

# Особенности авторизации и аутентификации в ORACLE APEX

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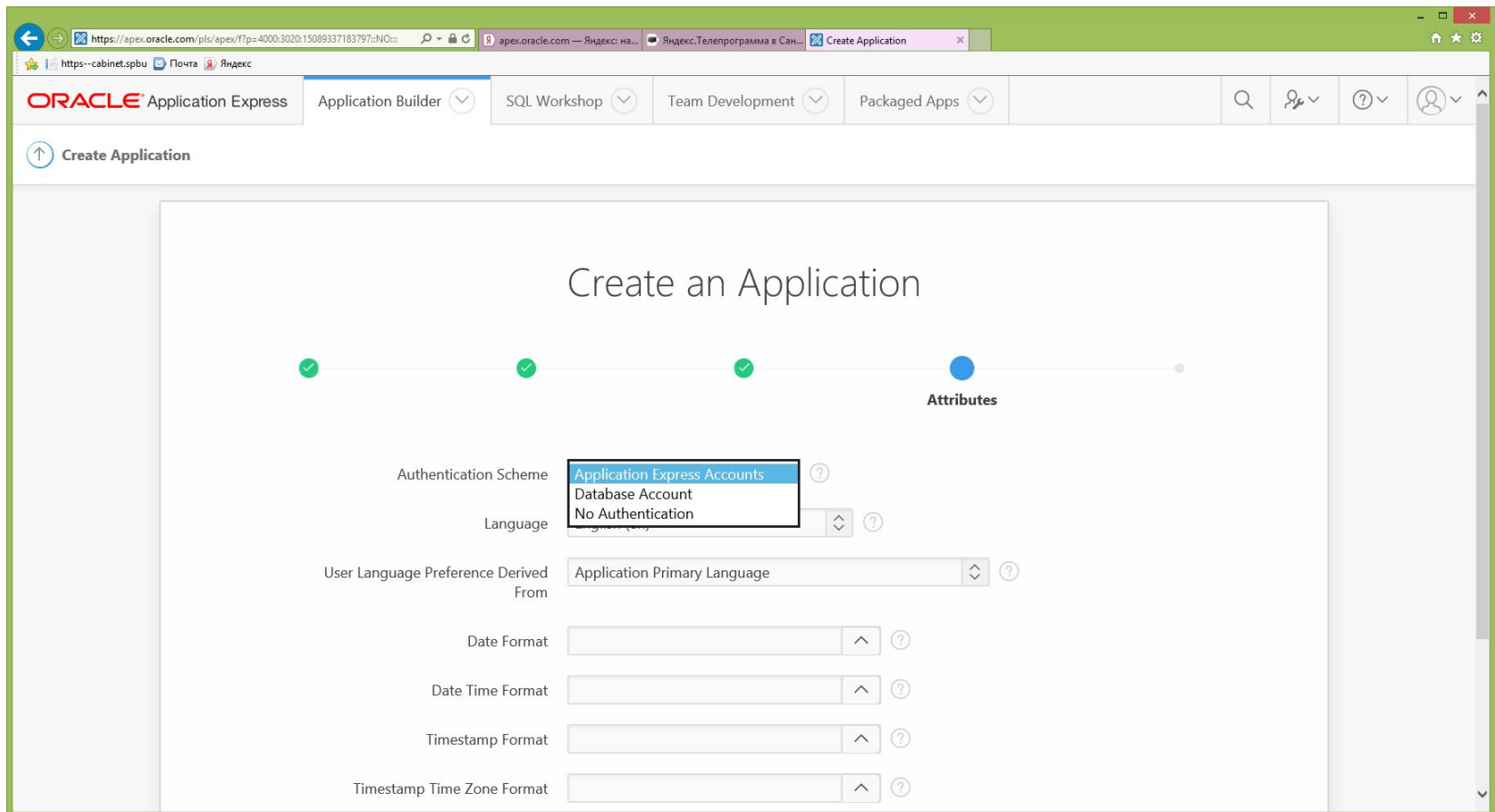
# Определения

- Аутентификация - процедура проверки подлинности пользовательских данных (например, имени и пароля).  
Авторизация - это процесс предоставления прав на выполнение каких-либо действий (например, просмотр страницы).

# Способы аутентификации в ORACLE APEX

- Без аутентификации (встроенная функциональность)
- Аутентификация пользователей БД(встроенная возможность, аутентификацию проходит владелец схемы БД, в которой хранится приложение объекты базы)
- Аутентификация пользователей APEX(встроенная функциональность, аутентификацию проходят пользователи, зарегистрированные в APEX в WORKSPACE соответствующего приложения)
- CUSTOM –аутентификация(процедура аутентификации должна быть описана разработчиком в соответствии с определенными правилами)

# Когда устанавливается способ аутентификации (при создании приложения)?



# Как можно изменить способ аутентификации для созданного приложения?

- Edit Application Properties -> Security ->
- Authentication -> Define Authentication Schema

# Просмотрим список существующих схем и создадим новую (CREATE)

The screenshot shows the Oracle Application Express interface. The breadcrumb navigation is: Application 81750 > Shared Components > Authentication Schemes. The page title is 'Authentication Schemes'. There are tabs for 'Authentication Schemes', 'Subscription', and 'History'. A search bar is present with a 'Go' button. Below the search bar is a table with the following columns: Name, Scheme Type, Subscribed From, and Subscribers. The table contains one row: 'Application Express Authentication - Current' with 'Application Express Accounts' as the Scheme Type. A 'Create' button is located in the top right of the table area. On the right side of the page, there is a help text: 'An Authentication Scheme is saved configuration you can apply to your application. To turn off authentication you must create and make current a **No Authentication** scheme.'

Name	Scheme Type	Subscribed From	Subscribers
Application Express Authentication - Current	Application Express Accounts		

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# Выберем источник...

The screenshot shows the Oracle APEX interface for creating an authentication scheme. The breadcrumb trail is: Application 81750 > Shared Components > Authentication Schemes > Create. The main heading is "Create Authentication Scheme". A progress indicator shows the "Method" step is active. Below the heading, there is explanatory text: "When you create a new authentication scheme, you have several options. Most let you reuse implementations that already exist in your application or in other applications within your workspace. There are even some pretested schemes you can copy to get you up and running immediately." The "Create Scheme:" section has two radio button options: "Based on a pre-configured scheme from the gallery" (which is selected) and "As a copy of an existing authentication scheme". At the bottom, there are "Cancel" and "Next >" buttons.

ORACLE Application Express Application Builder SQL Workshop Team Development Packaged Apps

Application 81750 > Shared Components > Authentication Schemes > Create

## Create Authentication Scheme

**Method**

When you create a new authentication scheme, you have several options. Most let you reuse implementations that already exist in your application or in other applications within your workspace. There are even some pretested schemes you can copy to get you up and running immediately.

Create Scheme:  **Based on a pre-configured scheme from the gallery**  As a copy of an existing authentication scheme

> **Information**

Cancel **Next >**

# Не забудем дать имя НОВОЙ СХЕМЕ...

The screenshot shows the Oracle APEX interface for creating or editing an authentication scheme. The breadcrumb trail is: Application 81750 > Shared Components > Authentication Schemes > Create / Edit. The page title is 'Authentication Scheme'. There are 'Cancel' and 'Create Authentication Scheme' buttons. The 'Name' field is labeled with a red asterisk and contains the text 'OPEN\_DOOR'. The 'Scheme Type' field is also labeled with a red asterisk and has a dropdown menu open. The dropdown menu lists the following options: 'Application Express Accounts' (highlighted), 'Custom', 'Database Accounts', 'HTTP Header Variable', 'LDAP Directory', 'No Authentication (using DAD)', 'Open Door Credentials', and 'Oracle Application Server Single Sign-On'. On the right side, there is a help section titled 'Authentication Scheme' with explanatory text and a 'Return to page' link at the bottom.



# Установим текущую схему аутентификации (схем у приложения может быть много, но текущая (current) может быть только одна)

The screenshot shows the Oracle Application Express interface for managing authentication schemes. A green confirmation message at the top states: "Action processed. Authentication scheme activated as current authentication scheme." Below this, there are tabs for "Authentication Schemes", "Subscription", and "History". A search bar and "Go" button are present. A table lists the authentication schemes:

Name	Scheme Type	Subscribed From	Subscribers
Application Express Authentication	Application Express Accounts		
No_Auth - Current	No Authentication (using DAD)		
OPEN_DOOR	Open Door Credentials		

At the bottom right of the table, it indicates "1 - 3". The footer contains the user email "n.grafeeva@spbu.ru", the name "grafeeva", the language "en", the copyright notice "Copyright © 1999, 2015, Oracle. All rights reserved.", and the version "Application Express 5.0.1.00.06".

# Создадим группы пользователей (пригодятся потом при авторизации) Administration->Manage Users and Groups

The screenshot displays the Oracle Application Express interface for creating a user group. The browser address bar shows the URL: `https://apex.oracle.com/pls/apex/f?p=4350:54:15089337183797::NO:54::`. The page title is "Create/Edit User Group".

The navigation menu includes: ORACLE Application Express, Application Builder, SQL Workshop, Team Development, and Packaged Apps. The current page is "Manage Users and Groups > User Group".

The main content area is titled "User Groups" and contains a "Cancel" button and a "Create Group" button. Below this is a tabbed interface with "Show All", "Group Details", and "Group Grants". The "Group Details" tab is active, showing the following fields:

- Group Name:** ADMIN (required field, indicated by a red asterisk)
- Description:** Администраторы (14 of 4000 characters)

A help sidebar on the right provides information about user groups:

**User Groups**

You can create user groups to restrict access to various parts of an application. However, user groups are not portable over different authentication schemes. User groups are primarily useful when using Application Express workspace authentication.

To create a new user group, identify the group name and an optional description.

# Первая группа (Admin) создана

The screenshot displays the Oracle Application Express interface for managing users and groups. The browser address bar shows the URL: <https://apex.oracle.com/pls/apex/f?p=4350:53:15089337183797::NO::>. The navigation menu includes 'Application Builder', 'SQL Workshop', 'Team Development', and 'Packaged Apps'. The main heading is 'Manage Users and Groups', with sub-tabs for 'Users', 'Groups', and 'Group Assignments'. The 'Groups' tab is active, showing a search bar, a 'Go' button, and a 'Create User Group' button. A table lists the user groups, with one entry visible: 'ADMIN'. The right sidebar contains a 'User Groups' section with explanatory text and a 'Tasks' section with a 'Change My Password' link.

ORACLE Application Express Application Builder SQL Workshop Team Development Packaged Apps

Manage Users and Groups

Users **Groups** Group Assignments

Search Go View Dashboard **Create User Group**

Name	Created	Created By	Modified	Modified By	Actions
ADMIN					

1 - 1

User Groups

User groups enable you to restrict access to various parts of an application. User groups are not portable over different authentication schemes and are primarily useful when using Application Express Account Credentials authentication. To edit an existing user group, select it. Click **Create** to create a new group.

Tasks

[Change My Password](#)

# Создадим вторую группу пользователей (USER)

The screenshot shows the Oracle Application Express interface for creating a user group. The browser address bar indicates the URL: <https://apex.oracle.com/pls/apex/f?p=4350:54:15089337183797::NO:54::>. The page title is "Create/Edit User Group".

The main content area is titled "User Groups" and includes a "Cancel" button and a "Create Group" button. Below this, there are three tabs: "Show All", "Group Details", and "Group Grants". The "Group Details" tab is active, showing the following fields:

- Group Name:** USER
- Description:** группа простых пользователей

The description field has a character count of "28 of 4000".

The right sidebar contains the following text:

**User Groups**

You can create user groups to restrict access to various parts of an application. However, user groups are not portable over different authentication schemes. User groups are primarily useful when using Application Express workspace authentication.

To create a new user group, identify the group name and an optional description.

# Две группы созданы...

The screenshot displays the Oracle Application Express interface for managing users and groups. The browser address bar shows the URL: <https://apex.oracle.com/pls/apex/f?p=4350:53:15089337183797::NO::>. The page title is "Manage Users and Groups".

The navigation menu includes: ORACLE Application Express, Application Builder, SQL Workshop, Team Development, and Packaged Apps. The main content area has tabs for "Users", "Groups", and "Group Assignments". The "Groups" tab is active, showing a search bar, a "Go" button, and a "Create User Group" button. Below the search bar, two user groups are listed: "ADMIN" and "USER".

On the right side, there is a "User Groups" sidebar with the following text: "User groups enable you to restrict access to various parts of an application. User groups are not portable over different authentication schemes and are primarily useful when using Application Express Account Credentials authentication. To edit an existing user group, select it. Click **Create** to create a new group." Below this, there is a "Tasks" section with a link for "Change My Password".

# Начнем создавать пользователей

ORACLE Application Express Application Builder SQL Workshop Team Development Packaged Apps

Manage Users and Groups > Create User

### Create User

Cancel Create and Create Another **Create User**

Show All **User Identification** Account Privileges Password Group Assignments

#### User Identification

\* Username  ?

\* Email Address  x ?

First Name  ?

Last Name  ?

Description  ?

Default Date Format  ?

#### Account Privileges

Default Schema  ?

Accessible Schemas (null for all)  ?

#### Users

Use this page to control access for Application Express application developers, workspace administrators and end users.

Developers can create and edit applications as well as create and modify database objects.

Workspace administrators can additionally create and edit user accounts, manage groups, manage development services.

End users have no development privileges and are defined to provide access control to applications that do not use an external authentication scheme.

# Вот список созданных пользователей

Manage Users and Groups

✓ User created.

Users Groups Group Assignments

Search:  Go

Actions

User	Email	Account Type	Locked	Builder Last Login	Created
ADMIN_1	N.Grafeeva@spbu.ru	End User	No	-	95 seconds ago
N.GRAFEeva@SPBU.RU	N.Grafeeva@spbu.ru	Workspace Administrator	No	16 minutes ago	4 weeks ago
USER_1	N.Grafeeva@spbu.ru	End User	No	-	1 seconds ago

1 - 3

Manage Users

Use this page to control access for Application Express workspace administrators, application developers, and end users.

**Workspace administrators** can create and modify applications and database objects as well as manage user accounts, groups, and development services.

**Developers** can create and modify applications and database objects.

**End users** have no development privileges and can only access applications that do not use an external authentication scheme.

Tasks

- [Change My Password >](#)
- [About Application Express >](#)
- [Monitor Activity >](#)
- [Manage Service >](#)

Вы хотите сохранить пароль на oracle.com? [Подробнее](#)

# На пользователей, приписанных к группам, можно посмотреть через представление

## APEX\_WORKSPACE\_GROUP\_USERS

The screenshot shows the Oracle APEX SQL Workshop interface. The browser address bar displays the URL: `https://apex.oracle.com/pls/apex/?p=4500:1003:112809935745286`. The page title is "SQL Commands". The navigation menu includes "Application Builder", "SQL Workshop", "Team Development", and "Packaged Apps". The current schema is "GRAFEeva".

The SQL command entered in the editor is:

```
select * from apex_workspace_group_users
```

The results are displayed in a table with the following columns: **WORKSPACE\_ID**, **WORKSPACE\_NAME**, **WORKSPACE\_DISPLAY\_NAME**, **USER\_NAME**, and **GROUP\_NAME**. Two rows of data are returned.

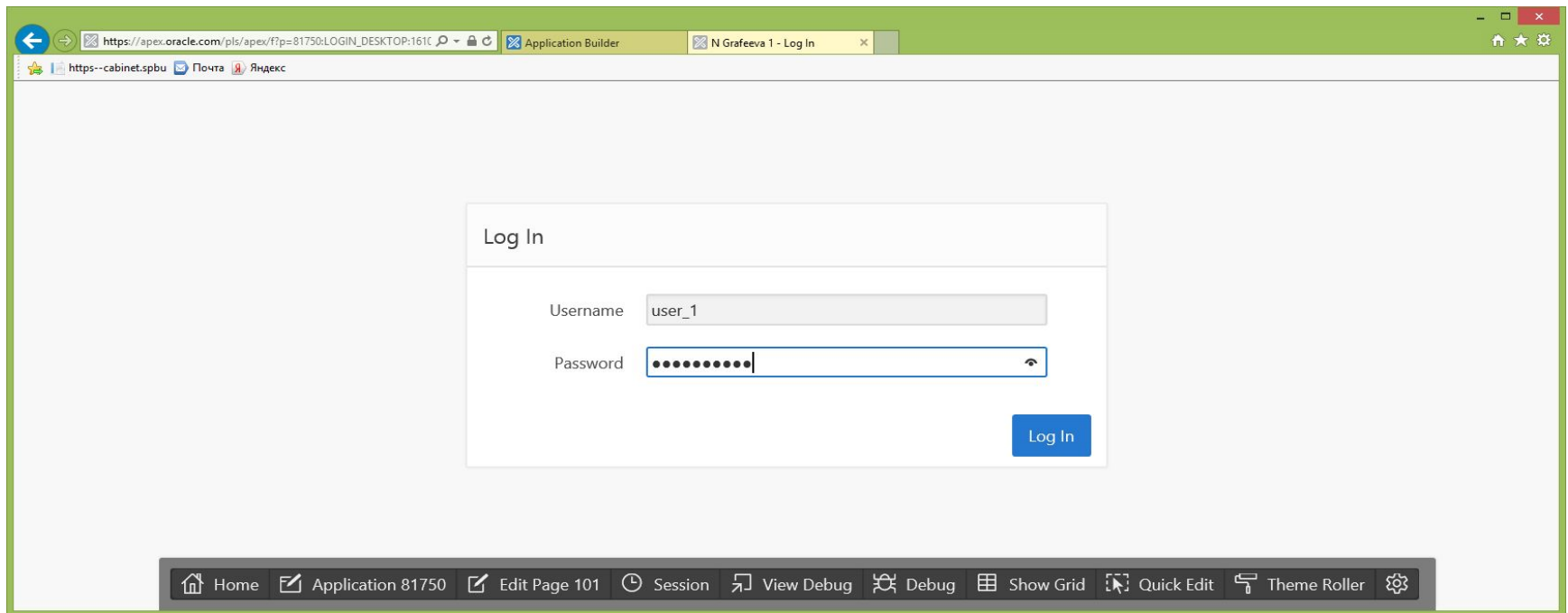
WORKSPACE_ID	WORKSPACE_NAME	WORKSPACE_DISPLAY_NAME	USER_NAME	GROUP_NAME
12443959264218247255	GRAFEeva	GRAFEeva	ADMIN_1	ADMIN
12443959264218247255	GRAFEeva	GRAFEeva	USER_1	USER

2 rows returned in 1.14 seconds [Download](#)

The footer of the page includes the user profile "n.grafeeva@spbu.ru", the user name "grafeeva", the language "en", the copyright notice "Copyright © 1999, 2015, Oracle. All rights reserved.", and the version "Application Express 5.0.1.00.06".







# Убедимся, что созданных пользователей пустят в приложение со схемой аутентификации APEX\_AUTH



# Пустили...

The screenshot displays an Oracle APEX application interface. The browser address bar shows the URL: `https://apex.oracle.com/pls/apex/f?p=81750:2:16100307404148::...`. The application header includes the user name "N Grafeva 1" and a "Log Out" link. The left sidebar contains navigation links for "Dept" and "Home". The main content area is titled "Dept" and features a search bar with a "Go" button and an "Actions" dropdown menu. Below the search bar is a table with the following data:

	Deptno	Dname	Loc
	10	ACCOUNTING	NEW YORK
	20	RESEARCH	DALLAS
	30	SALES	CHICAGO
	40	OPERATIONS	BOSTON

At the bottom right of the table, the pagination indicator "1 - 4" is visible. The application footer contains various utility links: Home, Application 81750, Edit Page 2, Session, View Debug, Debug, Show Grid, Quick Edit, Theme Roller, and a settings icon.

Теперь займемся вопросами  
авторизации

# Создадим схемы авторизации (Shared Components ->Security->Authorization Schemas)

The screenshot shows the Oracle Application Express interface. The browser address bar displays the URL: <https://apex.oracle.com/pls/apex/f?p=4000:4070:112809935745286::>. The page title is "Authorization Schemas". The breadcrumb navigation shows "Application 81750 > Shared Components > Authorization Schemas". The main content area is empty, displaying a search icon and the text "No data found." The right sidebar contains the following text:

**Authorization Schemas**

You manage authorization for applications, pages, and most other components using Authorization Schemas.

You associate an Authorization Scheme with an application, page, or other component on the component's attributes page.

Authorization Schemas are pass/fail checks. Common Authorization Scheme types include Exists, Not Exists SQL Queries, and PL/SQL Function Returning Boolean.

To enhance performance, the success or failure of an Authorization Scheme is cached on a per session or per page view basis.

At the bottom of the page, the footer includes the user email [n.grafeeva@spbu.ru](mailto:n.grafeeva@spbu.ru), the name [grafeeva](#), the language [en](#), the copyright notice "Copyright © 1999, 2015, Oracle. All rights reserved.", and the version "Application Express 5.0.1.00.06".

# С чистого листа (from scratch)...

The screenshot shows the Oracle Application Express interface. A modal dialog titled "Create Authorization Scheme" is open, displaying a progress indicator and the "Creation Method" section. The "From Scratch" option is selected.

**Create Authorization Scheme**

Creation Method

Specify how you want to create your authorization scheme. You can create an authorization scheme from scratch or copy it from another application. If you copy an authorization scheme, you can modify later.

Create Authorization Scheme:  **From Scratch**  As a Copy of an Existing Authorization Scheme

Cancel Next >

The background interface includes the Oracle Application Express header with navigation tabs (Application Builder, SQL Workshop, Team Development, Packaged Apps), a search bar, and a sidebar with "Authorization Schemes" selected. The browser address bar shows the URL: <https://apex.oracle.com/pls/apex/f?p=4000:4070:112809935745286::>

# В основе схемы авторизации – SQL запрос с использованием системной переменной :APP\_USER и представления APEX\_WORKSPACE\_GROUP\_USERS

Application: **81750 N Grafeeva 1** ?

\* Name: ADMIN\_SCHEME ?

\* Scheme Type: Exists SQL Query ?

\* SQL Query: 

```
SELECT NULL
FROM APEX_WORKSPACE_GROUP_USERS
WHERE USER_NAME = :APP_USER
AND GROUP_NAME = 'ADMIN'
```

 ?

\* Identify error message displayed when scheme violated: У вас нет прав для просмотра этой страницы!

Cancel Create Authorization Scheme

# Создадим еще одну схему авторизации

The screenshot shows the Oracle APEX interface with a modal dialog titled "Create Authorization Scheme". The dialog is currently on the "Creation Method" step, indicated by a blue dot on a progress bar. The text inside the dialog reads: "Specify how you want to create your authorization scheme. You can create an authorization scheme from scratch or copy it from another application. If you copy an authorization scheme, you can modify later." Below this text, there are two radio button options: "From Scratch" (which is selected) and "As a Copy of an Existing Authorization Scheme". At the bottom of the dialog, there are "Cancel" and "Next >" buttons. The background shows the Oracle APEX application builder interface with the "Authorization Schemes" tab selected in the left sidebar. The browser address bar shows the URL "https://apex.oracle.com/pls/apex/www\_flow.accept".

ORACLE Application Express

Application Builder SQL Workshop Team Development Packaged Apps

Application 81750

Authorization Schemes

## Create Authorization Scheme

Creation Method

Specify how you want to create your authorization scheme. You can create an authorization scheme from scratch or copy it from another application. If you copy an authorization scheme, you can modify later.

Create Authorization Scheme:  **From Scratch**  As a Copy of an Existing Authorization Scheme

Cancel Next >

n.grafeeva@spbu.ru

Application Express 5.0.1.00.06

# Назовем ее USER\_SCHEME

**Create Authorization Scheme**

Application: **81750 N Grafeeva 1**

\* Name:

\* Scheme Type:

\* SQL Query: 

```
SELECT NULL
FROM APEX_WORKSPACE_GROUP_USERS
WHERE USER_NAME = :APP_USER
AND GROUP_NAME = 'USER'
```

У Вас нет прав для просмотра этой страницы!

**Create Authorization Scheme**

Cancel



# Вот полный список схем авторизации

The screenshot displays the Oracle Application Express interface for managing Authorization Schemes. The main content area features a table with the following data:

Name	Type	Caching	Subscribed From	Subscribers	Updated
ADMIN_SCHEME	Exists SQL Query	Once per session			5 minutes ago
USER_SCHEME	Exists SQL Query	Once per session			2 seconds ago

The interface includes a navigation bar with tabs for 'Authorization Schemes', 'Subscription', 'by Component', 'Utilization', and 'History'. A search bar and a 'Create' button are also visible. The sidebar on the right provides a detailed explanation of Authorization Schemes, stating that they are used for managing authorization for applications, pages, and components, and that they are cached on a per-session or per-page view basis.

1 - 2

n.grafeeva@spbu.ru grafeeva en Copyright © 1999, 2015, Oracle. All rights reserved. Application Express 5.0.1.00.06

# Установим схемы авторизации для страниц приложения

The screenshot displays the Oracle APEX Page Designer interface for configuring a page. The browser address bar shows the URL: `https://apex.oracle.com/pls/apex/?p=4000-4500-112809935745286`. The application is identified as "Application 81750" and the page is "Page Designer". A green notification banner at the top right indicates "Changes saved".

The interface is divided into several sections:

- Left Panel (Rendering):** Shows a tree view of the page structure. The "Regions" folder is expanded, showing "Breadcrumb Bar" (containing "Breadcrumbs" with "Attributes") and "Content Body" (containing "DEPT" with "Columns" and "Attributes").
- Center Panel (Grid Layout):** Displays the visual layout of the page. The "DEPT" region is selected, showing its sub-regions: "ITEMS", "REGION CONTENT", and "SUB REGIONS".
- Right Panel (Page Properties):** Contains configuration options for the selected page. The "Security" section is expanded, showing:
  - Authorization Scheme:** Set to "ADMIN\_SCHEM".
  - Authentication:** Set to "Page Requires Authen".
- Bottom Panel (Regions):** Provides a palette of available regions, including Breadcrumb, Calendar, Chart, Classic Report, Classic Report (with a formula icon), Help Text, Interactive Report, and Legacy Calendar.