



MENU



Custom Authentication in Oracle APEX

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Oracle APEX Tutorials

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1- Introduction



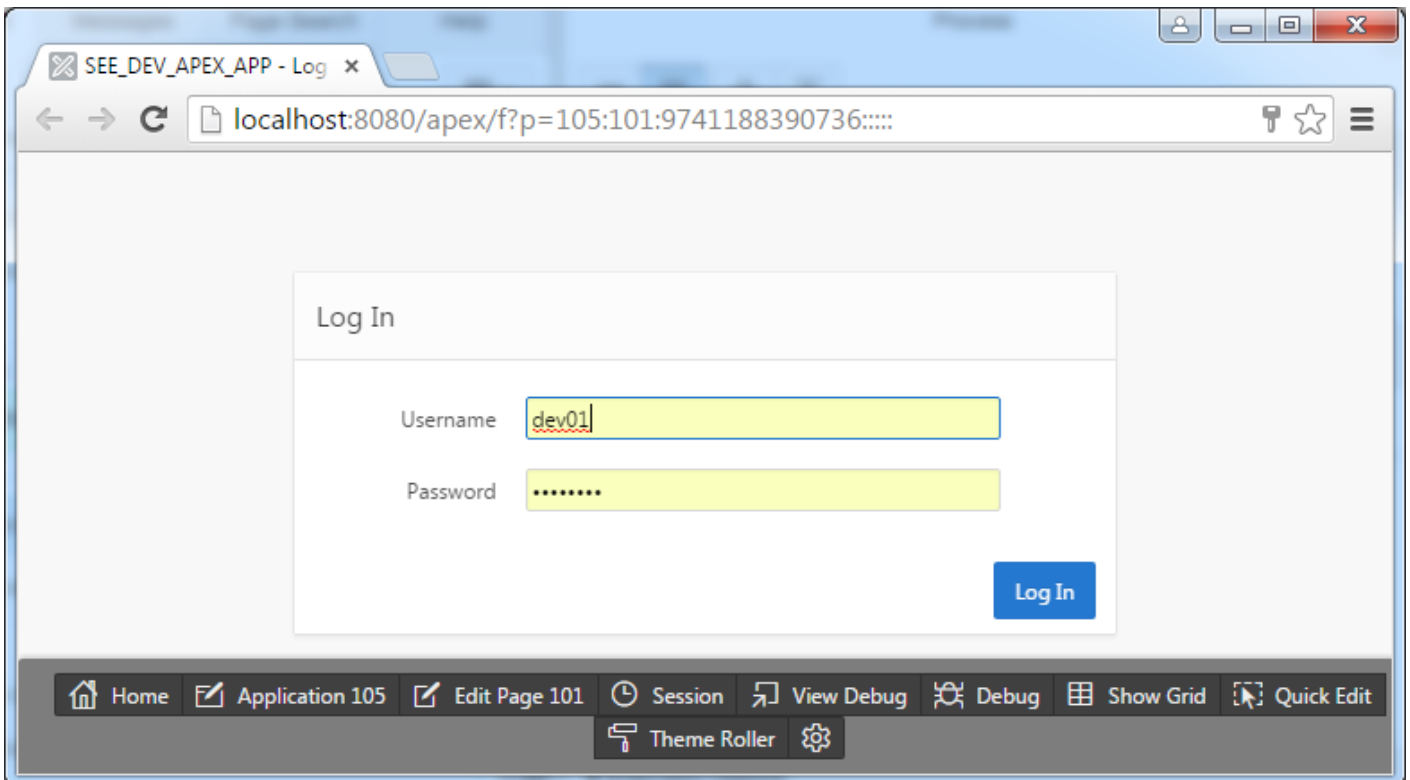
This document is based on:

- Oracle APEX 5.0

2- Default authentication of APEX

When you create an **Oracle APEX** application, the default login page is created with page number is 101. Default login uses **APEX authentication**, which means you have to enter a **username** and **password** created by the **APEX Admin**. In case you have a separate table to store user information, you need to customized authentication.

OK this is the default **login** page is created:



To begin this example, you need to run Script to create table to store user and create package.

Create **USER_ACCOUNT** table:

```
1  create table USER_ACCOUNT
2  (
3    USER_NAME VARCHAR2(30) not null,
4    PASSWORD  VARCHAR2(30) not null,
5    USER_TYPE VARCHAR2(10) not null,
6    ACTIVE    VARCHAR2(1) not null,
7    EMAIL     VARCHAR2(64) not null,
8    FULL_NAME VARCHAR2(64) not null
9  );
10
11 alter table USER_ACCOUNT
12   add constraint USER_ACCOUNT_PK primary key (USER_NAME) ;
13 alter table USER_ACCOUNT
14   add constraint USER_ACCOUNT_UK unique (EMAIL) ;
15
16 -----
17
18 insert into user_account (USER_NAME, PASSWORD, USER_TYPE,
19 ACTIVE, EMAIL, FULL_NAME)
20 values ('tom', 'tom123', 'admin', 'Y', 'tom@example.com', 'Tom');
21
22 insert into user_account (USER_NAME, PASSWORD, USER_TYPE,
23 ACTIVE, EMAIL, FULL_NAME)
24 values ('jerry', 'jerry123', 'user', 'Y', 'jerry@example.com', 'Jerry');
25
26 insert into user_account (USER_NAME, PASSWORD, USER_TYPE,
27 ACTIVE, EMAIL, FULL_NAME)
28 values ('donald', 'donald123', 'guest', 'N', 'donald@example.com', 'Donald');
29
30 Commit;
```

?

PKG_SECURITY

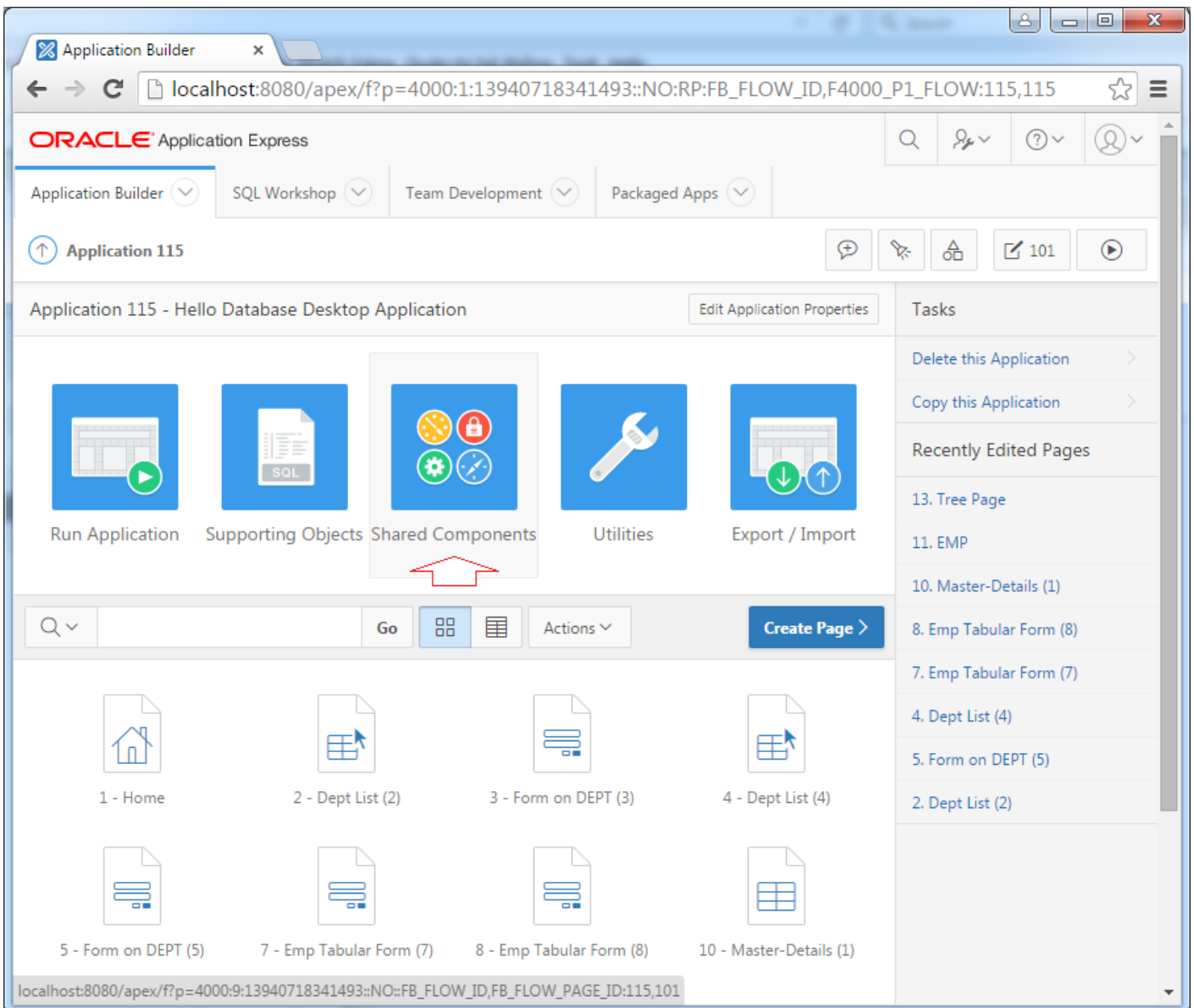
```

6  -----
7  Procedure Process_Login(p_User_Name Varchar2
8      ,p_Password Varchar2
9      ,p_App_Id Number);
10
11 End Pkg_Security;
12 /
13 Create Or Replace Package Body Pkg_Security Is
14
15 Function Authenticate_User(p_User_Name Varchar2
16     ,p_Password Varchar2) Return Boolean As
17     v_Password User_Account.Password%Type;
18     v_Active User_Account.Active%Type;
19     v_Email User_Account.Email%Type;
20 Begin
21     If p_User_Name Is Null Or p_Password Is Null Then
22
23         -- Write to Session, Notification must enter a username and password
24         Apex_Util.Set_Session_State('LOGIN_MESSAGE'
25             , 'Please enter Username and password. ');
26
27         Return False;
28     End If;
29
30     Begin
31         Select u.Active
32             ,u.Password
33             ,u.Email
34         Into v_Active
35             ,v_Password
36             ,v_Email
37         From User_Account u
38         Where u.User_Name = p_User_Name;
39     Exception
40         When No_Data_Found Then
41
42         -- Write to Session, User not found.
43         Apex_Util.Set_Session_State('LOGIN_MESSAGE'
44             , 'User not found');
45
46         Return False;
47     End;
48
49     If v_Password <> p_Password Then
50
51         -- Write to Session, Password incorrect.
52         Apex_Util.Set_Session_State('LOGIN_MESSAGE'
53             , 'Password incorrect');
54
55         Return False;
56     End If;
57
58     If v_Active <> 'Y' Then
59         Apex_Util.Set_Session_State('LOGIN_MESSAGE'
60             , 'User locked, please contact admin');
61
62         Return False;
63     End If;
64
65     -- Write user information to Session.
66     --
67     Apex_Util.Set_Session_State('SESSION_USER_NAME'
68         ,p_User_Name);
69     Apex_Util.Set_Session_State('SESSION_EMAIL'
70         ,v_Email);
71
72     --
73     Return True;
74 End;
75
76 -----
77 Procedure Process_Login(p_User_Name Varchar2
78     ,p_Password Varchar2
79     ,p_App_Id Number) As
80     v_Result Boolean := False;
81 Begin
82     v_Result := Authenticate_User(p_User_Name
83         ,p_Password);
84
85     If v_Result = True Then
86         -- Redirect to Page 1 (Home Page).
87         Www_Flow_Custom_Auth_Std.Post_Login(p_User_Name -- p_User_Name
88             ,p_Password -- p_Password
89             ,v('APP_SESSION') -- p_Session_Id
90             ,p_App_Id || ':1' -- p_Flow_page
91         );

```

4- Declaring Application Items

Click on the **"Shared Components"**, here allows you to declare the **"Application Items"**, it is the items will be used in your application.



Shared Components

localhost:8080/apex/f?p=4000:9:13940718341493::NO::FB_FLOW_ID,FB_FLOW_PAGE_ID:115,101

ORACLE Application Express

Application Builder SQL Workshop Team Development Packaged Apps

Application 115 Shared Components

Application Logic	Security	Other Components	Tasks
<ul style="list-style-type: none">Application Definition ...Application ItemsApplication ProcessesApplication Computati...	<ul style="list-style-type: none">Security AttributesAuthentication SchemesAuthorization SchemesSession State ProtectionBuild Options	<ul style="list-style-type: none">List of ValuesPlug-insComponent SettingsShortcuts	<ul style="list-style-type: none">Export Application ComponentsManage Supporting ObjectsEdit Application CommentDeveloper Comments
Navigation	User Interface	Files	
<ul style="list-style-type: none">ListsNavigation MenuBreadcrumbsNavigation Bar List	<ul style="list-style-type: none">User Interface AttributesThemesTemplates	<ul style="list-style-type: none">Static Application FilesStatic Workspace Files	

localhost:8080/apex/f?p=4000:4100:13940718341493::NO::

The screenshot shows the Oracle APEX interface for managing Application Items. The breadcrumb navigation indicates the path: Application 115 > Shared Components > Application Items. The 'Create' button is highlighted with a red arrow. The main area shows a search bar and a message: 'No application level items exist in this application.' The right sidebar provides information about Application Items and a 'Recent' section.

Enter a name for the Application Item is **"LOG_MESSAGE"**, its value is **"LOGIN_MESSAGE"** attribute of Session, you can set its value in **PL/SQL**:

```
1 Apex_Util.Set_Session_State('LOGIN_MESSAGE'  
2                               , 'User not found');
```

?

ORACLE Application Express

Application Builder | SQL Workshop | Team Development | Packaged Apps

Application 115 > Shared Components > Application Items > Create / Edit

Application Item

Cancel Create Application Item

Show All Name Security Configuration Comments

Name

Application: 115 Hello Database Desktop Application

(1) * Name LOGIN_MESSAGE

* Scope Application

Security

Session State Protection Restricted - May not be set from browser

Configuration

Build Option - No Build Option -

Comments

Comments

Application Items

Application level items are used to maintain session state. Application items can be set using computations, processes, or by passing values on a URL. Use "On New Instance" computations to set the value of items once for a session. Use application items to maintain session state that is not displayed and is not specific to any one page.

Application Builder SQL Workshop Team Development Packaged Apps

Application 115 Shared Components Application Items

Item processed.

Application Items Utilization History

Search Go Actions Reset Create >

Name	Computed On	Updated	Updated By	Protection Level	Scope
LOGIN_MESSAGE	-	1 seconds ago	DEV01	Restricted - May not be set from browser	Application

1 - 1

Recent

LOGIN_MESSAGE

dev01 dev_workspace en Copyright © 1999, 2015, Oracle. All rights reserved. Application Express 5.0.1.00.06

Use Application Items to maintain session state. Application Items can be set using computations, processes, or by passing values on a URL. Use "On New Instance" computations to set the value of items once for a session. Use Application Items to maintain session state that is not displayed and is not specific to any one page.

Similarly, you create 2 Application Items:

- SESSION_USER_NAME
- SESSION_EMAIL

Application Builder SQL Workshop Team Development Packaged Apps

Application 115 Shared Components Application Items

Item processed.

Application Items Utilization History

Search Go Actions Reset Create >

Name	Computed On	Updated	Updated By	Protection Level	Scope
LOGIN_MESSAGE	-	21 minutes ago	DEV01	Restricted - May not be set from browser	Application
SESSION_EMAIL	-	Now	DEV01	Restricted - May not be set from browser	Application
SESSION_USER_NAME	-	15 seconds ago	DEV01	Restricted - May not be set from browser	Application

1 - 3

Recent

SESSION_EMAIL

SESSION_USER_NAME

LOGIN_MESSAGE

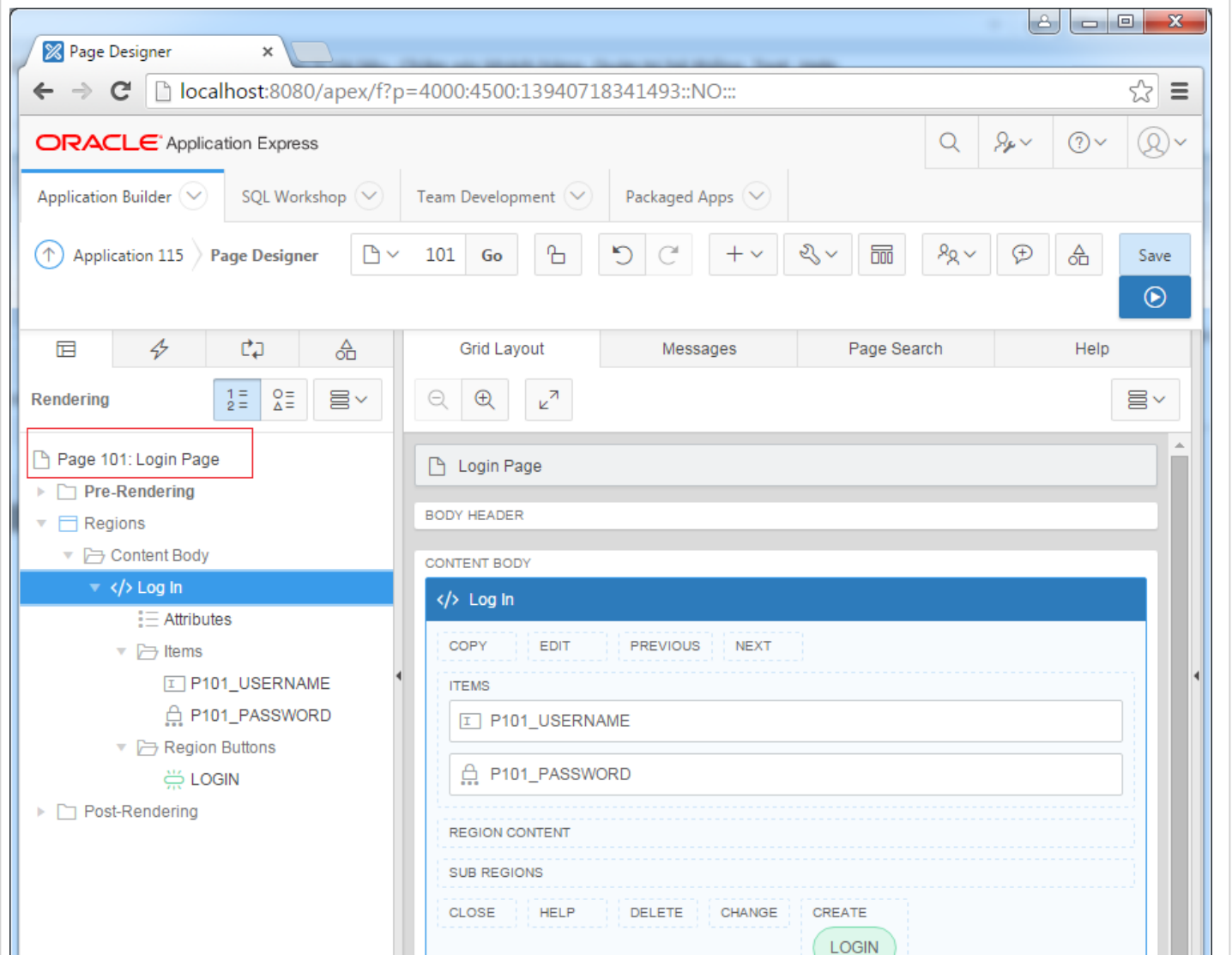
dev01 dev_workspace en Copyright © 1999, 2015, Oracle. All rights reserved. Application Express 5.0.1.00.06

Use Application Items to maintain session state. Application Items can be set using computations, processes, or by passing values on a URL. Use "On New Instance" computations to set the value of items once for a session. Use Application Items to maintain session state that is not displayed and is not specific to any one page.

5- Custom Authentication

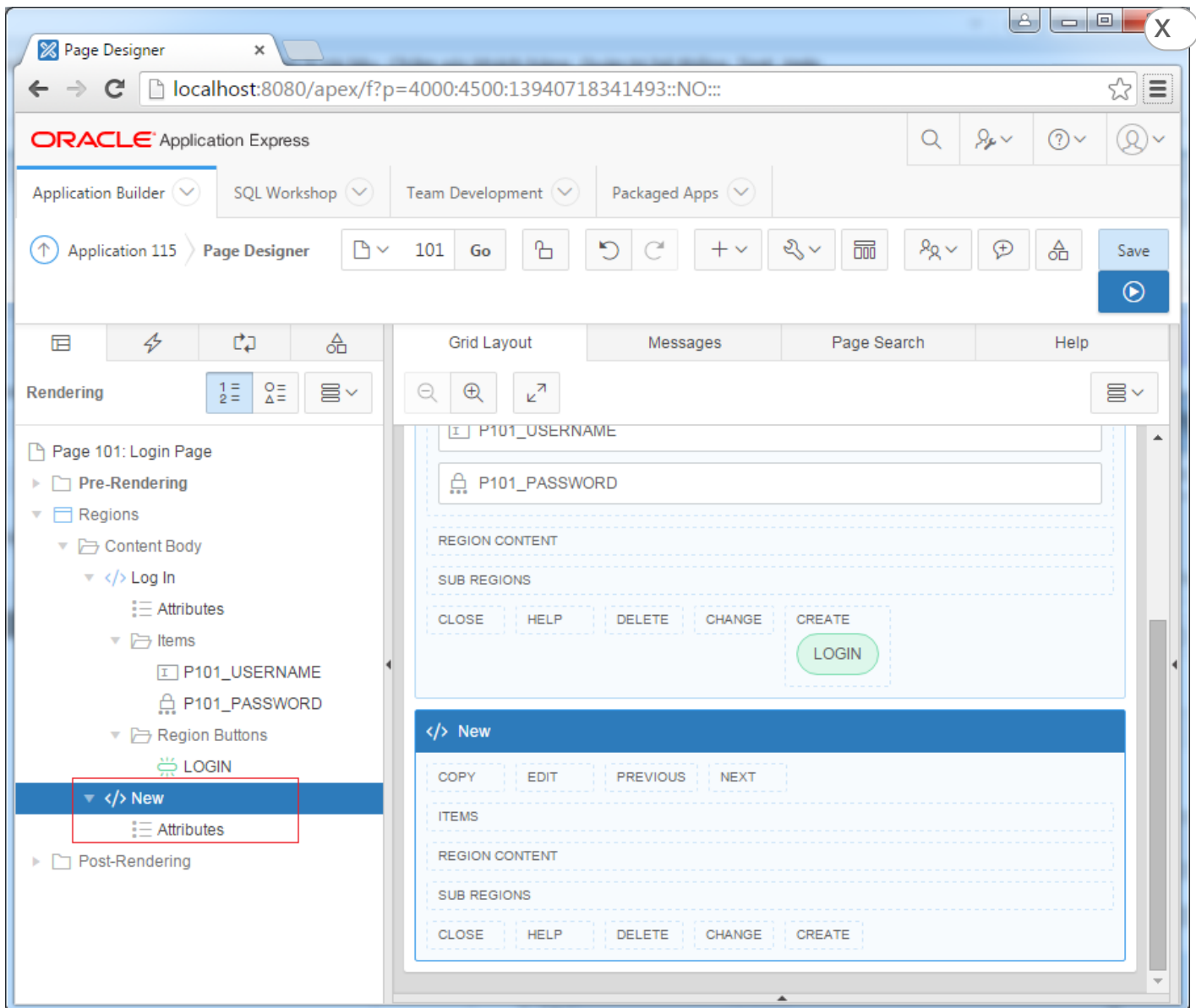
X

Open LOGIN page in APEX Page Designer:



X

The screenshot displays the Oracle APEX Page Designer interface. The top navigation bar includes the 'ORACLE Application Express' logo and various tool tabs: 'Application Builder', 'SQL Workshop', 'Team Development', and 'Packaged Apps'. The main workspace is titled 'Page Designer' and shows 'Application 115'. The left sidebar, under the 'Rendering' tab, shows a tree view of the page structure: 'Page 101: Login Page' > 'Pre-Rendering' > 'Regions' > 'Content Body' > 'Log In' > 'Attributes' > 'Items' > 'P101_USERNAME' > 'P101_PASSWORD' > 'Region Buttons' > 'LOGIN'. A context menu is open over the 'Log In' region, with the 'Create Region' option highlighted. The main canvas shows the 'Login Page' layout with a 'BODY HEADER' section containing 'PREVIOUS' and 'NEXT' buttons, and a 'REGION CONTENT' section containing 'P101_USERNAME' and 'P101_PASSWORD' input fields. Below these are 'SUB REGIONS' with buttons for 'CLOSE', 'HELP', 'DELETE', 'CHANGE', 'CREATE', and a 'LOGIN' button.



Change the properties for the newly created Region.

The screenshot shows the Oracle APEX Page Designer interface for 'Application 115' and 'Page 101: Login Page'. The 'Rendering' pane on the left shows the page structure, with the 'Login Message' region selected. The central canvas displays a grid layout with a 'Log In' region containing username and password fields, a 'LOGIN' button, and a 'Login Message' region. The right-hand 'Region' pane is open for the 'Login Message' region, showing the following configuration:

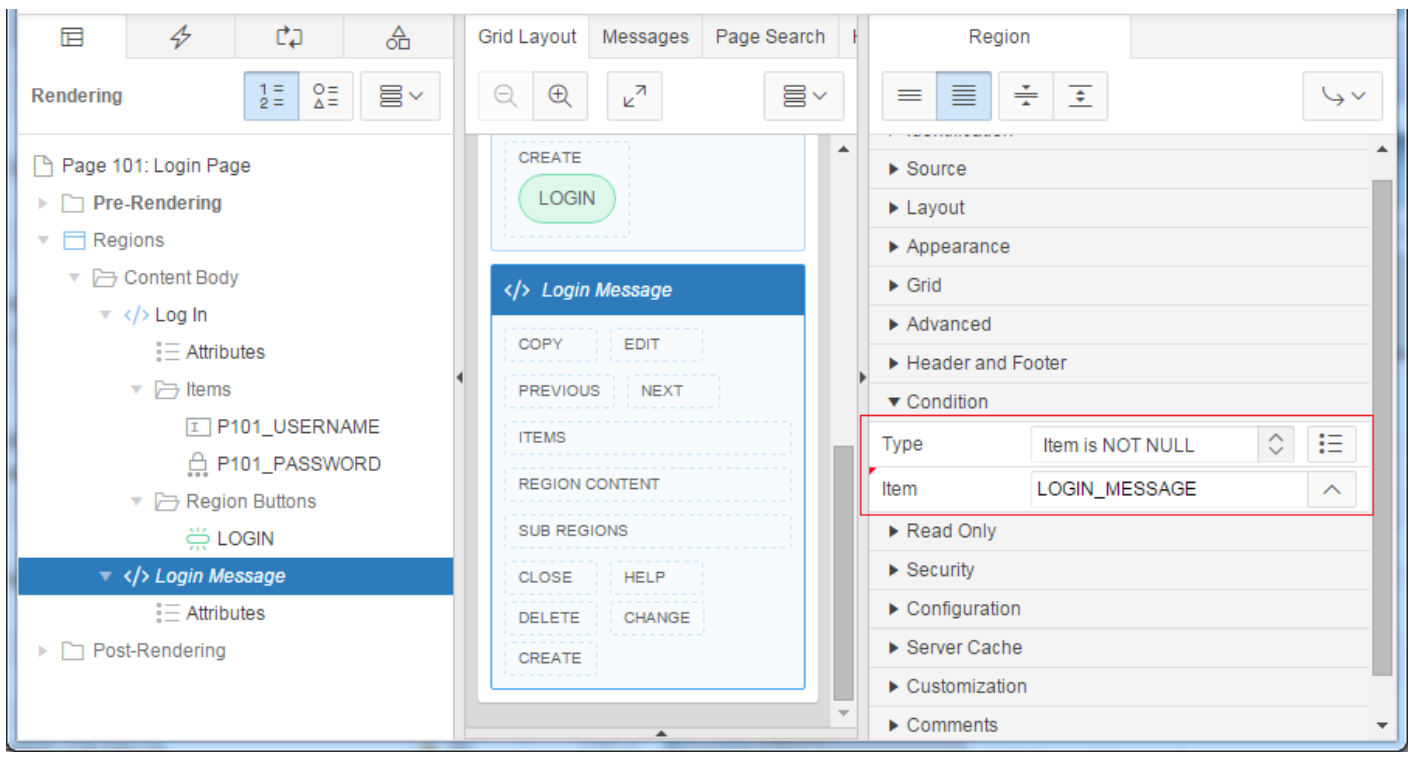
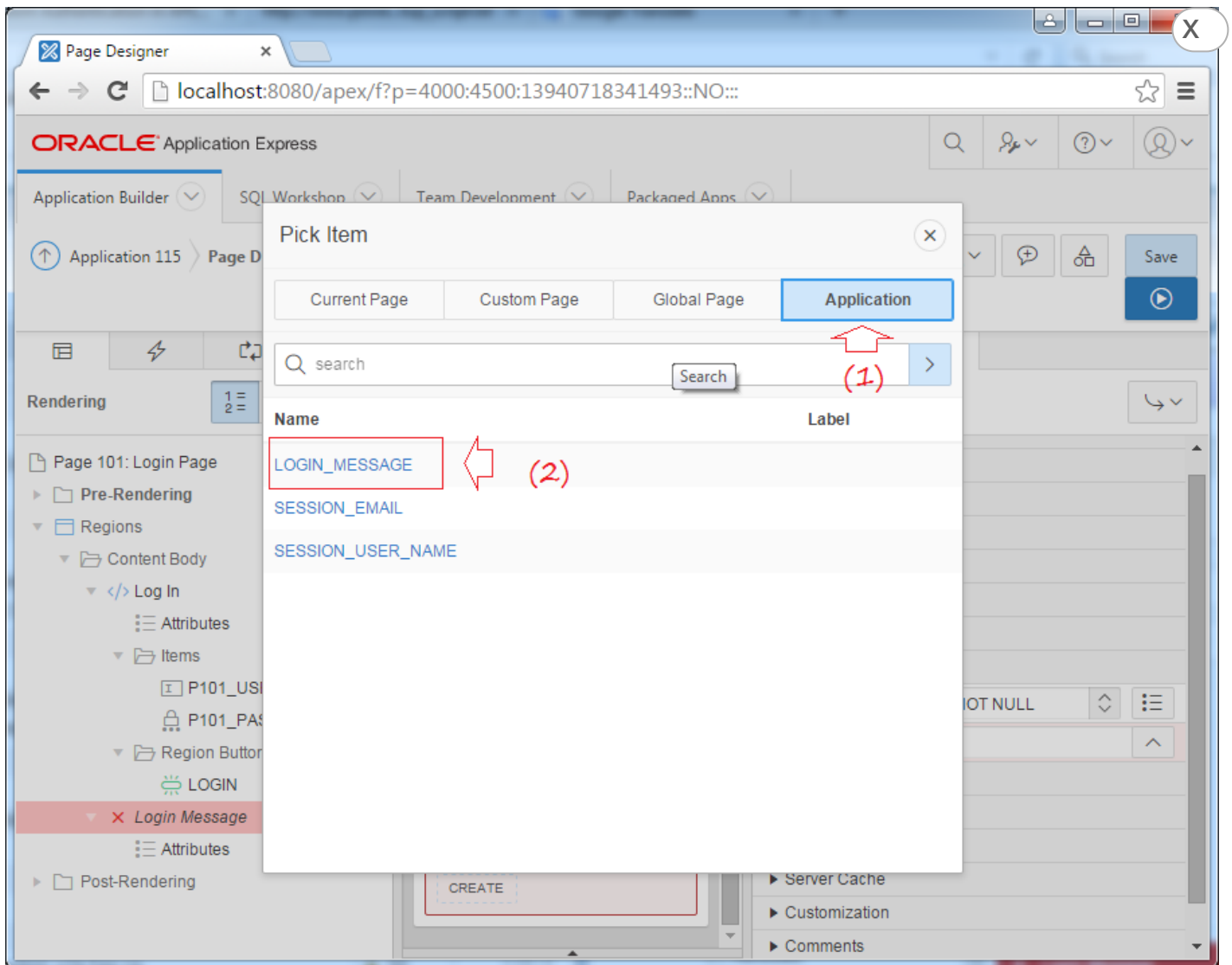
- Identification:** Title is 'Login Message', Type is 'Static Content'.
- Source:** Text is '&LOGIN_MESSAGE.'.
- Layout:** Sequence is 20, Parent Region is '- Select -', Position is 'Content Body'.
- Appearance:** Template is 'Standard', Template Options are 'Use Template Defaults, Scroll - Default', and CSS Classes are empty.

Set display conditions for this Region.

This screenshot shows the same Oracle APEX Page Designer interface, but with the 'Messages' tab selected in the top navigation bar. The 'Login Message' region is now highlighted with a red 'X' in the 'Rendering' pane. The 'Region' pane on the right shows the 'Condition' section expanded, with the following configuration:

- Type:** 'Item is NOT NULL'.
- Item:** A red 'X' icon is shown next to the 'Item' field, indicating a condition error.

A red arrow points to the 'Item' field, and a red circle highlights the 'Item' field's dropdown menu.



The screenshot shows the Oracle APEX Page Designer interface. The top navigation bar includes 'Application Builder', 'SQL Workshop', 'Team Development', and 'Packaged Apps'. The main toolbar shows 'Application 115' and 'Page Designer' with a 'Go' button. The left pane shows the 'Processing' section with a tree view containing 'After Submit', 'Validating', 'Processing', and 'Processes'. The 'Login' process is selected and highlighted. The right pane shows the 'Process' configuration for 'Login'. The 'Identification' section shows 'Name' as 'Login' and 'Type' as 'PL/SQL Code'. The 'Source' section contains the PL/SQL code: `apex_authentication.login(p_username => :P101_USERNAME, p_password => :P101_PASSWORD);`, which is labeled 'Default code'. The 'Execution Options' section shows 'Sequence' as 20, 'Point' as 'Processing', 'Tabular Form' as '- Select -', and 'Run Process' as 'Once Per Page Visit (default)'. The 'Success Message' section is empty.

- PL/SQL Code:

```

1  Pkg_Security.Process_Login(:P101_USERNAME,
2      :P101_PASSWORD,
3      :APP_ID);

```

?

X

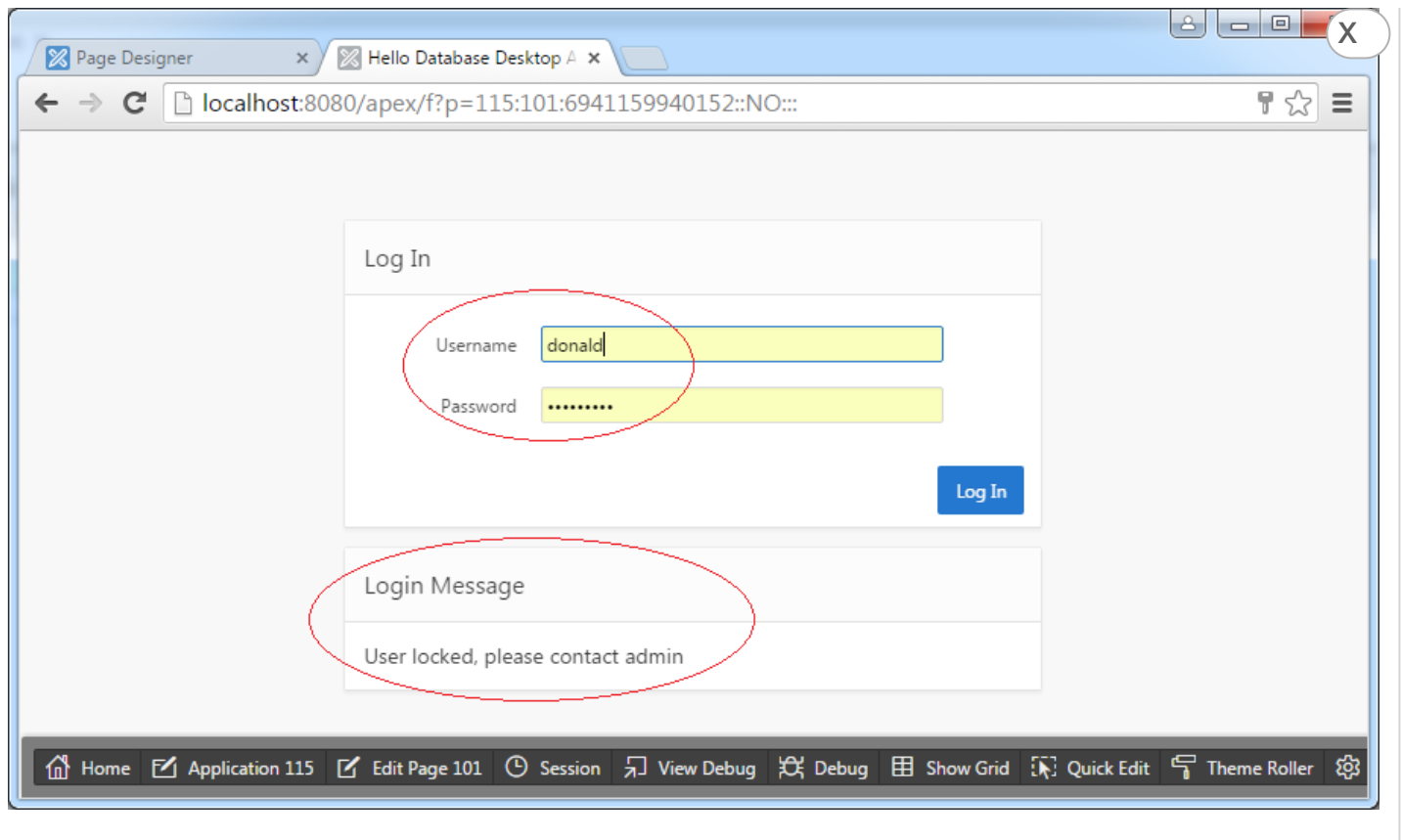
The screenshot shows the Oracle APEX Page Designer interface. The browser address bar displays `localhost:8080/apex/f?p=4000:4500:13940718341493::NO::#`. The top navigation bar includes 'Application Builder', 'SQL Workshop', 'Team Development', and 'Packaged Apps'. The left sidebar shows the 'Processing' section with a tree view containing 'After Submit', 'Validating', 'Processing', and 'Processes'. The 'Processes' folder is expanded, showing 'Set Username Cookie', 'Login' (highlighted), and 'Clear Page(s) Cache'. The main workspace displays the 'Login Page' with a 'BODY HEADER' and a 'CONTENT BODY' containing a 'Log In' form. The form has two input fields: 'P101_USERNAME' and 'P101_PASSWORD'. The right sidebar shows the 'Process' configuration for the 'Login' process. The 'Identification' section shows 'Name' as 'Login' and 'Type' as 'PL/SQL Code'. The 'Source' section shows the PL/SQL code:

```
Pkg_Security.Process_Login(:P101_USERNAME,  
                           :P101_PASSWORD,  
                           :APP_ID);
```

 The 'Execution Options' section shows 'Sequence' as '20' and 'Point' as 'Processing'.

Save and running your apps:

The screenshot shows the running Oracle APEX application. The browser address bar displays `localhost:8080/apex/f?p=115:101:13940718341493:::`. The main workspace displays the 'Log In' form. The form has two input fields: 'Username' with the value 'tom' and 'Password' with masked characters '.....'. A red arrow points to the 'Log In' button. The bottom navigation bar includes 'Home', 'Application 115', 'Edit Page 101', 'Session', 'View Debug', 'Debug', 'Show Grid', 'Quick Edit', 'Theme Roller', and a settings icon.



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