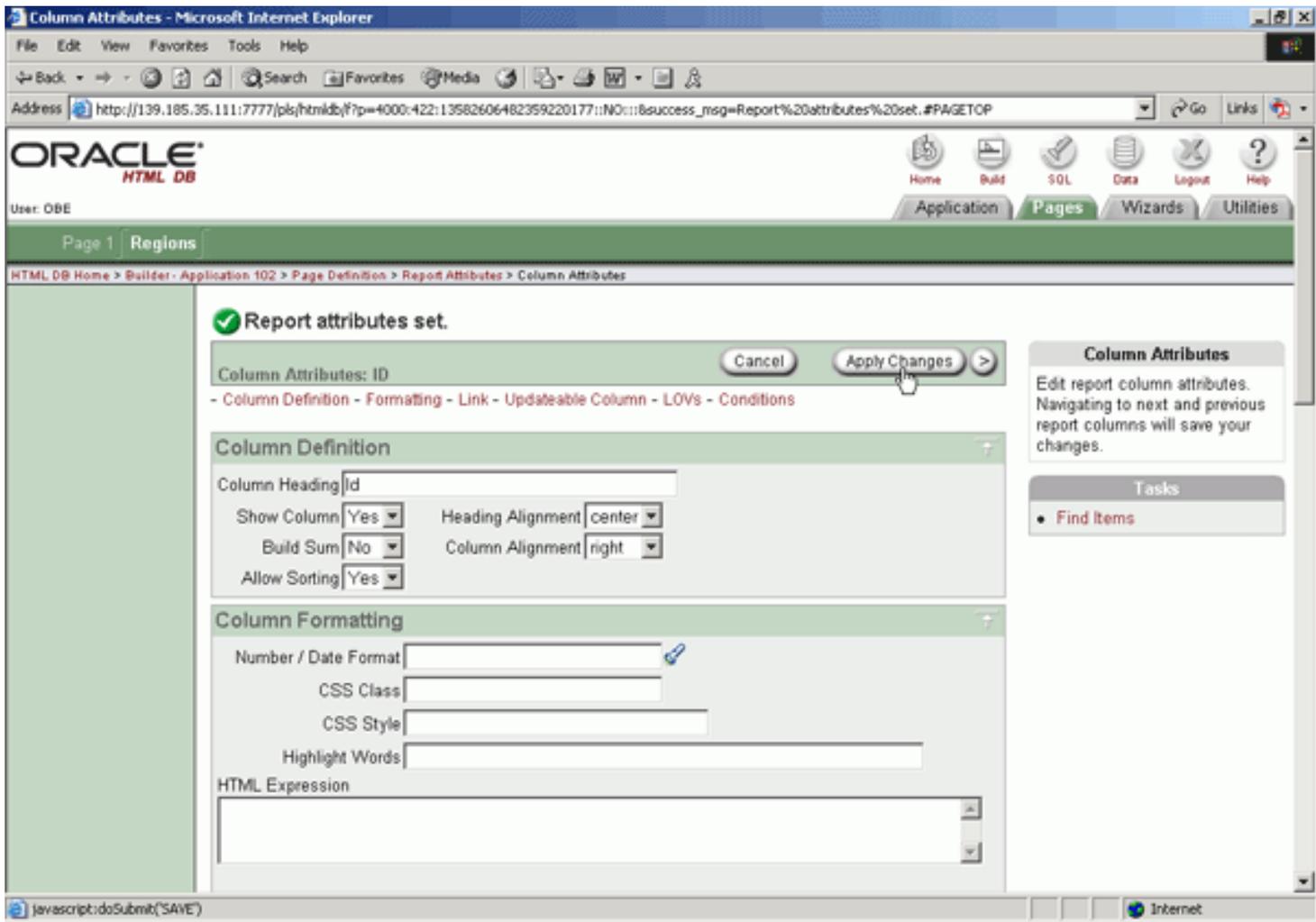
Click **Page Definition** link.

14.

Click **Run Page** .

15.

If asked to login, login as **obe/obe** and click **Login** .

16.

Edit one of the items by clicking on the pencil edit icon.

17.

| | 18. | You notice that you are now on the Manage Inventory tab and the form is populated with the data for the item you selected. Click the **Edit page 2** link at the bottom of the window. |

Creating Users

In order to give access to certain areas in the application to certain people, you need to create some users. Perform the following:

1. Click **Home** .
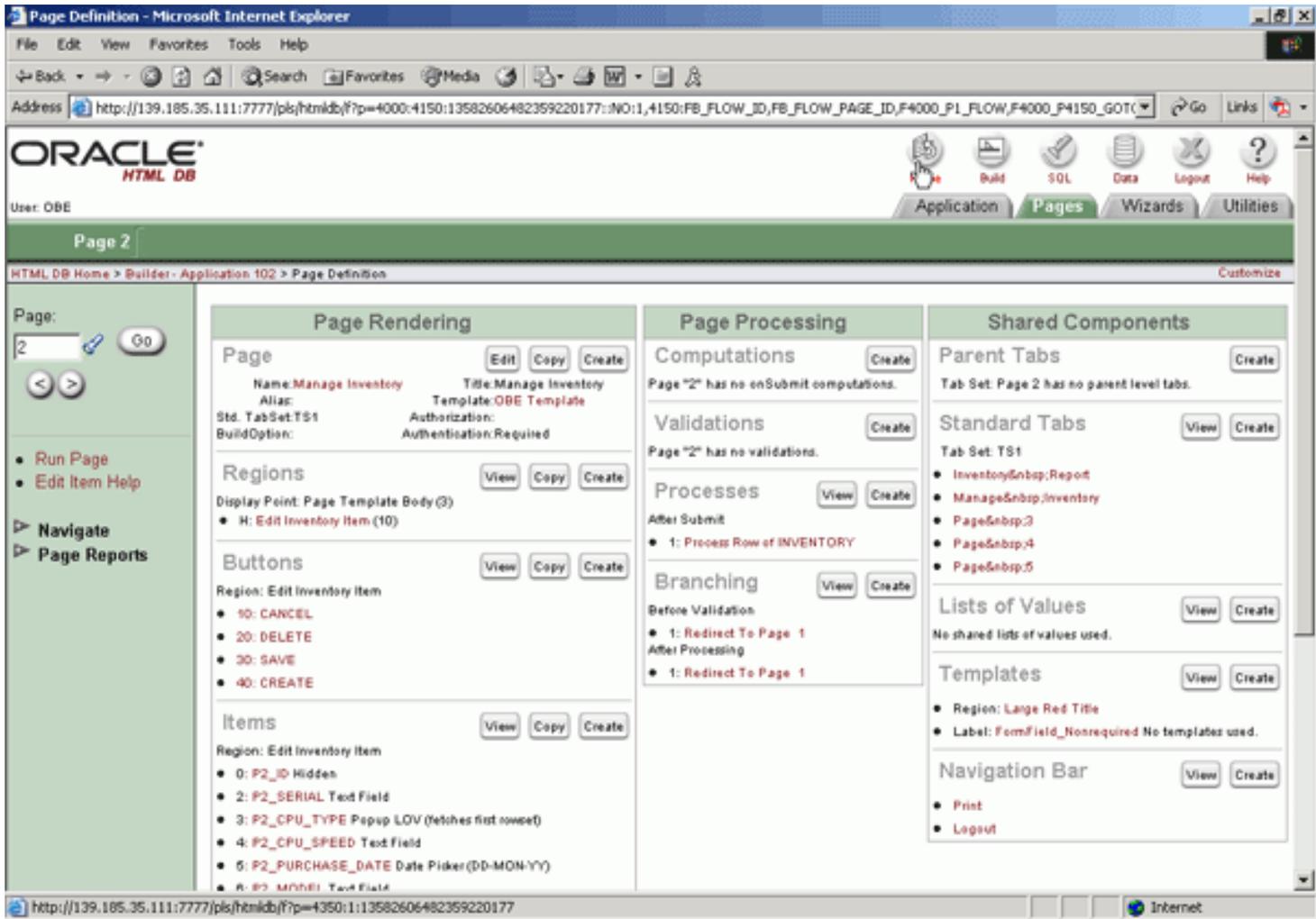
2. Click **Administration** .
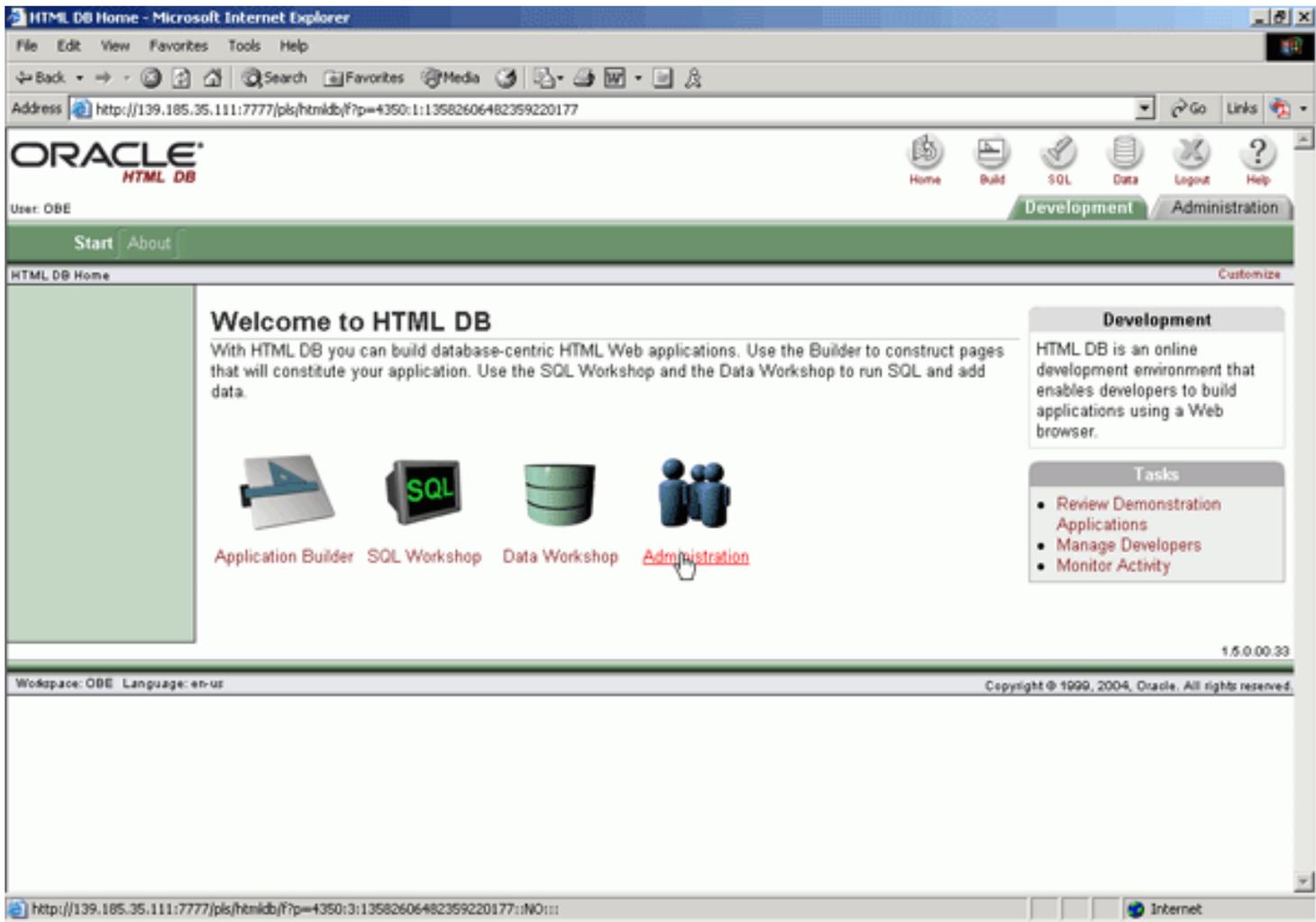
3. Click **Manage Users** .
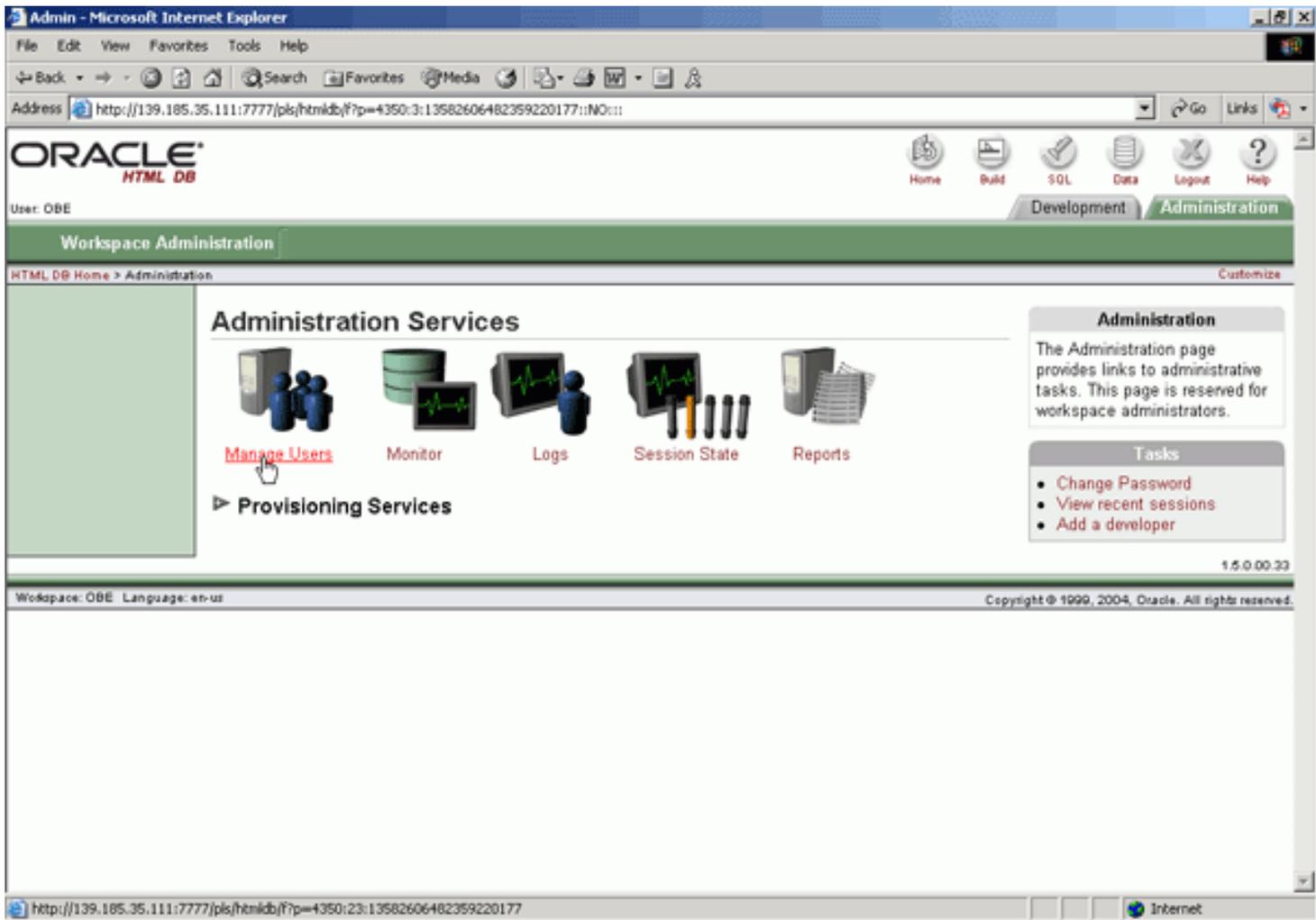
4. Click **Create New User** .
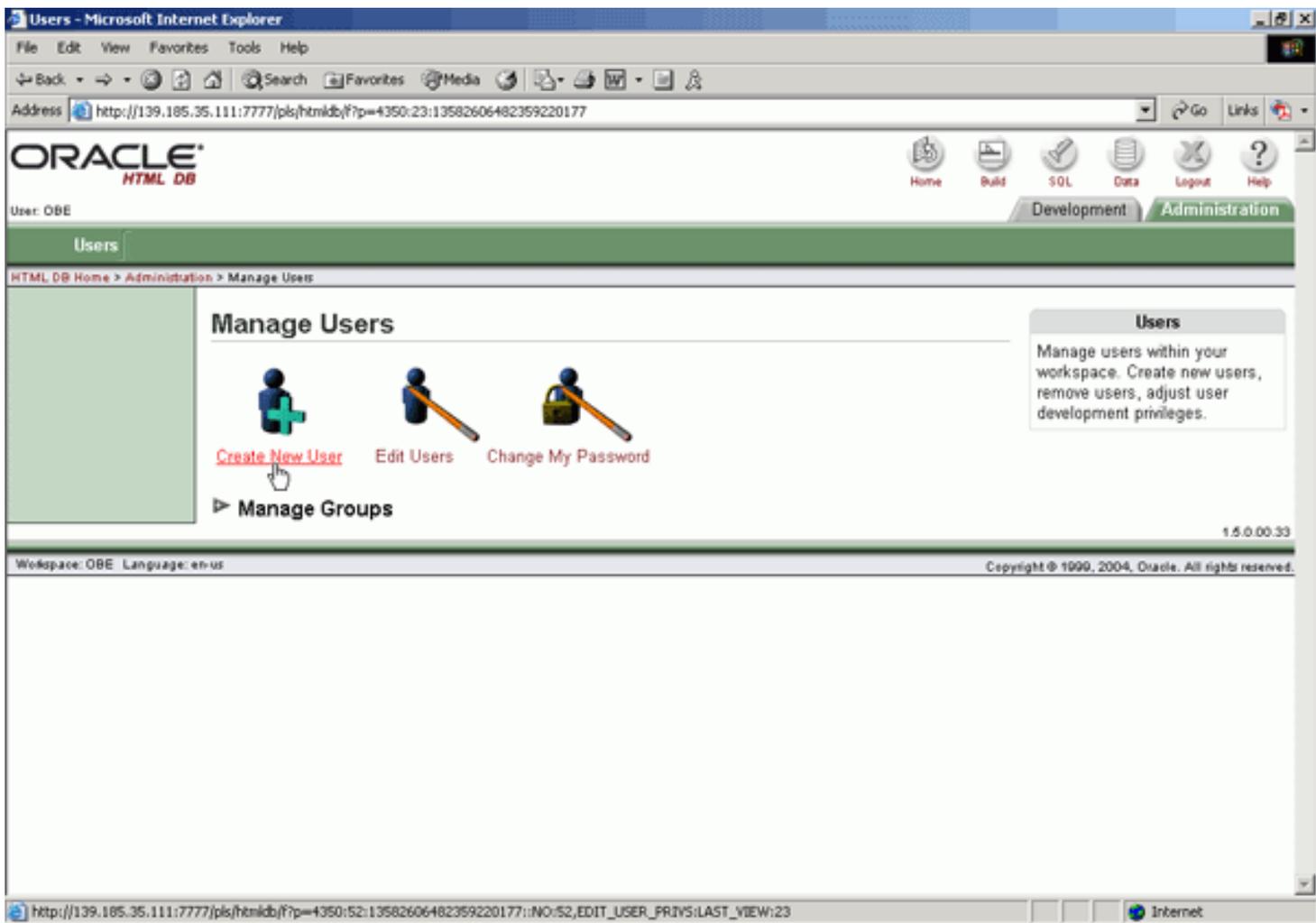
5. Enter the following information and then click **Create and Create Another** .

User Name: **Brad.Knight**
Password: **welcome1**
Email address: **brad.knight@oracle.com**
First Name: **Brad**
Last Name: **Knight**
Default Schema: **OBE**
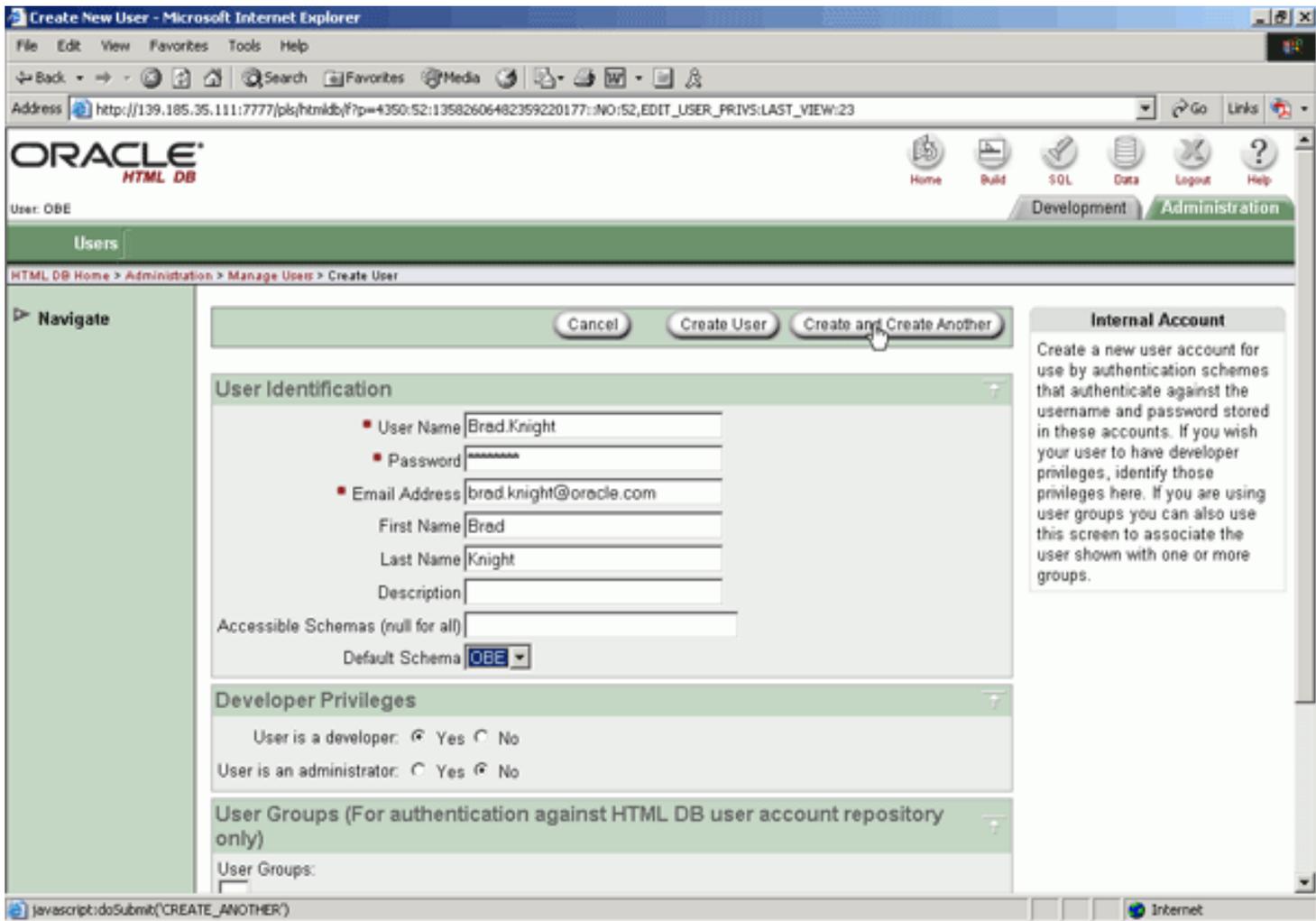
6. Enter the following information and then click **Create and Create Another** .

User Name: **Susie.Parker**
Password: **welcome1**
Email address: **susie.parker@oracle.com**
First Name: **Susie**
Last Name: **Parker**
Default Schema: **OBE**
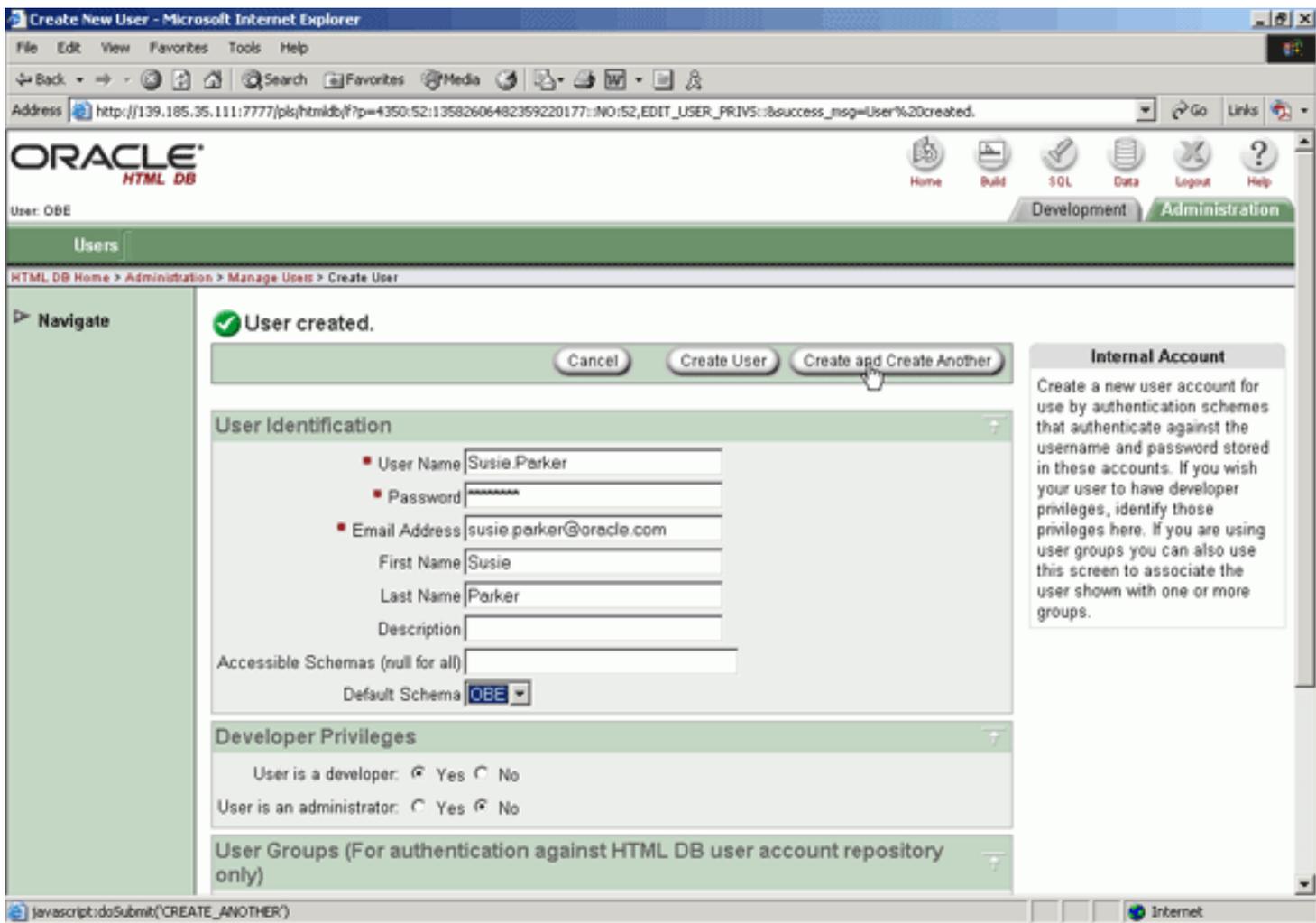
7. Enter the following information and then click **Create User** .

User Name: **John.Bell**
Password: **welcome1**
Email address: **john.bell@oracle.com**
First Name: **John**
Last Name: **Bell**
Default Schema: **OBE**
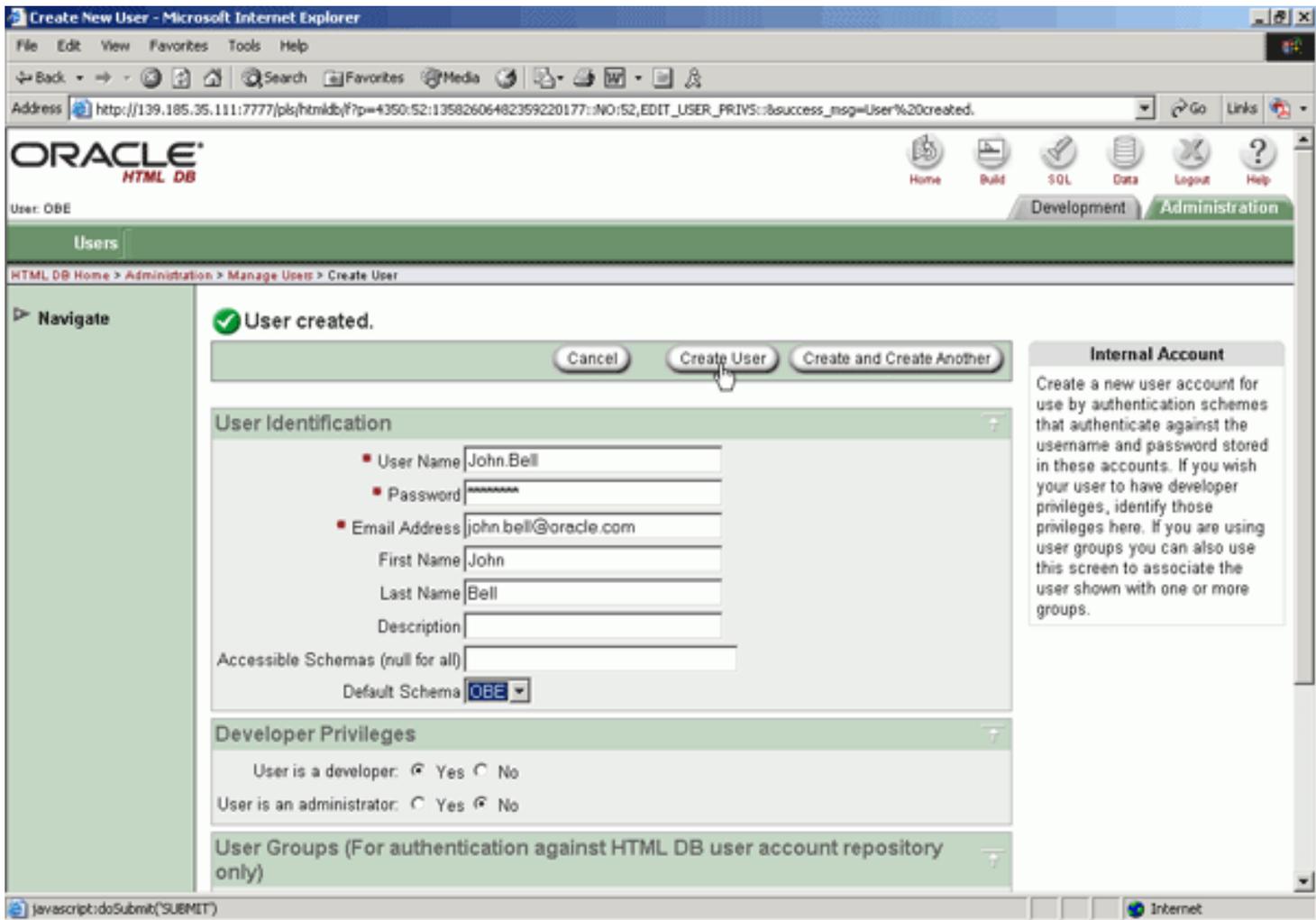
8. The 3 users have been created. You will now setup administrator access to the application. Click **Data** .
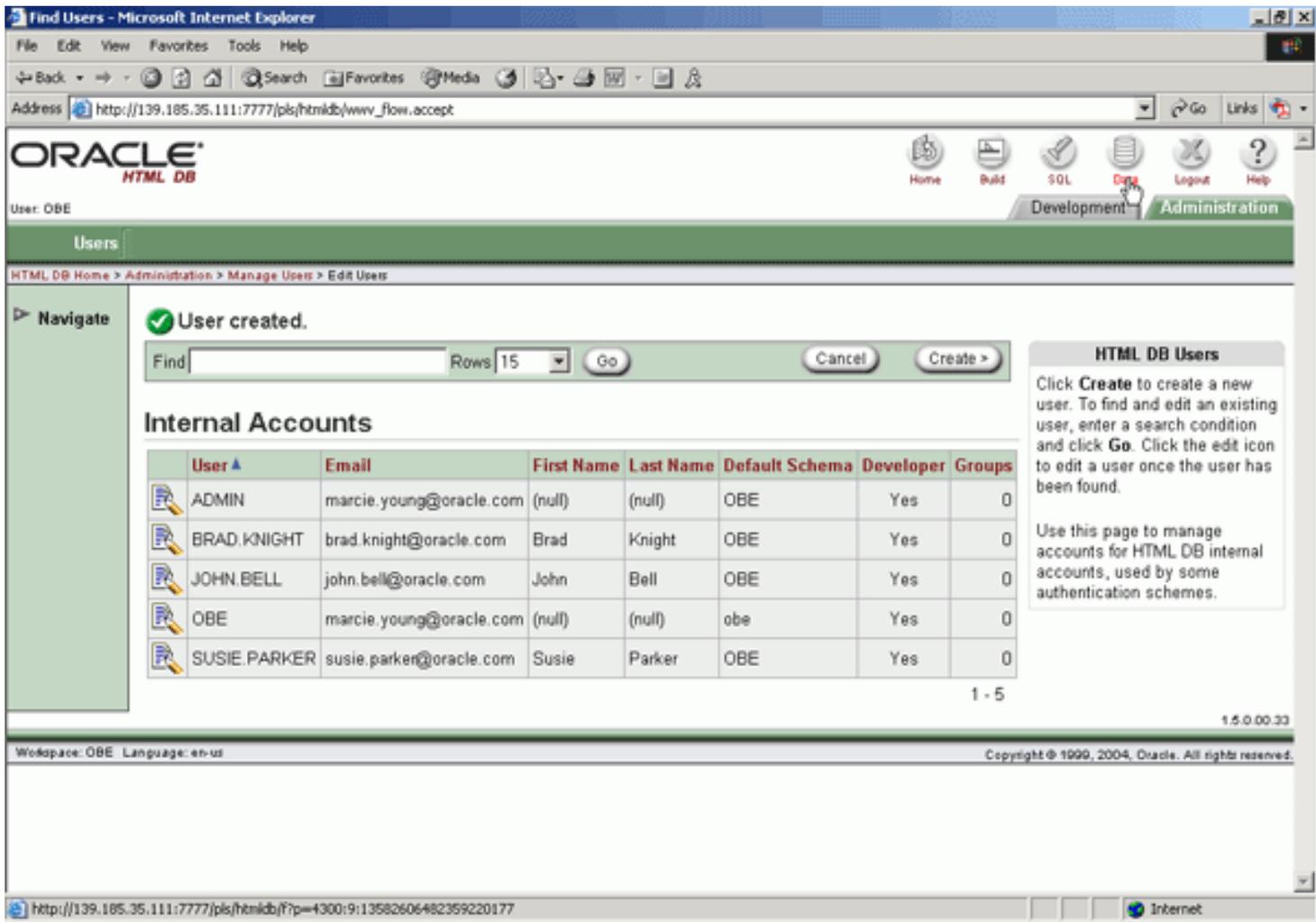
## Authorizing Users

Brad and Susie are administrators. They will be given the ability to update inventory data. John is not an administrator and will not be given this privilege. Perform the following:

1. Click **Import Spreadsheet Data.**

2. You will create a new table that will contain a list of users who are administrators. Click **Next** to accept the defaults.
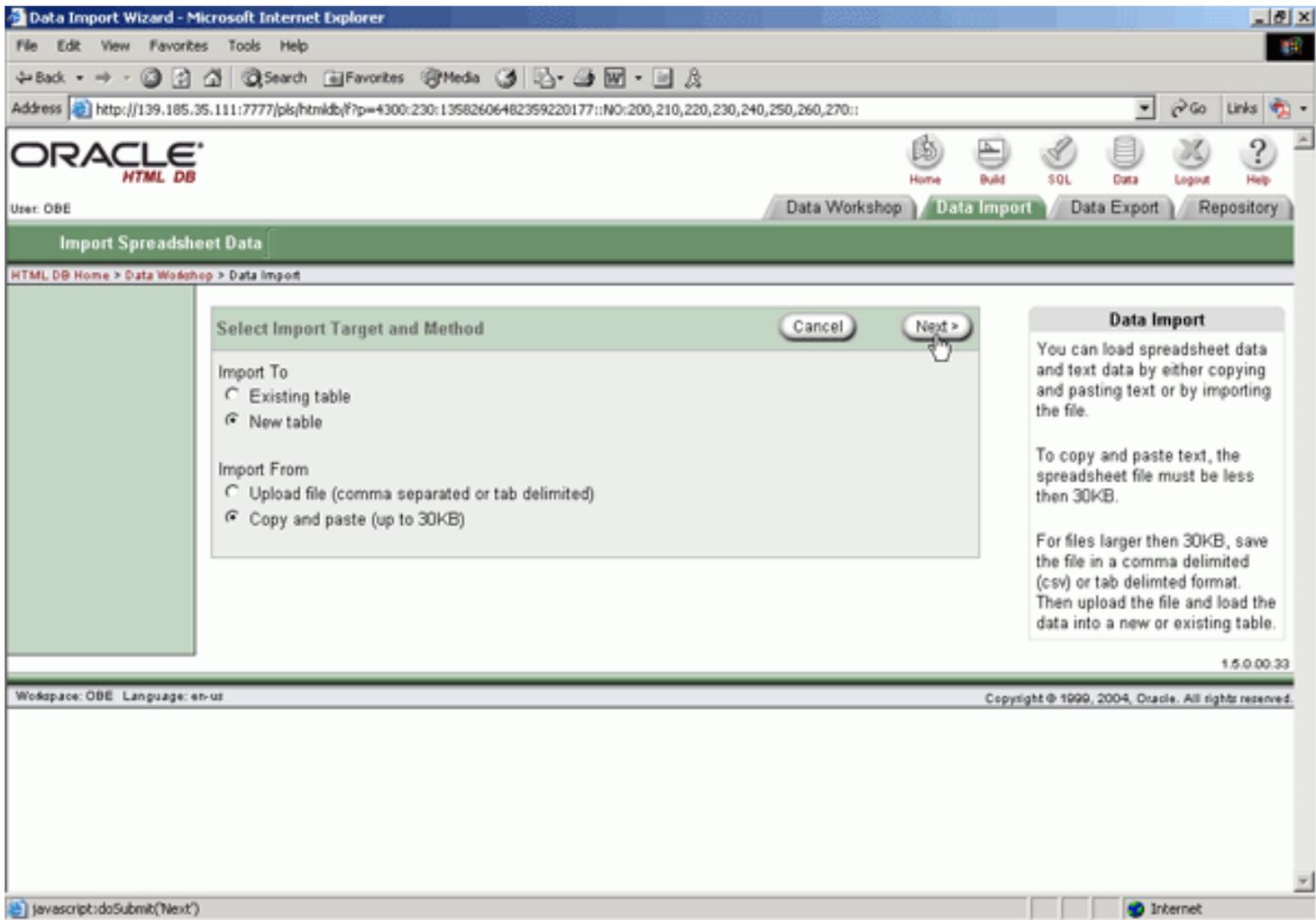
3. Select the following text and click **ctrl-c.**

**USERID
BRAD.KNIGHT
SUSIE.PARKER**

4. Switch back to HTML DB and click in the Data area and click **ctrl-v** to paste the list of users. Then click **Next** .
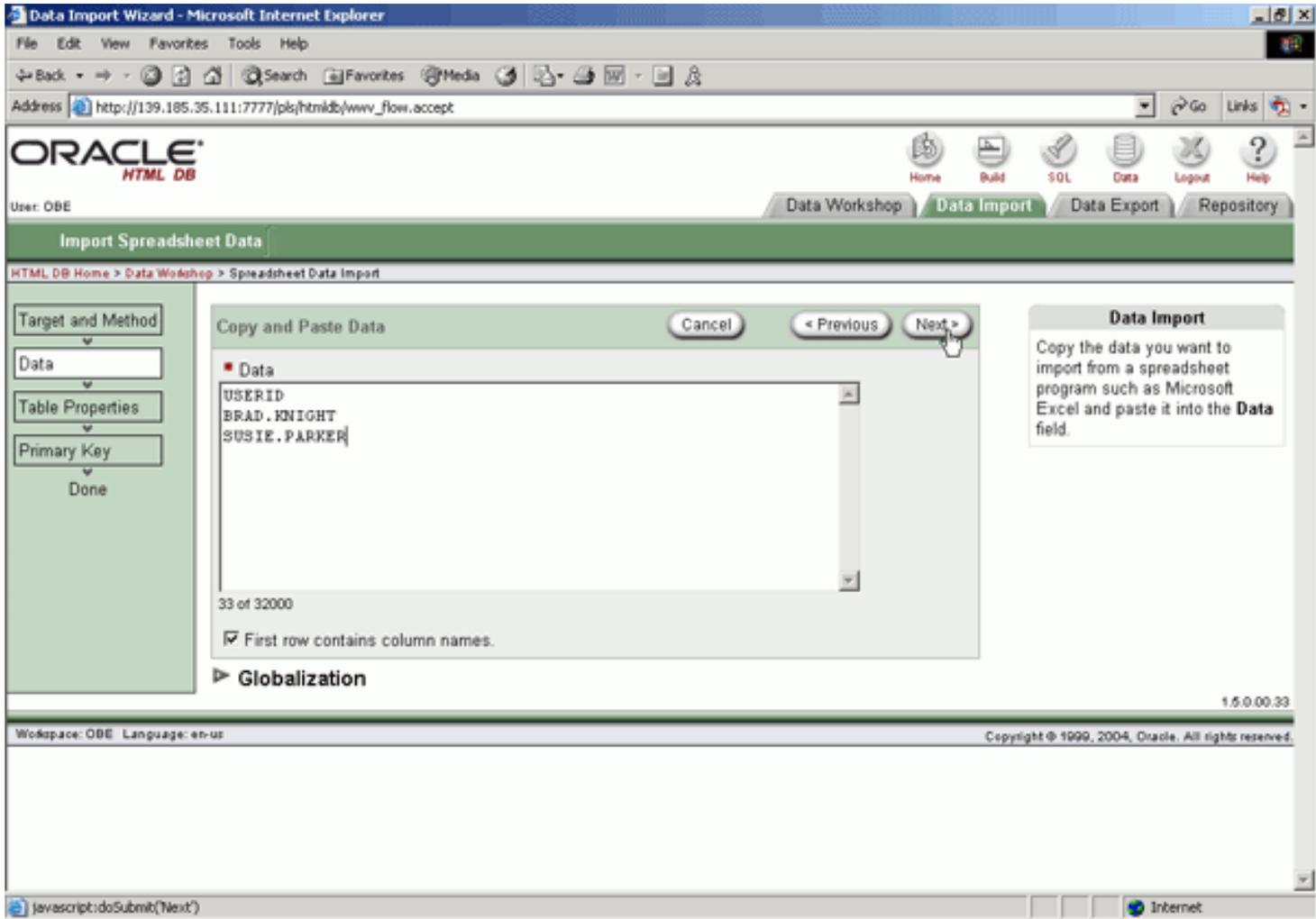
5. Enter **admins** for the table name and click **Next** .

6. Click **Import Data** to create the table and load the data.

7. Click **Build** to return to your application.

8. You need to create an admin authorization. Click the **Security** sub-tab.
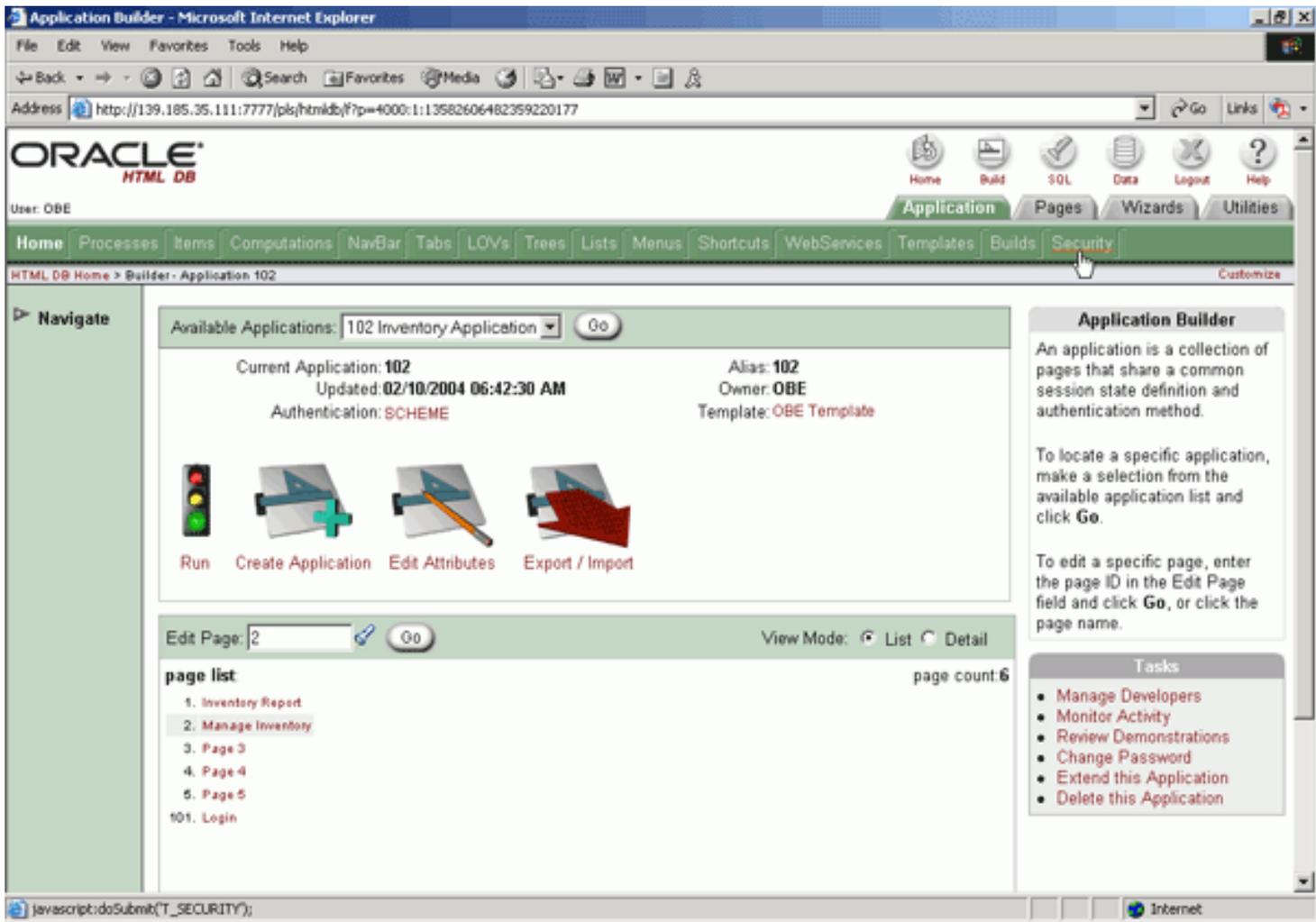
9. Click **Authorization** .
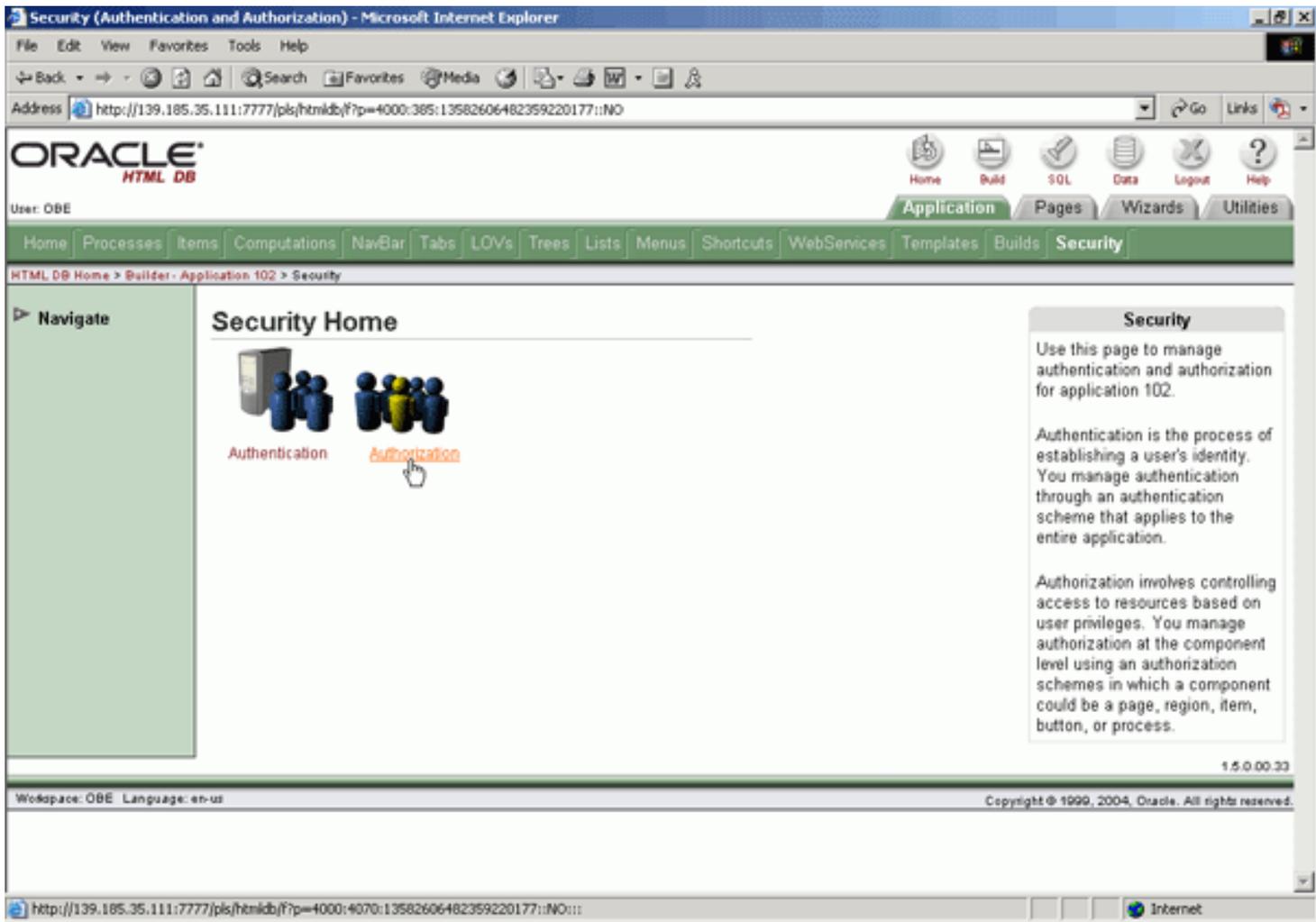
You need to create an authorization scheme. Click **Create** .

10.
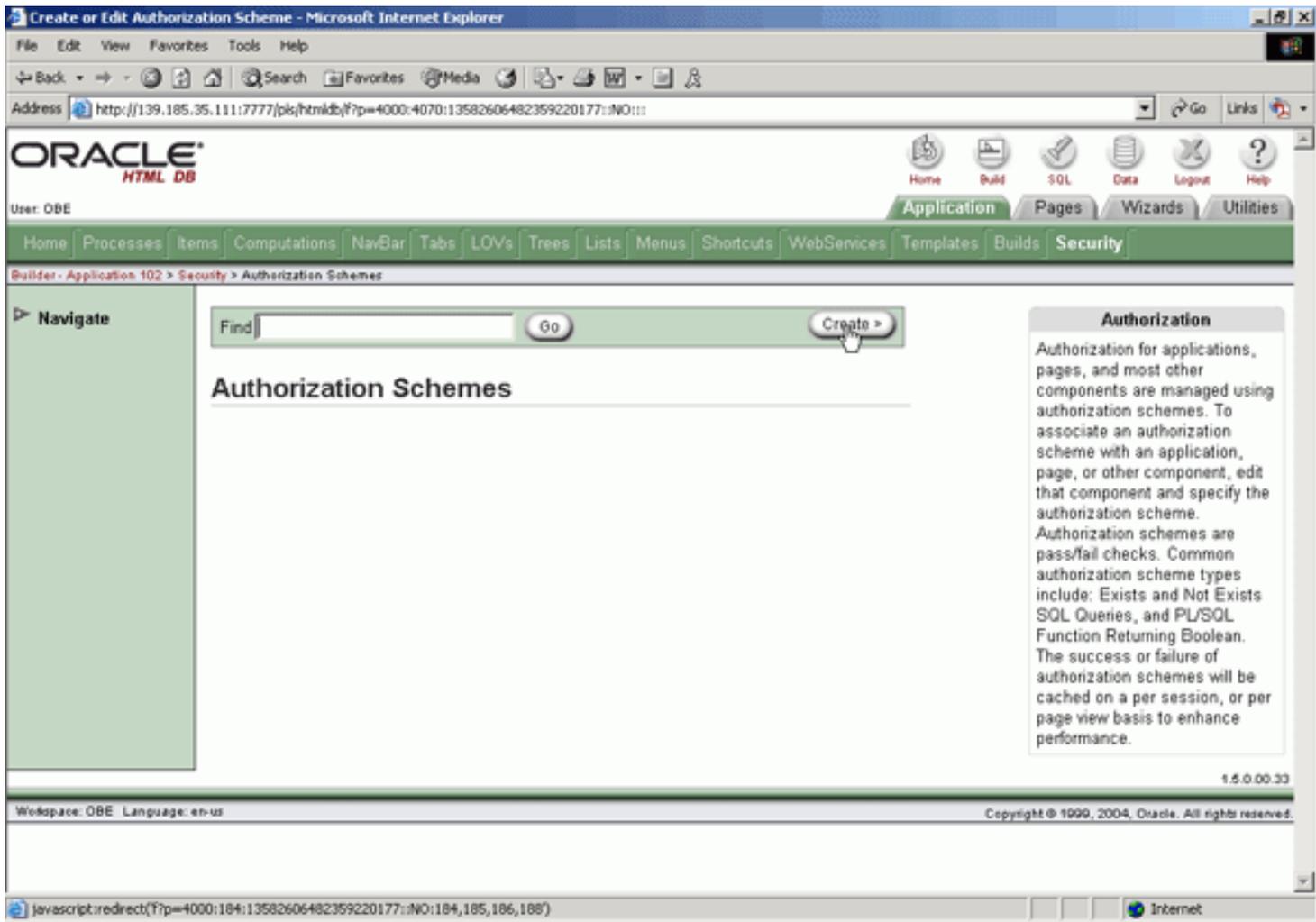
Click **Next** .

11.
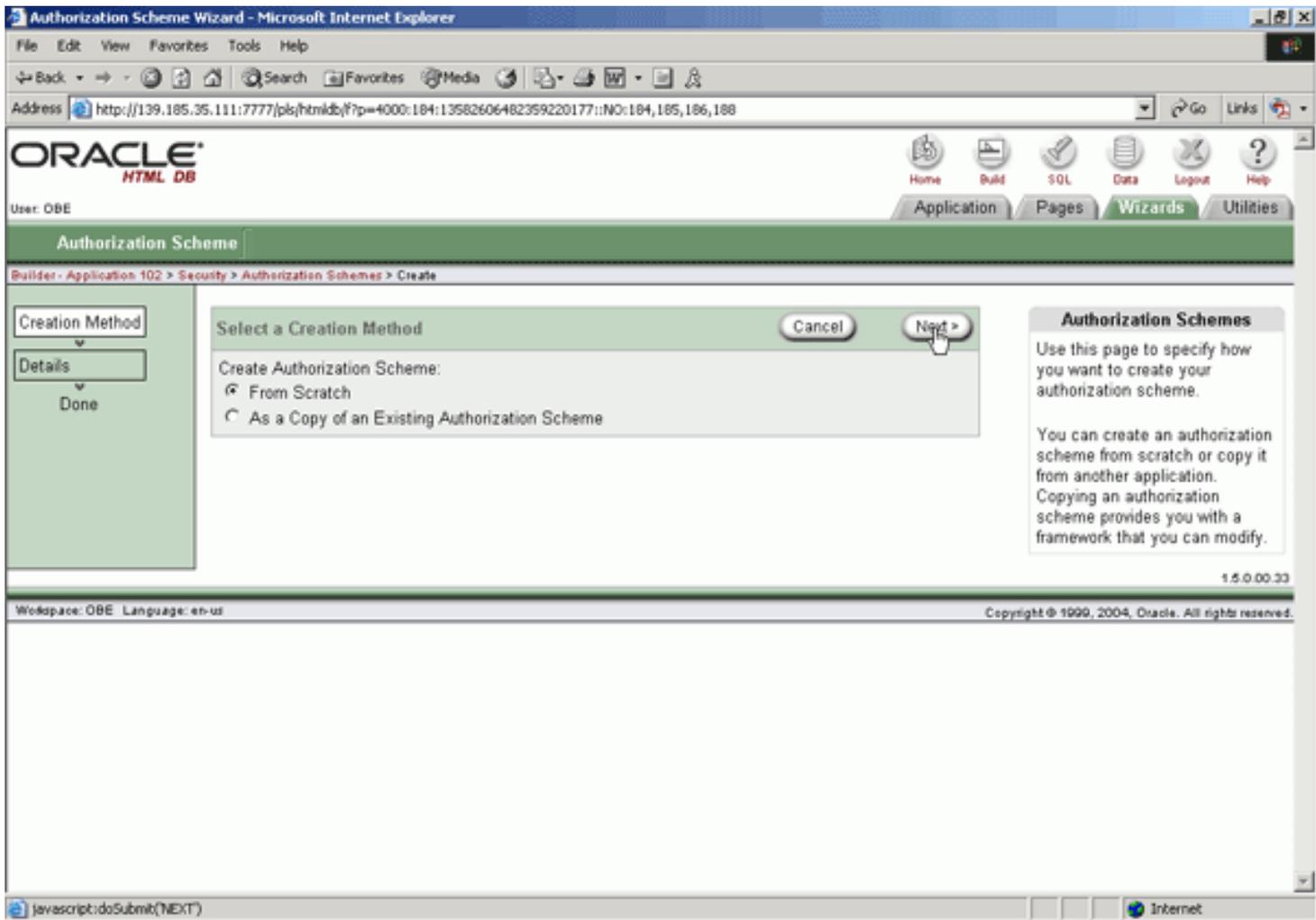
Enter the following and **scroll down** .

12.

Name: **admin priv req**
Scheme Type: **Exists SQL Query**
Expression 1: **select 1 from admins where userid=:FLOW_USER**
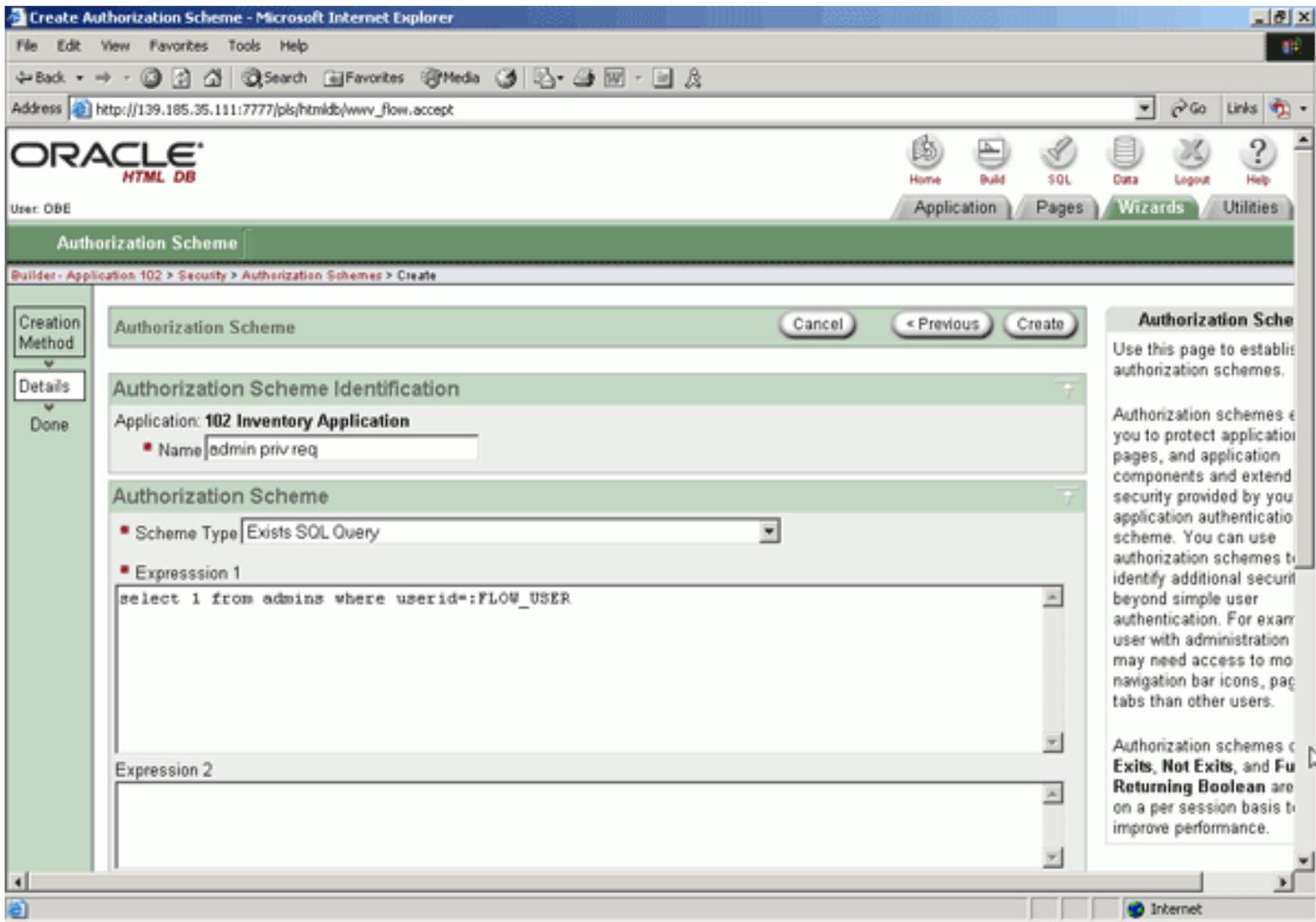
13. Enter **Access denied. Administrator Privilege Required.** for Identify error message displayed when scheme violated and **scroll up** .
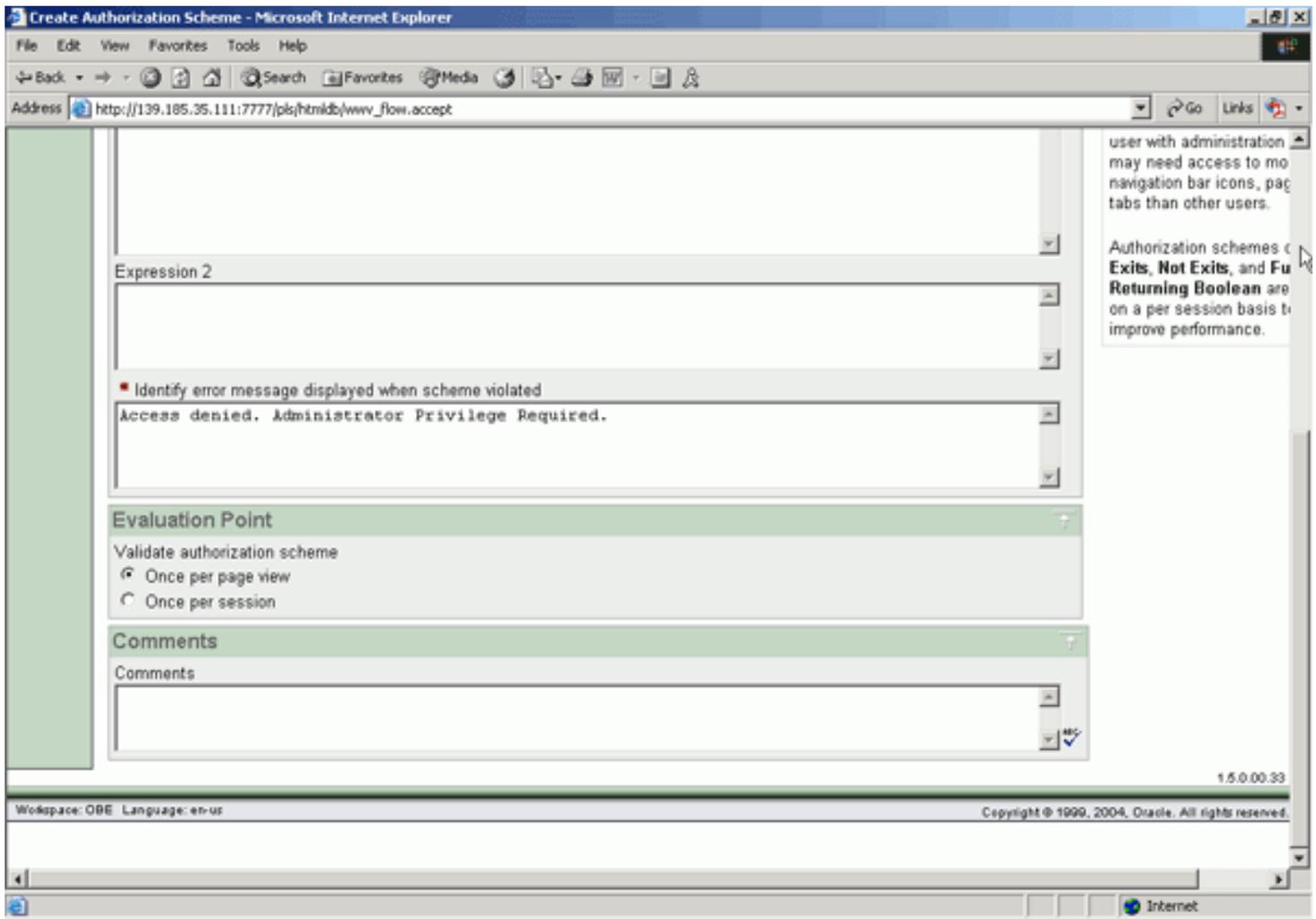
Click **Create** .

14.
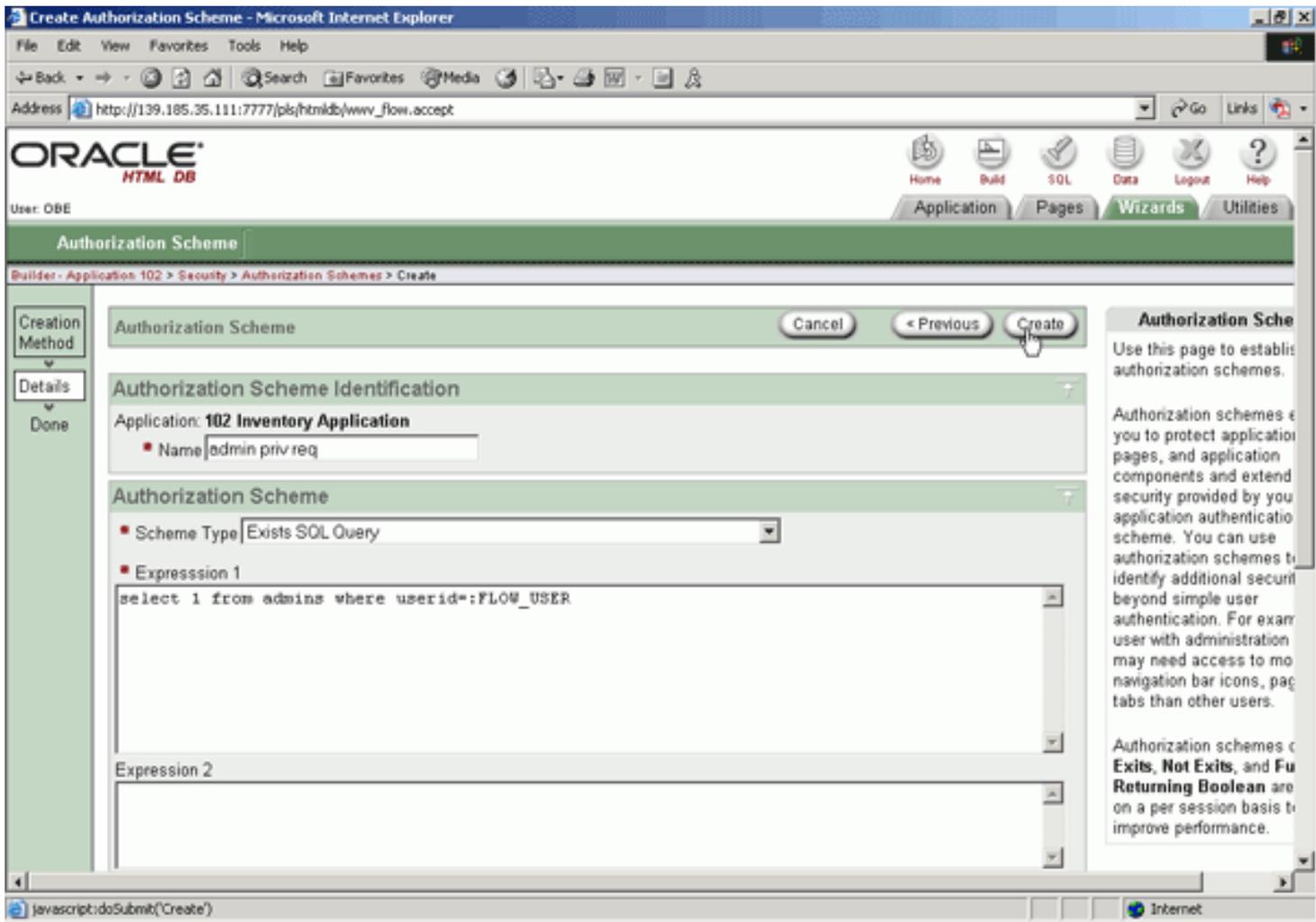
15. Your scheme has been created. Now you will associate the scheme for the ID (Edit) column on the Hardware Inventory Report. Click **Build** .
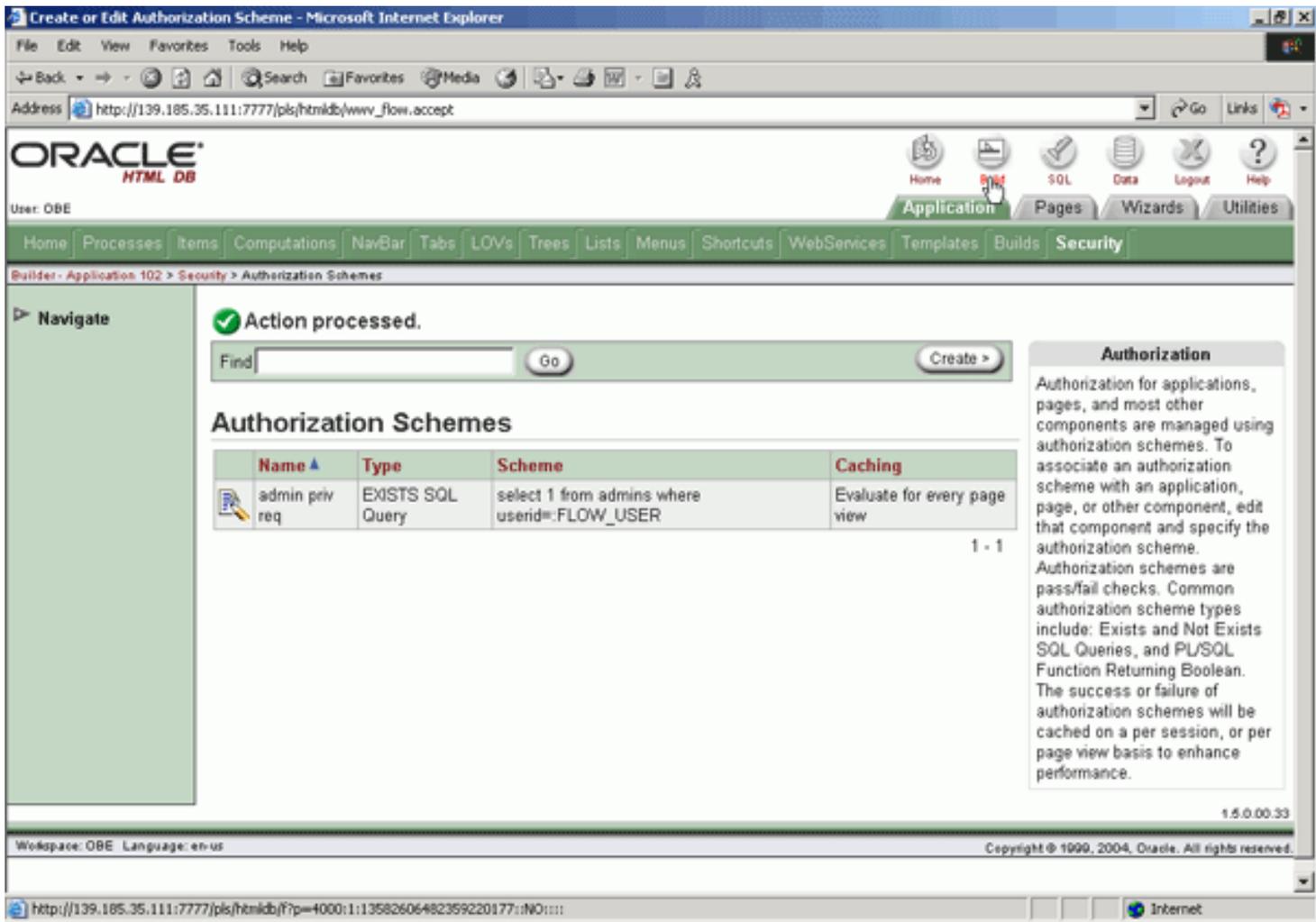
Click your page **1. Inventory Report.**

16.
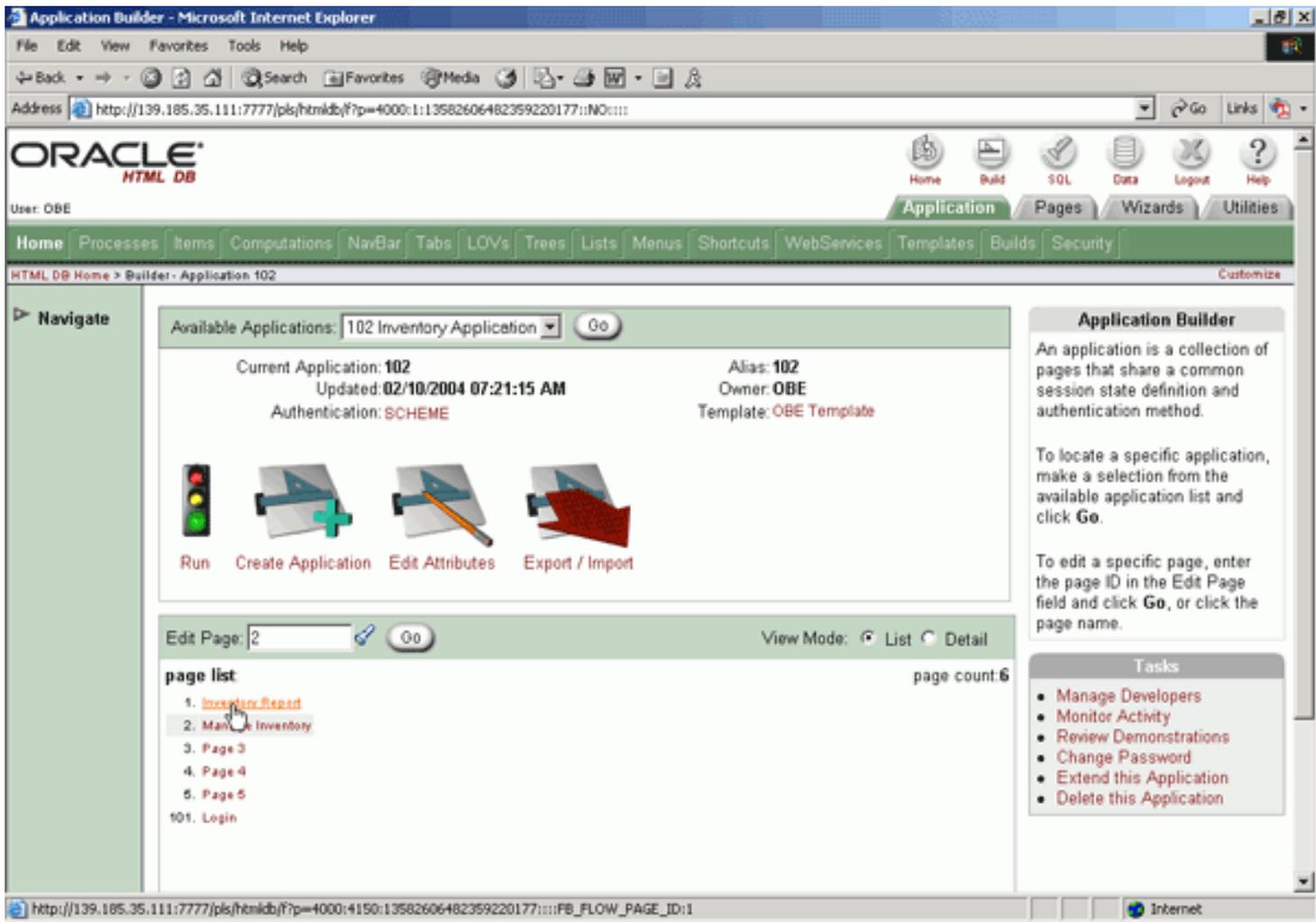
Click **RPT** to update the attributes for the Hardware Inventory region.

17.
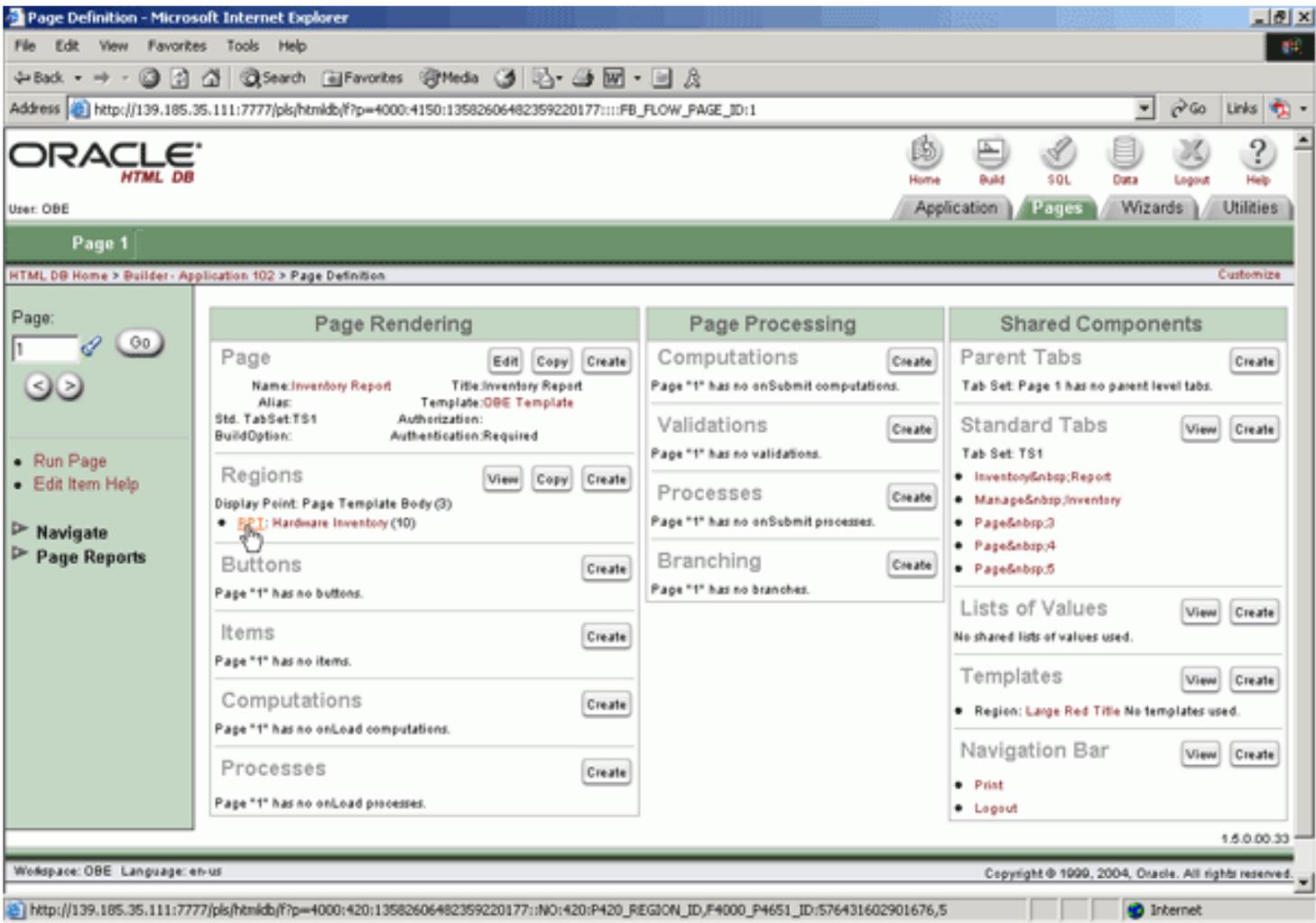
Click the **Edit** icon next to ID.

18.

Select the **Conditions** link.

19.
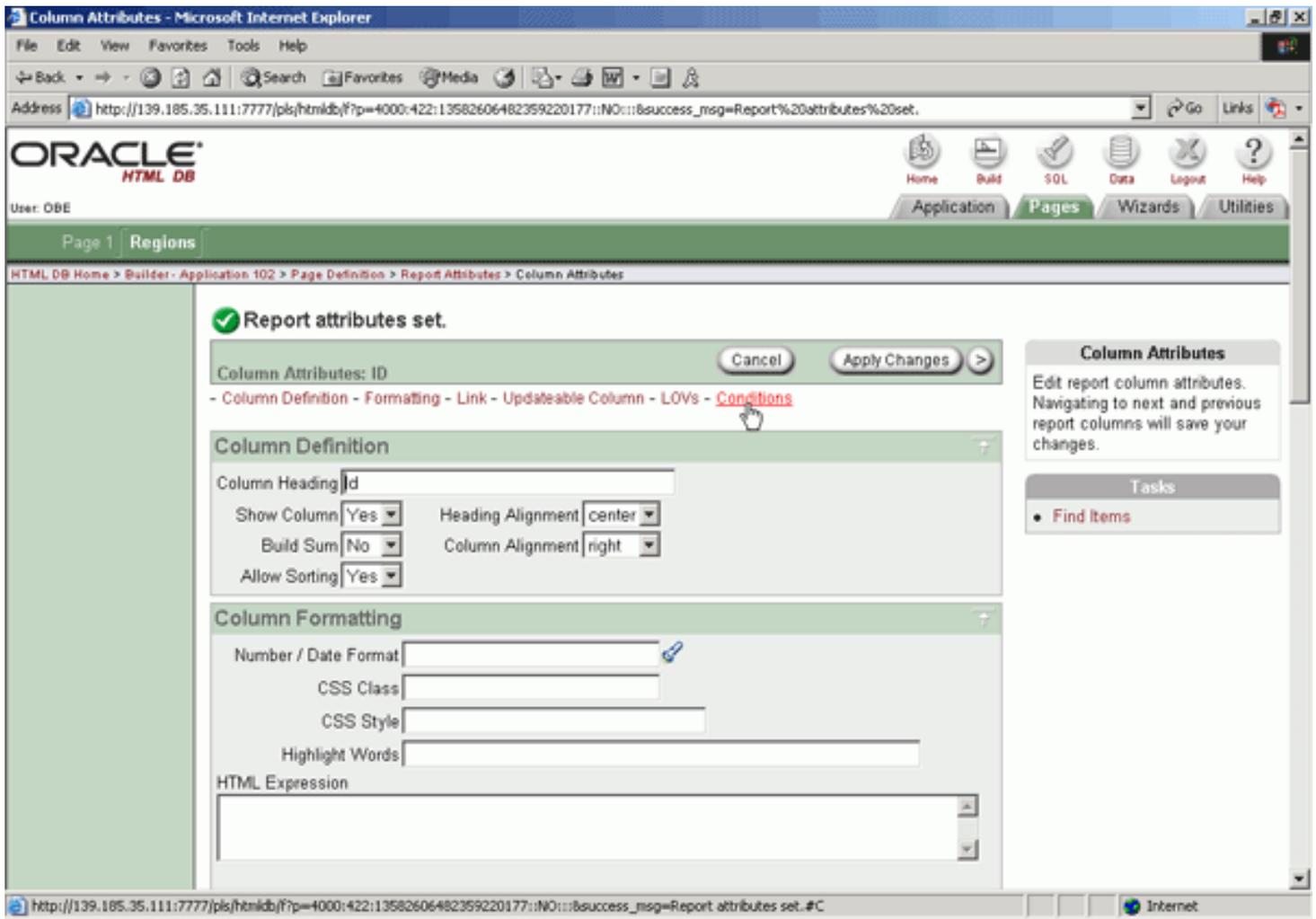
Select **admin priv req** for the Authorization Scheme and click **Top.**

20.
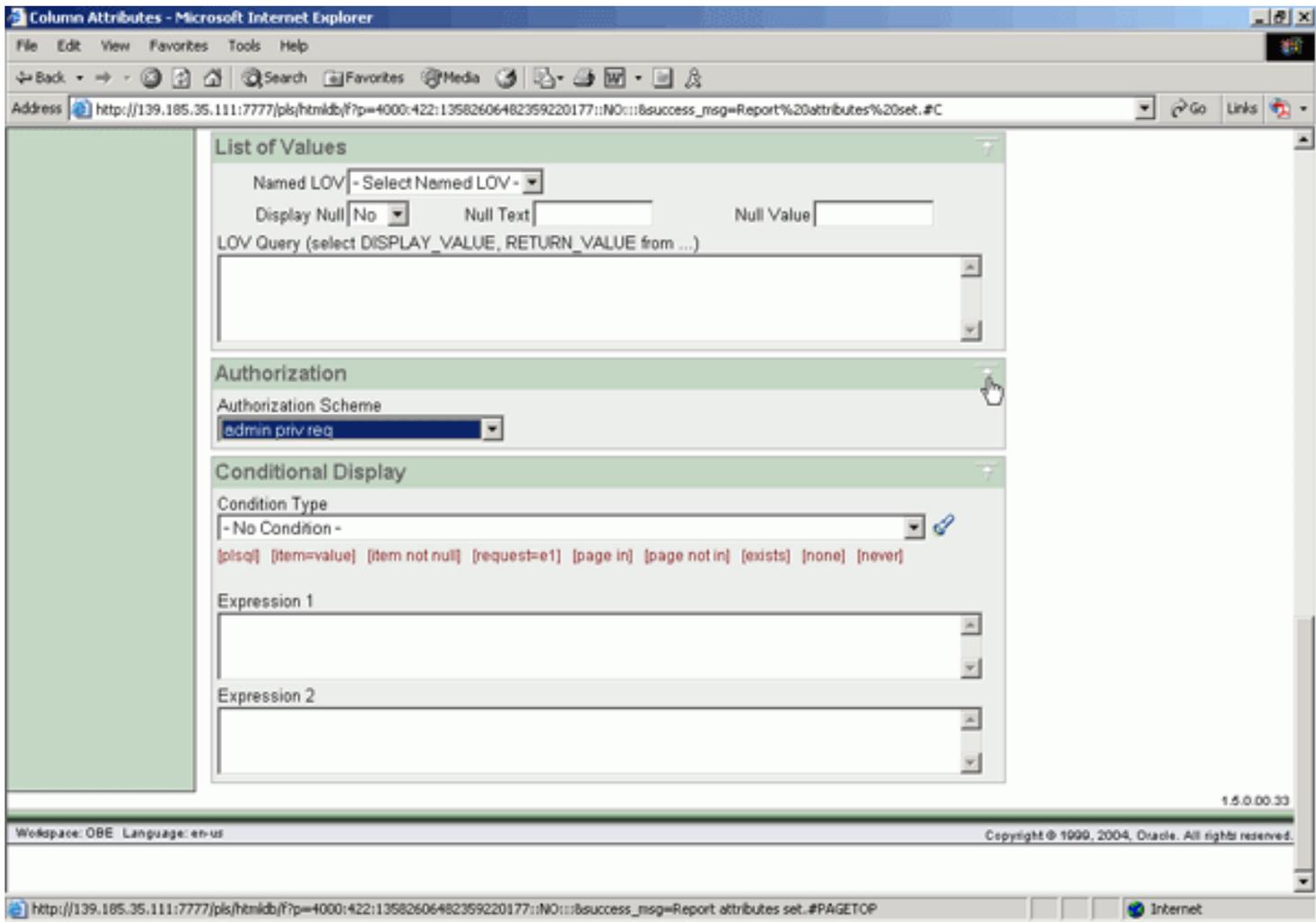
Click **Apply Changes** .

21.
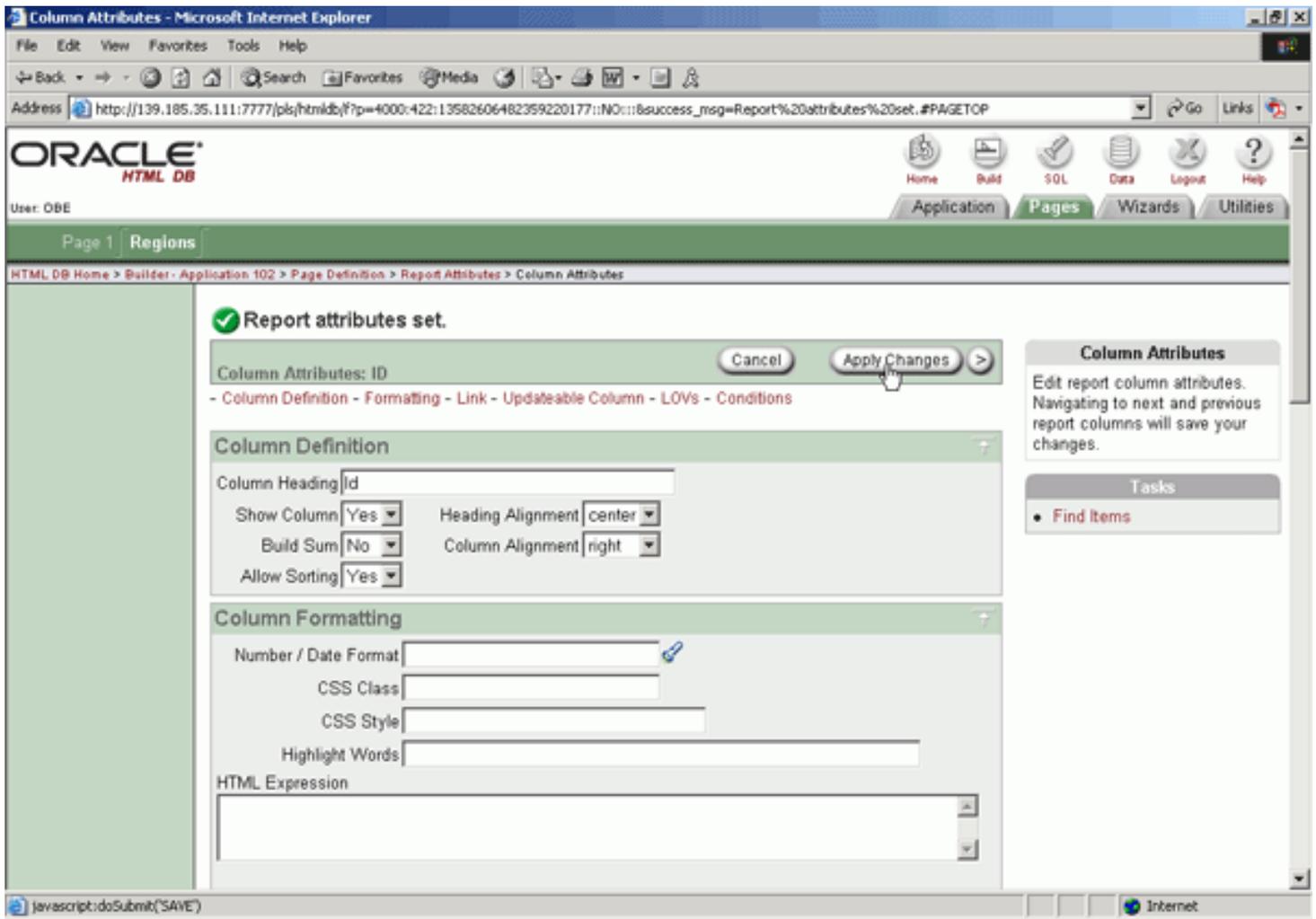
Click **Apply Changes** again.

22.

Click **Run Page** .

23.

Click **Logout** .

24.

Inventory Report - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help

Back   ·   ·   Search   Favorites   Media

Address   http://139.185.35.111:7777/pls/htmldb/f?p=102:1:13582606482359220177   Go   Links

ORACLE

Print :: Logout ::

OBE

Inventory Report::   Manage Inventory   Page 3   Page 4   Page 5

Hardware Inventory::

| Serial	Brand	Cpu Type	Cpu Speed ▼	Purchase Date	Model	Form Factor	Purchase Price
FL4Q321	Dell	Pentium III	2400	10-DEC-02	GX260	D	6267
ABC12345	Toshiba	Pentium IV	2000	04-FEB-04	Tecra	L	4300
HQMHC12	Dell	Pentium IV	1700	15-JUN-02	GX240	D	6588
H09BOIUP296	Compaq	Pentium IV	1700	27-APR-02	Evo	D	6477
JKEW77U	Toshiba	Pentium I	1700	01-MAR-03	Tecra 740 CDT	L	2266
KLJH98798YUTU	Dell	Pentium III	1200	12-JUN-02	Latitude C610	L	5170
OKMND876	Digital	Pentium I	1200	01-JAN-98	Hinote Ultra II	L	2188
0KBU4	Gateway	Pentium III	1000	12-MAY-01	Cash Cow	L	4532
LKM7D9J	Gateway	Pentium IV	1000	12-MAY-03	Cash Cow	L	4532
3J17JZL1345	Compaq	Pentium III	850	17-AUG-01	Armada 700	L	5119
9875H879	Toshiba	Pentium III	850	05-OCT-01	Tecra 8200	L	5446
8UJJDSLKN	Toshiba	Pentium III	850	20-MAR-00	Tecra 8100	L	5122
W112FGHZ456	Compaq	Pentium III	800	12-JAN-01	Deskpro EN	D	5330
QT6547PLPS	Apple	PowerPC G4	800	01-JUN-02	Powerbook	L	3200
QT21603PLP5	Apple	PowerPC G4	800	12-JUL-02	Powerbook	L	3773

row(s) 1 - 15 of 38   Next

Edit Application   Edit Page 1   New   Session   Debug   Hide Edit Links

http://139.185.35.111:7777/pls/htmldb/wwv_flow_custom_auth_std.logout?p_this_flow=102&p_next_flow_page_sess=102:1:1358260648235   Internet

Enter **Brad.Knight** for the User Name and **welcome1** for the Password and click **Login** .

25.
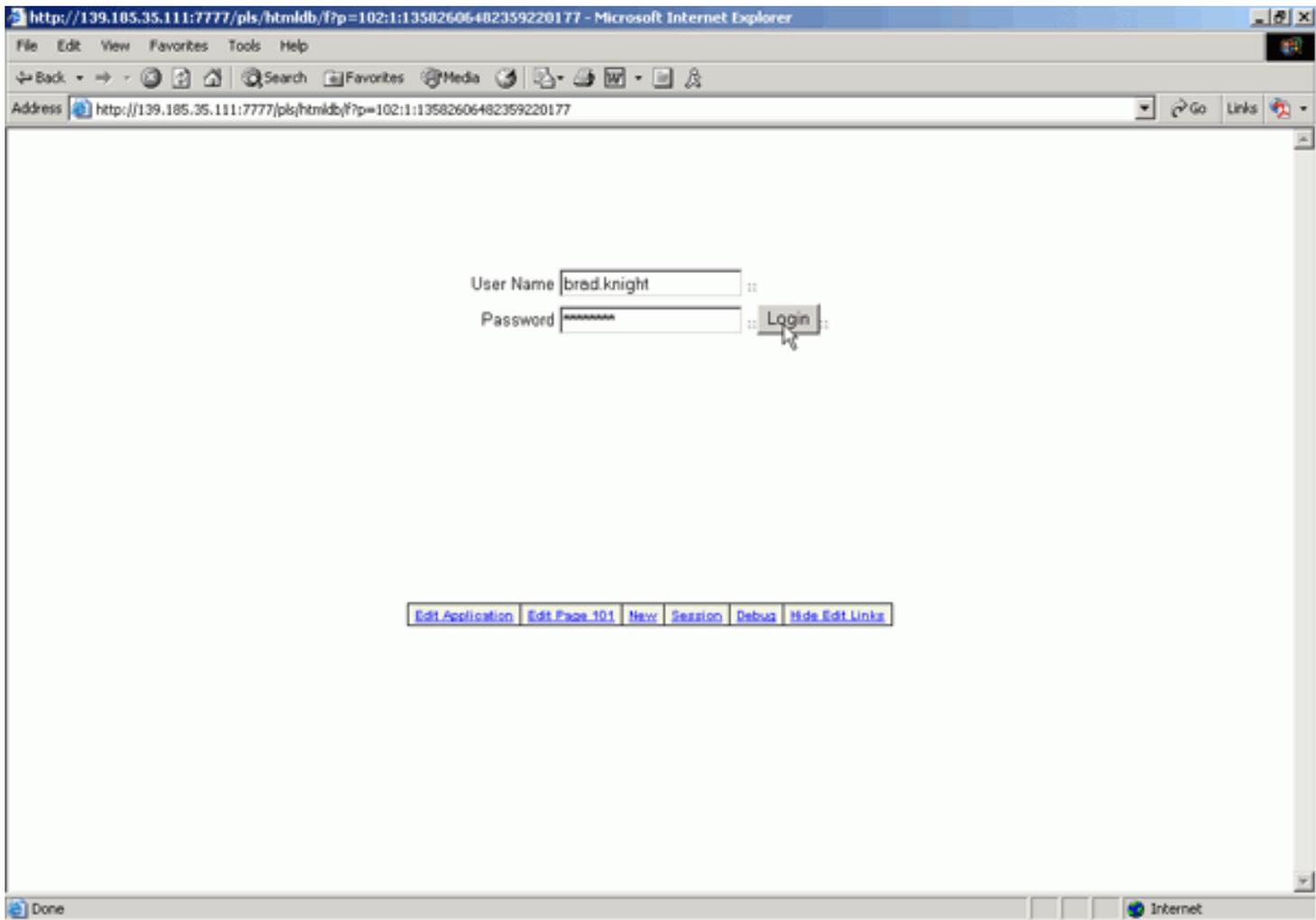
26.	Notice that because Brad is an administrator, you see the ID column to allow a row to be updated. Now you will logout and relogin as John to see that he does not have the ability to update a row since he is not an admin. Click **Logout** again.

| 27. | Now you can login as a non administrator. Enter username **John.Bell** and password **welcome1** . Then click **Login** . |
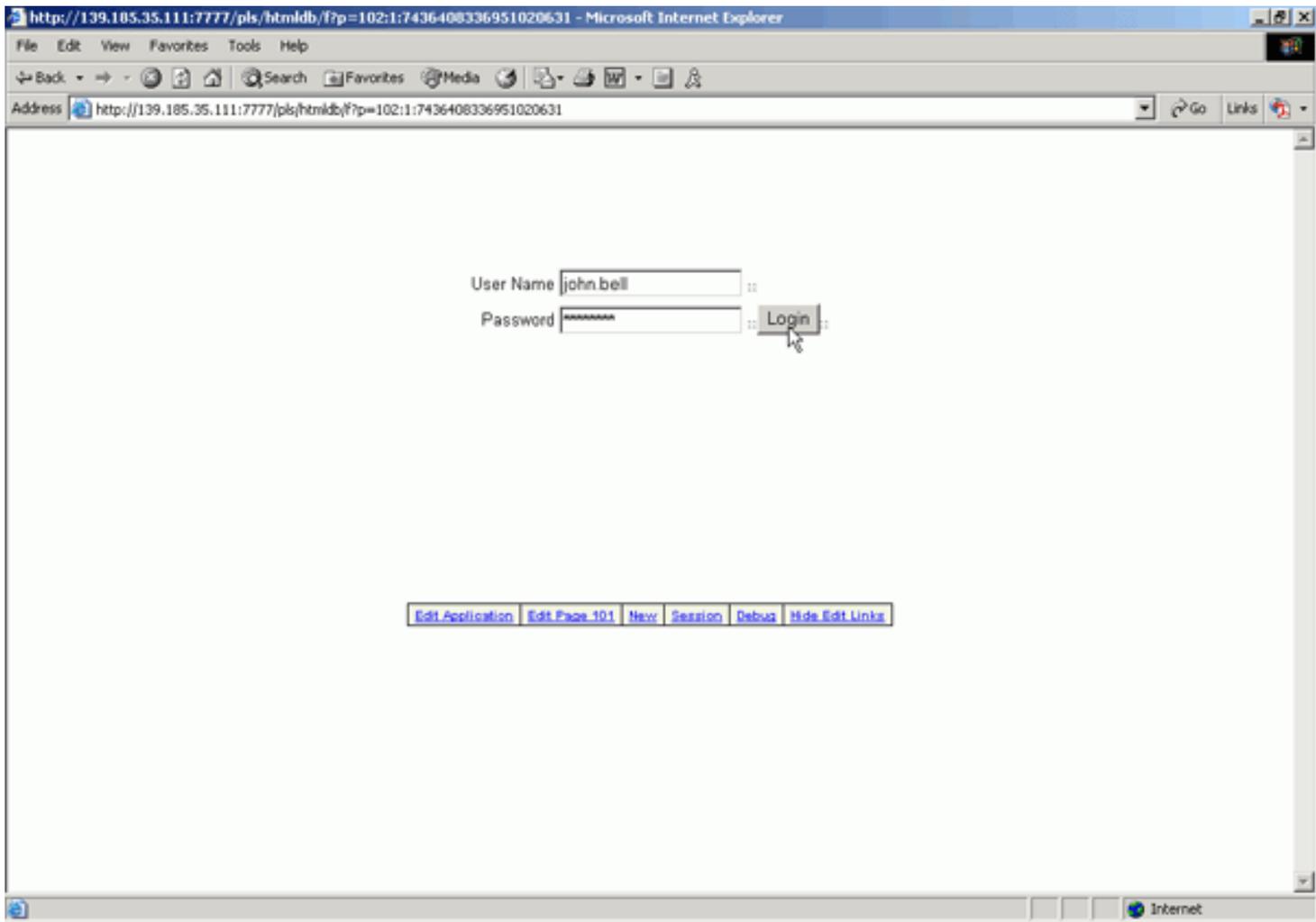
28. Notice that you do not see the Edit column any longer. You do see the Manage Inventory tab which you do not want non-administrators to have access to so you will eliminate the tab now. Click **Edit Page 1** .

Click **>** to navigate to page 2.

29.
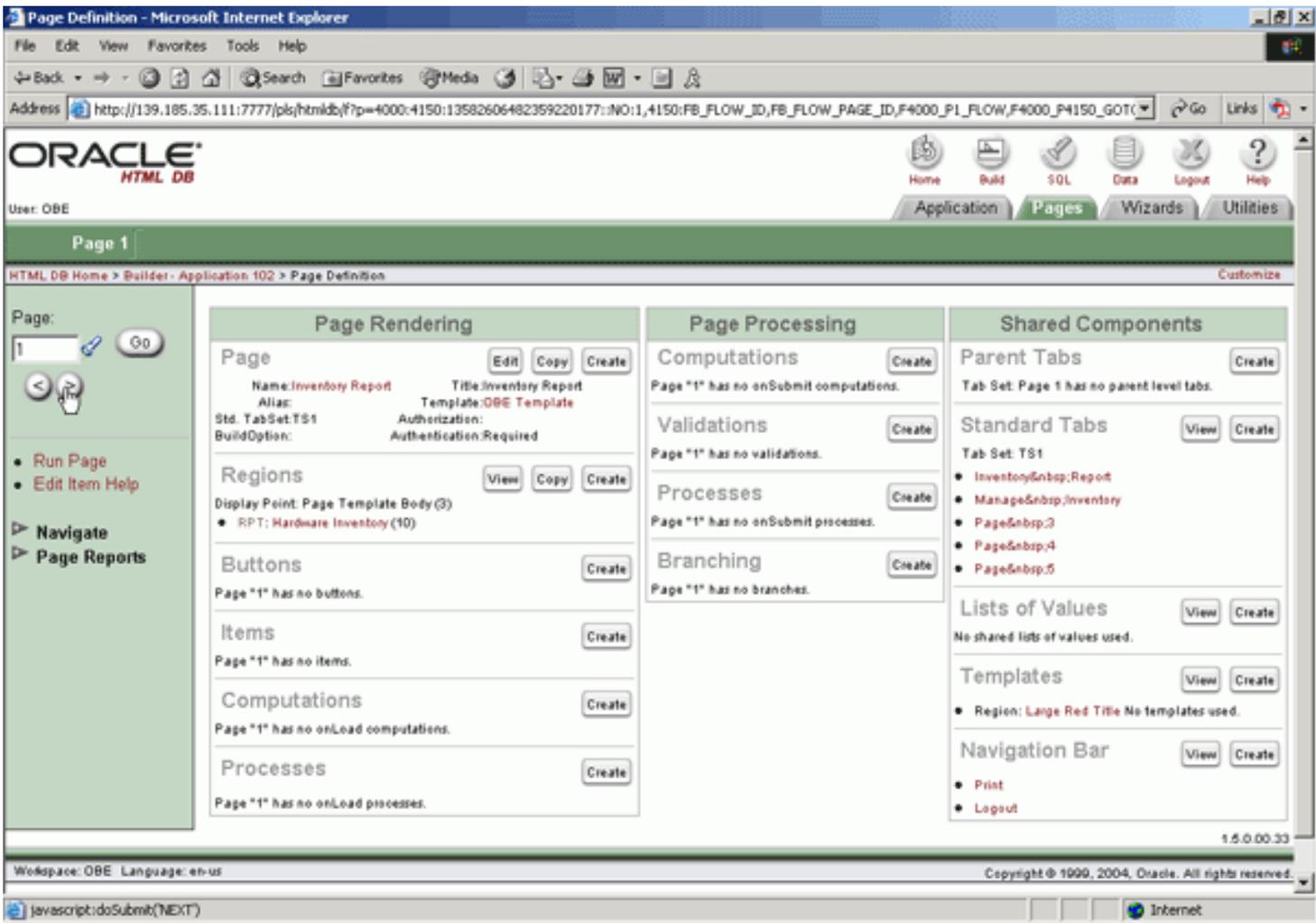
Click **Edit** in the Page section.

30.
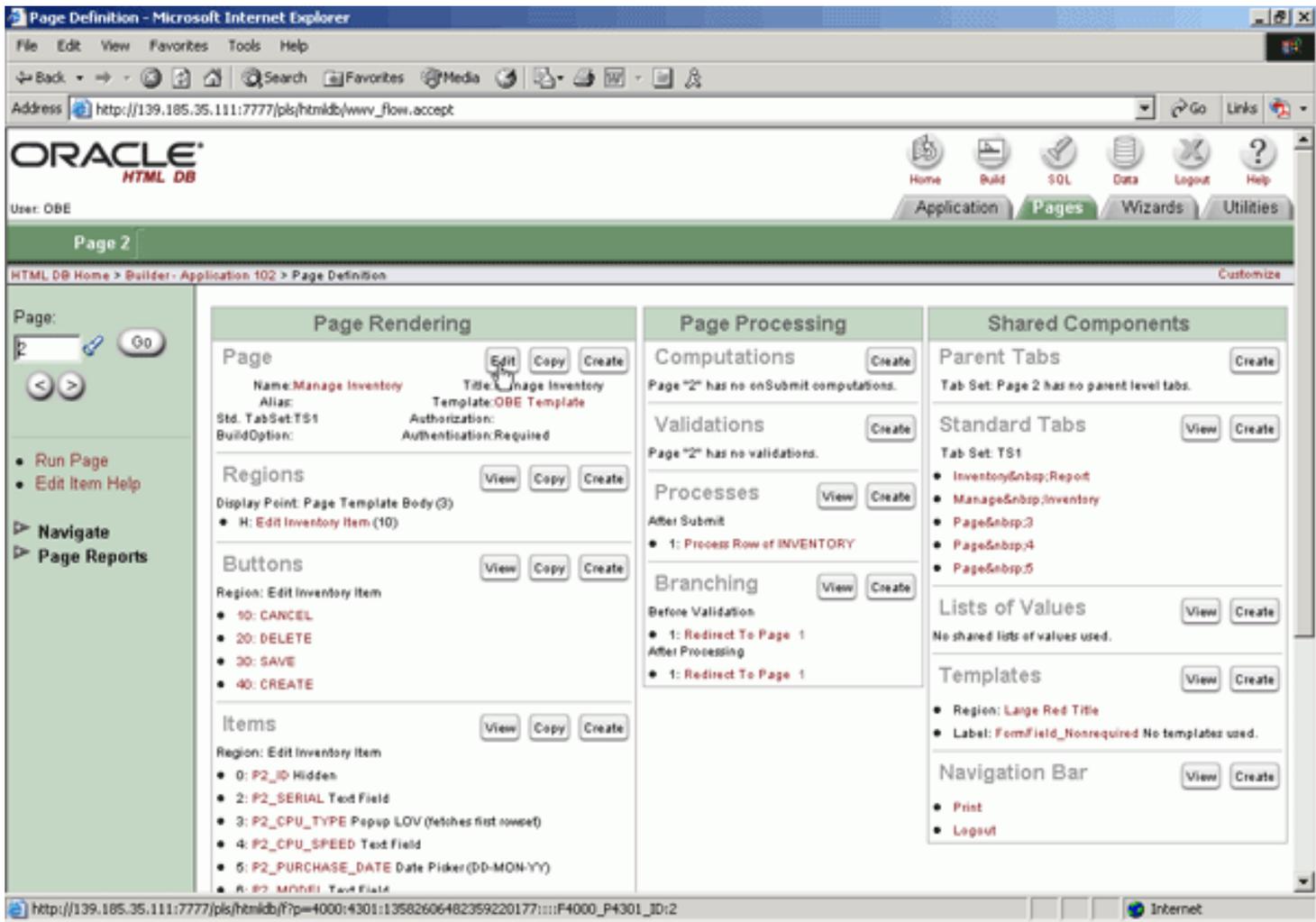
Click the **Security** link.

31.
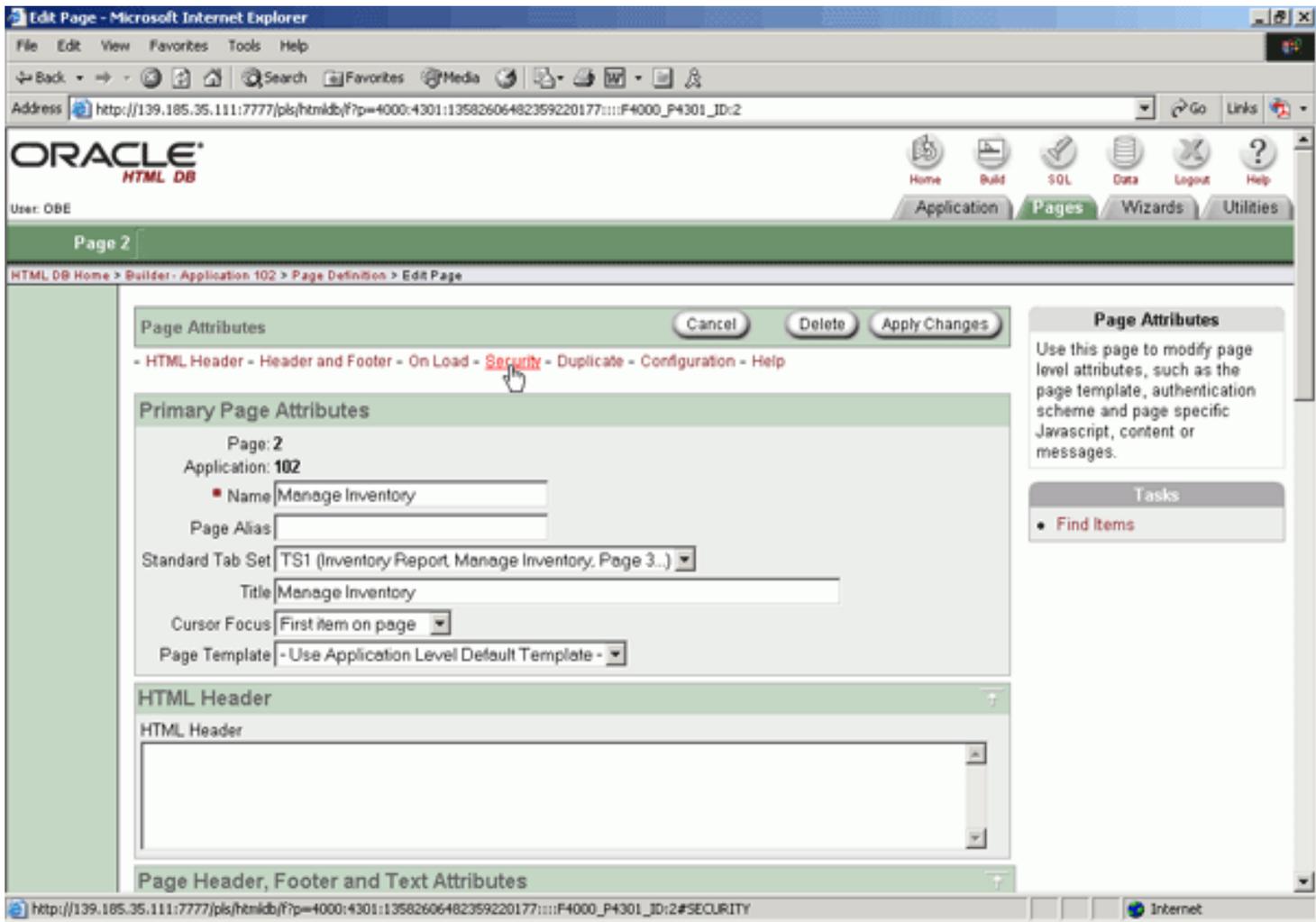
Select **admin priv req** for the Authorization Scheme and click **Top** .

32.
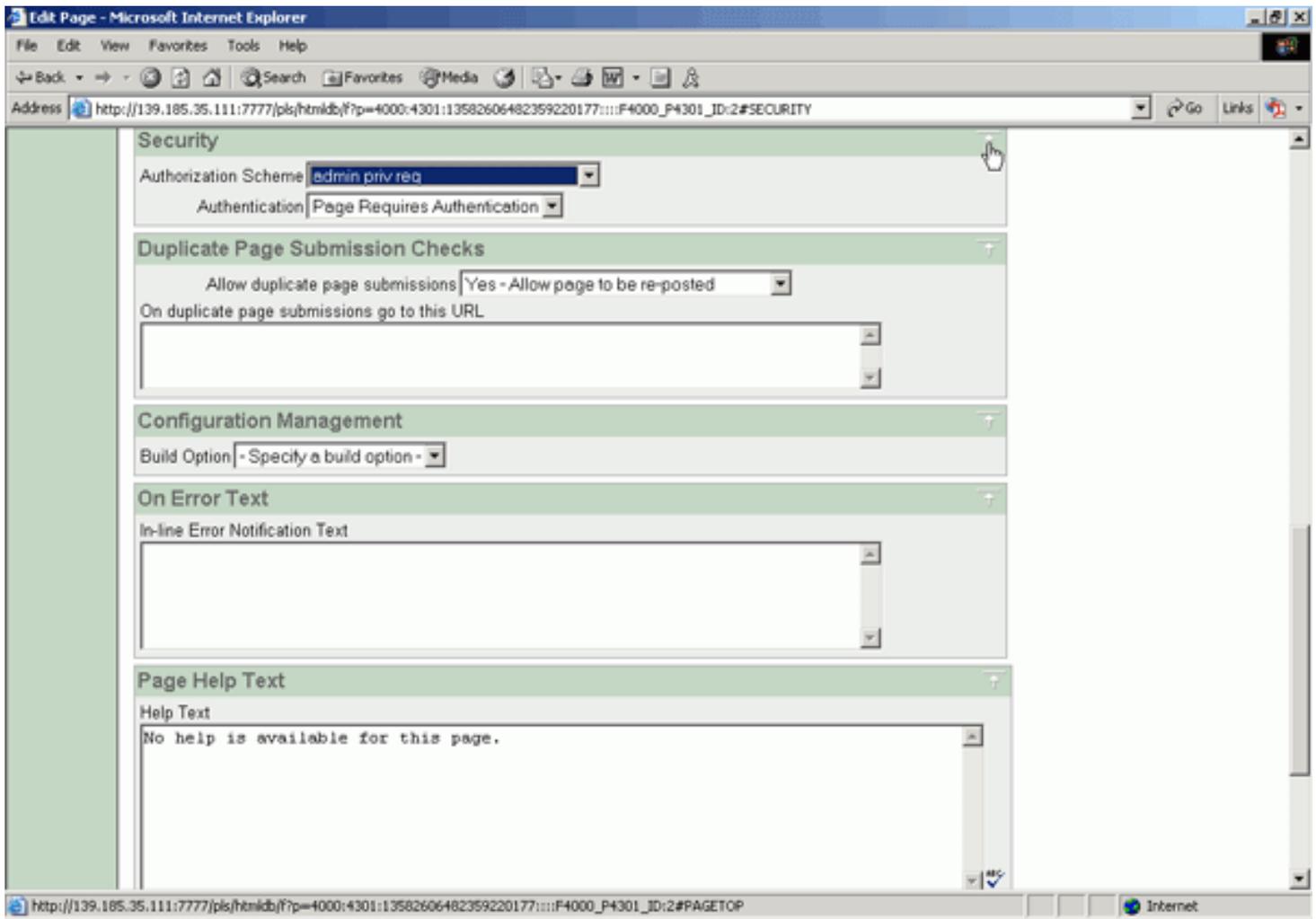
Click **Apply Changes** .

**33.**
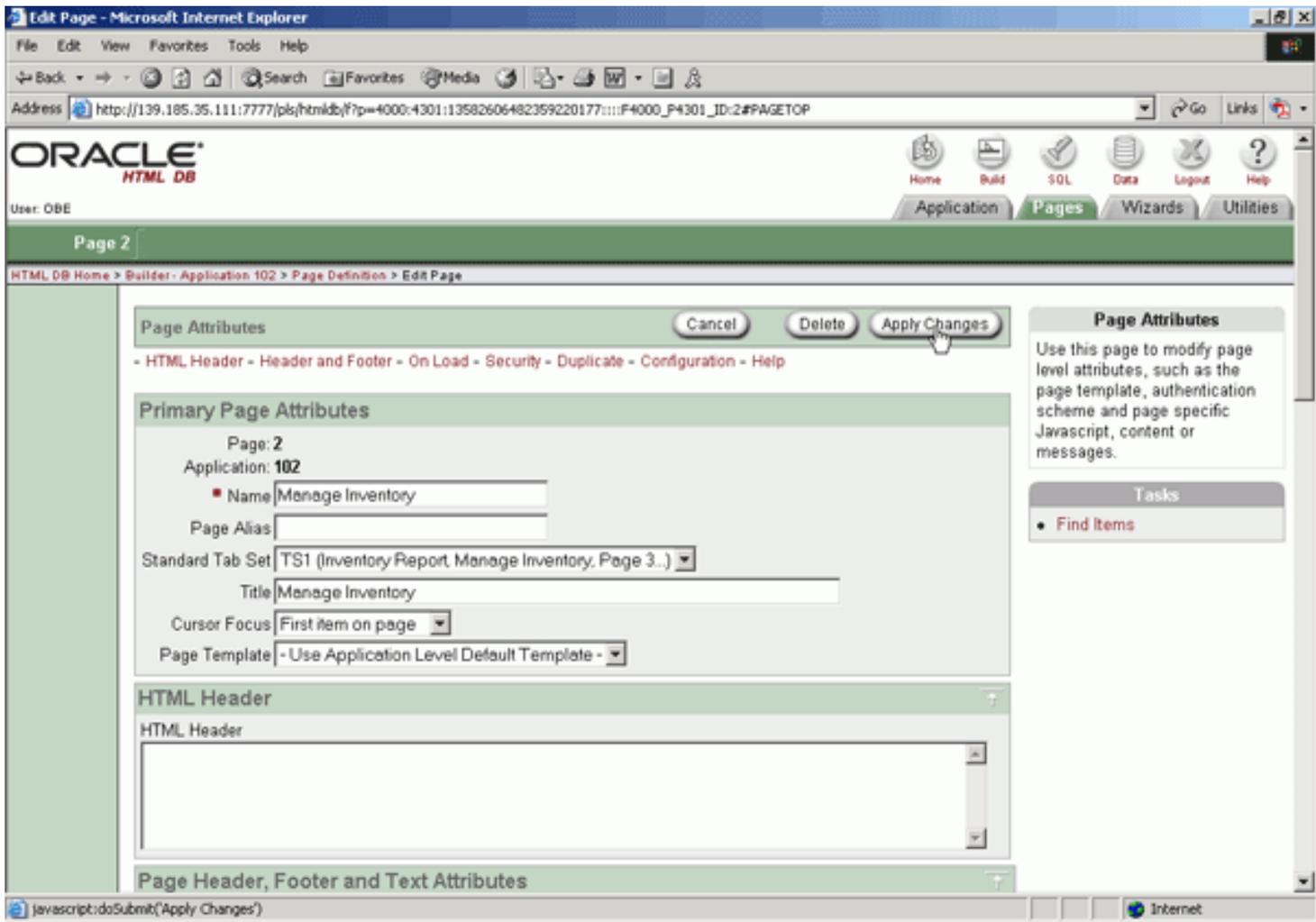
In the Standard Tabs section, click the tab **Manage Inventory** .

33.

Click the **Authorization** Link.

34.

Rapidly Creating a Database-Centric Web Application

Select **admin priv req** for the Authorization Scheme and click **Top** .

35.

Click **Apply Changes** .

36.

Change the number in the Page field in the left navigator to **1** and click **Go** .

37.

Then click **Run Page** .

38.

39. Notice that the Manage Inventory Tab is not available any longer because you are logged on as a non-administrator.

Place the cursor on this icon to hide all screenshots.