

Особенности авторизации и аутентификации в ORACLE APEX

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Определения

- Аутентификация — процедура проверки подлинности пользователя/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 определёнными правилами)

Как устанавливается способ аутентификации (при создании приложения)?

The screenshot shows the Oracle APEX application creation wizard. The 'Features' section is expanded, and the 'Authentication' dropdown menu is open, highlighting 'Application Express Accounts'. A red oval highlights the 'Authentication' dropdown and the 'Create Application' button.

Pages

+ Add Page

Home Blank Edit

Features Check All

- ☐ About Page Add about this application page
- ☐ Access Control Enable role-based user authorization
- ☐ Activity Reporting Include user activity and error reports
- ☐ Configuration Options Enable or disable application features
- ☐ Feedback Allow users to provide feedback
- ☐ Theme Style Selection Update default application look and feel

Settings

Application ID: 11141

Schema: NFEDOROV

Language: English (en)

Advanced Settings

User Interface Defaults

Authentication

- ☒ Application Express Accounts
- ☐ Database Account

Cancel Create Application

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Как можно изменить способ
аутентификации для созданного
приложения?

*Edit Application Properties -> Security ->
Authentication -> Define Authentication
Schemes*

Просмотрим список существующих схем и создадим новую

The screenshot shows the Oracle APEX web interface. The top navigation bar includes the Oracle APEX logo and tabs for App Builder, SQL Workshop, Team Development, and App Gallery. The breadcrumb trail indicates the current location: Application 11141 > Shared Components > Authentication Schemes. The main content area has tabs for Authentication Schemes, Subscription, and History. A search bar with a 'Go' button and an 'Actions' dropdown is present. A table lists the existing authentication schemes. The table has columns for Name, Scheme Type, Subscribed From, and Subscribers. One entry is visible: 'Application Express Authentication - Current' with the scheme type 'Application Express Accounts'. A 'Create' button is located to the right of the table. On the right side, a sidebar provides additional information about authentication schemes, stating that an authentication scheme is saved configuration that can be applied to an application, and that to turn off authentication, a 'No Authentication' scheme must be created and made current.

Application 11141 > Shared Components > Authentication Schemes

Authentication Schemes Subscription History

Search Go Actions Reset Create

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

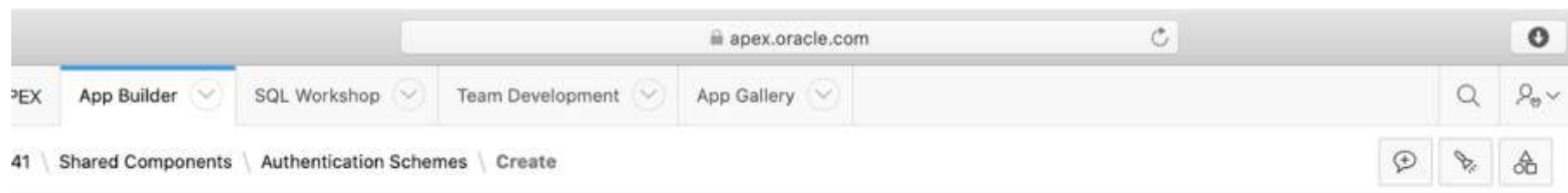
1 - 1

Authentication Schemes

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.

Выберем источник



Create Authentication Scheme



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

Не забудем дать имя НОВОЙ схеме

The screenshot shows the Oracle APEX interface for creating a new authentication scheme. The breadcrumb trail indicates the path: Application 11141 > Shared Components > Authentication Schemes > Create / Edit. The page title is 'Authentication Scheme'. 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 (checked), Custom, Database Accounts, HTTP Header Variable, LDAP Directory, No Authentication, Open Door Credentials (highlighted in blue), Oracle Application Server Single Sign-On, and Social Sign-In.

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

Application 11141 Shared Components Authentication Schemes Create / Edit

< Authentication Scheme

Name

* Name OPEN_DOOR ?

* Scheme Type

- ✓ Application Express Accounts
- Custom
- Database Accounts
- HTTP Header Variable
- LDAP Directory
- No Authentication
- Open Door Credentials**
- Oracle Application Server Single Sign-On
- Social Sign-In

Убедимся, что новая схема установлена для нашего приложения в качестве текущей (current)

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

Application 11141 \ Shared Components \ **Authentication Schemes**

✓ Action processed. Authentication scheme activated as current authentication scheme.

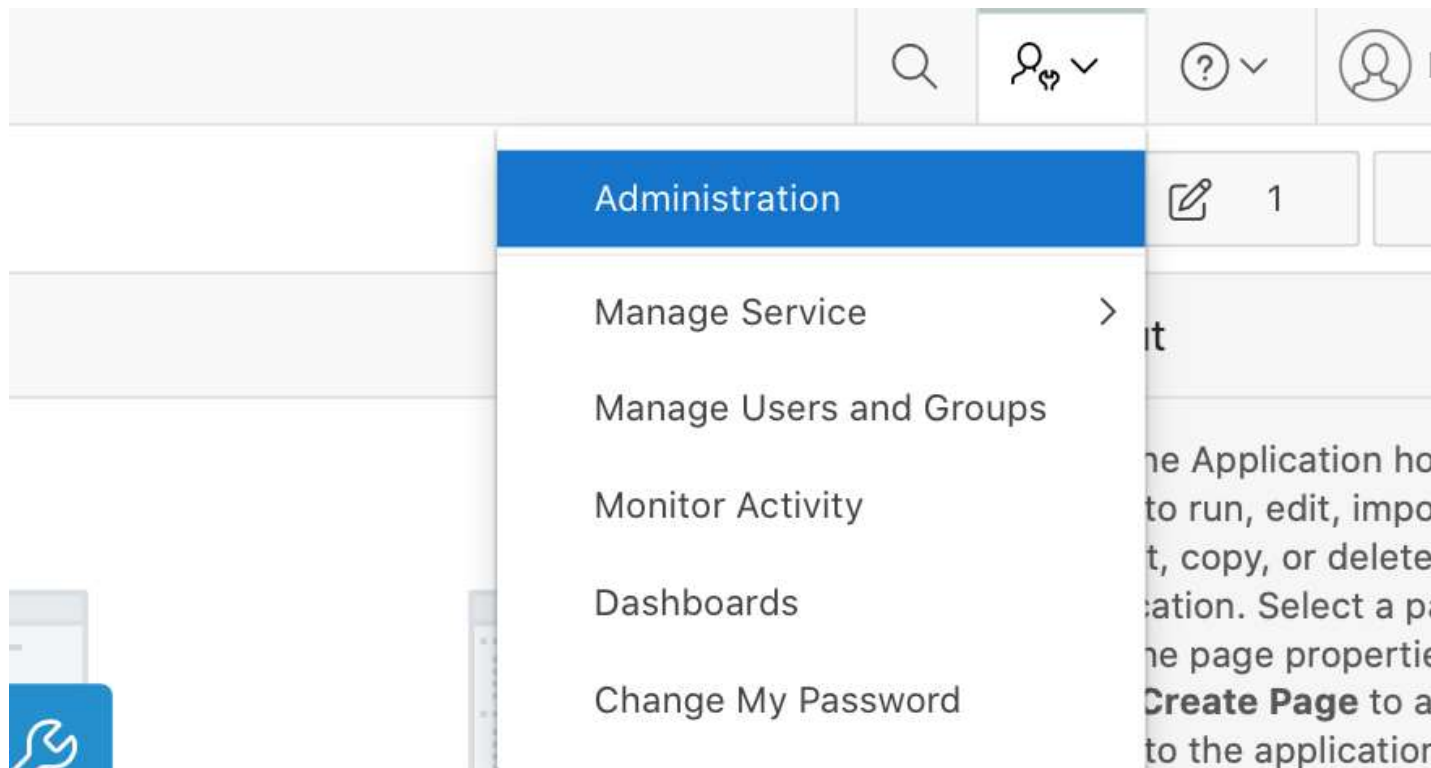
Authentication Schemes Subscription History

Search Go Actions

Name ↑	Scheme Type
Application Express Authentication	Application Express Accounts
OPEN_DOOR - Current	Open Door Credentials

Создадим группы пользователей (пригодятся потом при авторизации)

Administration -> Manage Users and Groups



Создадим группы пользователей (пригодятся потом при авторизации)

Administration -> Manage Users and Groups

The screenshot shows the Oracle APEX interface for managing users and groups. The top navigation bar includes links for ORACLE APEX, App Builder, SQL Workshop, Team Development, and App Gallery. The breadcrumb trail indicates the current location is 'Manage Users and Groups' > 'User Group'.

The main section is titled 'User Groups'. Below this, there are two tabs: 'Show All' and 'Group Details'. The 'Group Details' tab is currently selected, showing a form to create or edit a group.

The form includes the following fields:

- Group Name:** A text input field containing the value 'ADMIN'. It is marked with a red asterisk (*) indicating it is a required field. A help icon (?) is visible to the right of the field.
- Description:** A text area containing the value 'Admins'. A character count '6 of 4000' is displayed below the text area. A help icon (?) is visible below the character count.

Первая группа (Admin) создана

ORACLE APEX App Builder SQL Workshop Team Development


↑ Manage Users and Groups

Users **Groups** Group Assignments

Q

Go

Actions


ADMIN

Создадим вторую группу пользователей (USER)

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

[Manage Users and Groups](#) | **User Group**

User Groups

Show All Group Details

Group Details

*

Group Name

USER

?

Description

A group of regular users

24 of 4000

?

Две группы созданы



ORACLE[®] APEX App Builder SQL Workshop Team Developer

↑ Manage Users and Groups


Users **Groups** Group Assignments


Q ▾

Go

Actions ▾


ADMIN


USER

Начнём создавать пользователей

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

Manage Users and Groups Create User

Create User

Show All User Identification Account Privileges

User Identification

* Username ADMIN_1 ?

* Email Address N.Grafeeva@spbu.ru ?

First Name ?

Last Name ?

Description ?

Default Date Format ?

Вот список созданных пользователей

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

Manage Users and Groups

✓ User "ADMIN_1" updated.

Users Groups Group Assignments

Go Actions Reset View Dashboard Create Multiple Users > Create User >

User ↑	Email	Account Type	Locked	Builder Last Login	Created
ADMIN_1	N.Grafeeva@spbu.ru	End User	No	-	65 seconds ago
ST040138@STUDENT.SPBU.RU	st040138@student.spbu.ru	Workspace Administrator	No	27 minutes ago	3 weeks ago
USER_1	st040138@student.spbu.ru	End User	No	-	11 seconds ago

1 - 3

На пользователей можно посмотреть через представление APEX_WORKSPACE_APEX_USERS

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

SQL Commands

Rows 10 ? Clear Command Find Tables

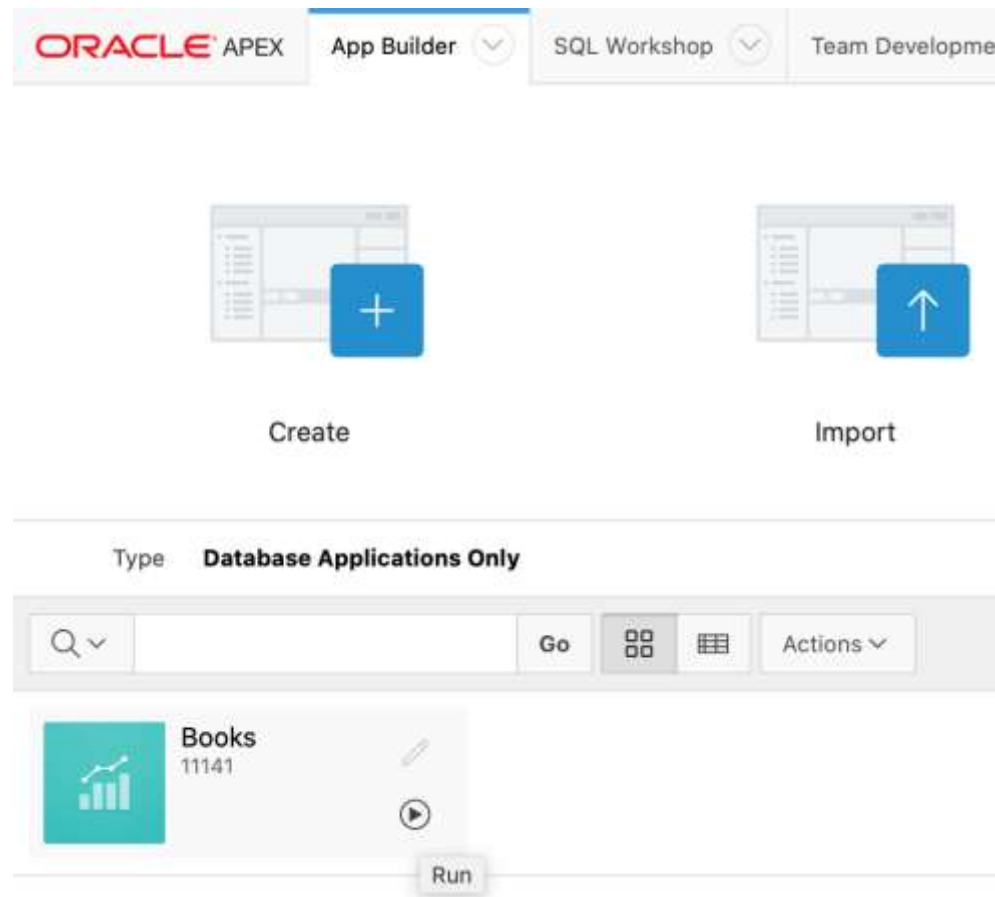
```
SELECT * FROM APEX_WORKSPACE_APEX_USERS
```

Results Explain Describe Saved SQL History

WORKSPACE_ID	WORKSPACE_NAME	WORKSPACE_DISPLAY_NAME	FIRST_SCHEMA_PROVISIONED	USER_NAME
32848272930387231036	NFEDOROV	NFEDOROV	NFEDOROV	USER_1
32848272930387231036	NFEDOROV	NFEDOROV	NFEDOROV	ADMIN_1
32848272930387231036	NFEDOROV	NFEDOROV	NFEDOROV	ST040138@STUDENT.SPBU.RU

3 rows returned in 0.71 seconds [Download](#)

Убедимся, что созданных пользователей пустят в приложение со схемой аутентификации APEX_AUTH



Убедимся, что созданных пользователей пустят в приложение со схемой аутентификации APEX_AUTH

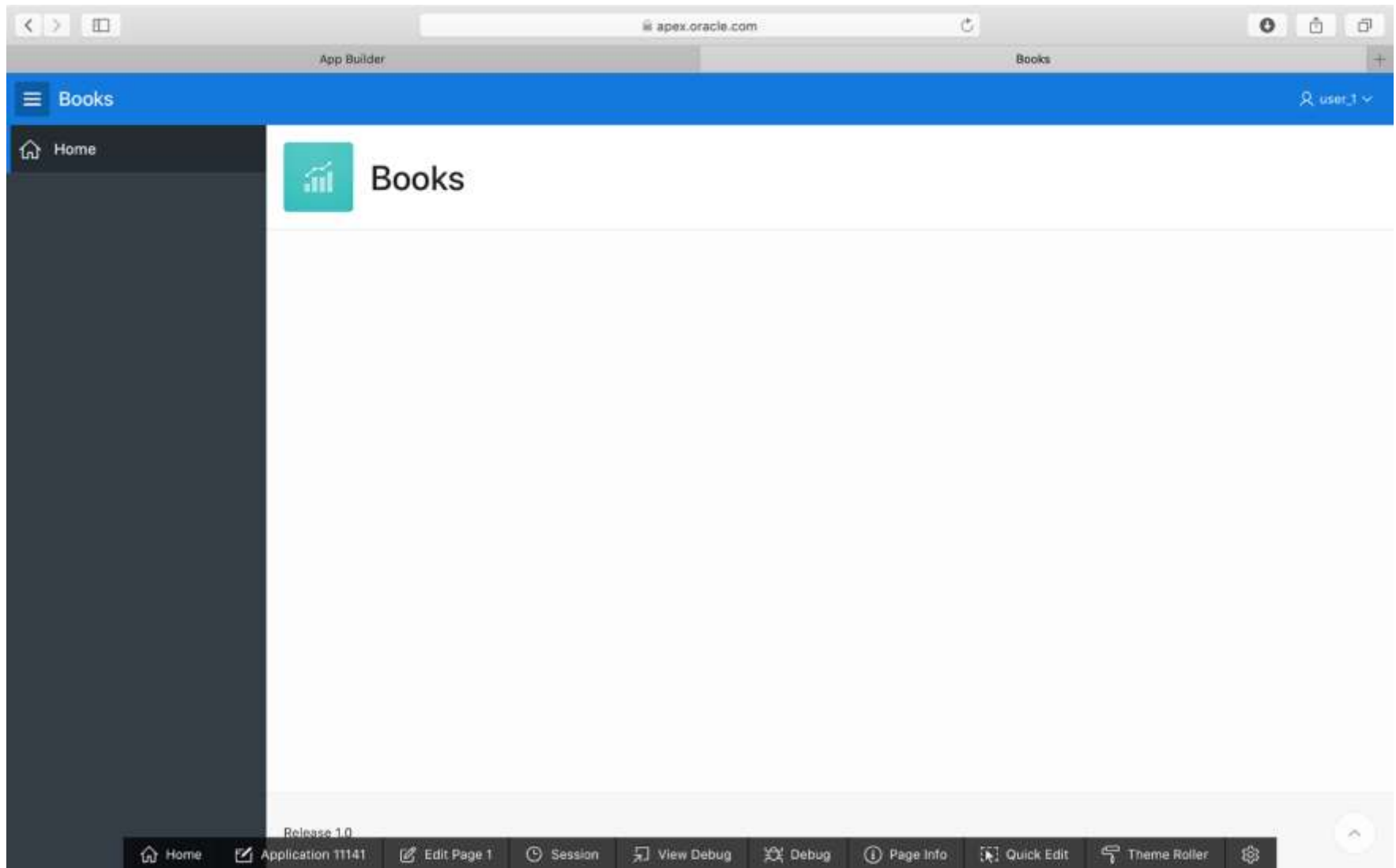


Log In to Application 11141

Enter your credentials in this form to start a new session in this Application Express application.

* Username

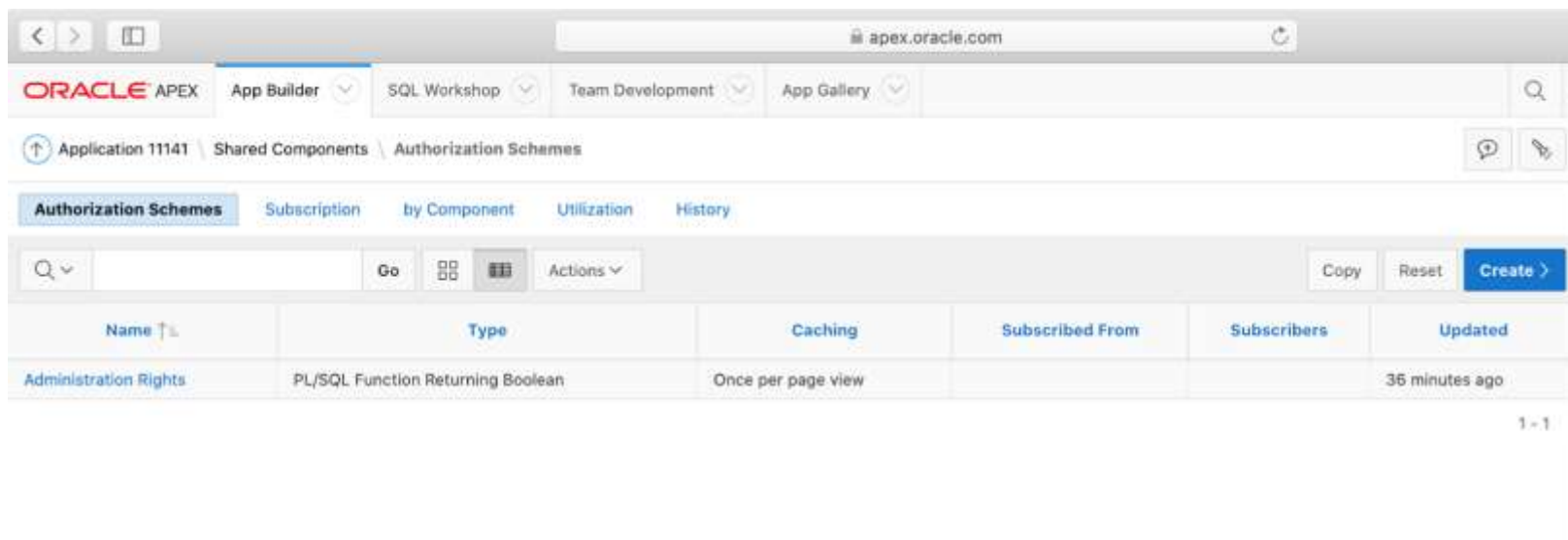
(Пустили)



Теперь займёмся
вопросами авторизации

Создадим схемы авторизации

Наше приложение -> Shared Components -> Security -> Authorization Schemes



The screenshot shows the Oracle APEX web interface. The top navigation bar includes the Oracle APEX logo and tabs for App Builder, SQL Workshop, Team Development, and App Gallery. The breadcrumb trail indicates the path: Application 11141 > Shared Components > Authorization Schemes. Below the breadcrumb, there are tabs for Authorization Schemes, Subscription, by Component, Utilization, and History. The main content area displays a table of authorization schemes. The table has columns for Name, Type, Caching, Subscribed From, Subscribers, and Updated. A single row is visible, representing the 'Administration Rights' scheme. At the bottom right, there is a pagination indicator showing '1 - 1'.

Name	Type	Caching	Subscribed From	Subscribers	Updated
Administration Rights	PL/SQL Function Returning Boolean	Once per page view			36 minutes ago

С чистого листа (From Scratch)

The screenshot shows a 'Create Authorization Scheme' dialog box with a progress bar at the top. The first step, 'Creation Method', is active. The dialog provides instructions on how to create an authorization scheme and offers two options: 'From Scratch' (selected) and 'As a Copy of an Existing Authorization Scheme'. Navigation buttons 'Cancel', 'Next >', 'Copy', 'Reset', and 'Create >' are visible.

Go [Icons] Actions ▾ Copy Reset Create >

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 >

В основе схемы авторизации – SQL запрос с использованием системной переменной :APP_USER и представления APEX_WORKSPACE_APEX_USERS

The screenshot shows the 'Create Authorization Scheme' dialog box in Oracle APEX. The dialog has a title bar with a close button (X) and a progress indicator with two steps: a green circle for 'Details' and a blue circle for 'Details'. Below the progress bar, there is a warning message: 'administration rights may need access to more navigation bar icons, pages, and tabs than other users.' The main form contains the following fields:

- Application:** 11141 Books
- Name:** ADMIN_SCHEME
- Scheme Type:** Exists SQL Query
- SQL Query:**

```
SELECT NULL FROM APEX_WORKSPACE_APEX_USERS
WHERE USER_NAME = :APP_USER
AND USER_NAME LIKE 'ADMIN%'
```
- Access denied:** (This field is currently empty, but it is labeled 'Identify error message displayed when scheme violated'.)

At the bottom of the dialog, there are two buttons: 'Cancel' and 'Create Authorization Scheme'.

Создадим ещё одну схему авторизации

The screenshot shows the 'Create Authorization Scheme' dialog box in Oracle SQL Developer. The dialog has a title bar with 'Go', 'Actions', 'Copy', 'Reset', and 'Create >' buttons. The main content area is titled 'Create Authorization Scheme' and features a progress indicator with a blue dot at the first step, 'Creation Method'. Below the progress bar, there is a text block explaining the options: '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.' Underneath, 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 footer of the window shows 'Copyright © 1999, 2019, Oracle. All rights reserved.'

Go Actions Copy Reset Create >

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 >

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Назовём её USER_SCHEME

The screenshot shows the 'Create Authorization Scheme' dialog box. At the top, there's a progress bar with a green checkmark on the left and a blue dot on the right labeled 'Details'. Below the progress bar, there's a paragraph explaining the purpose of authorization schemes. The form fields are as follows:

- Application:** 11141 Books
- Name:** USER_SCHEME
- Scheme Type:** Exists SQL Query
- SQL Query:**

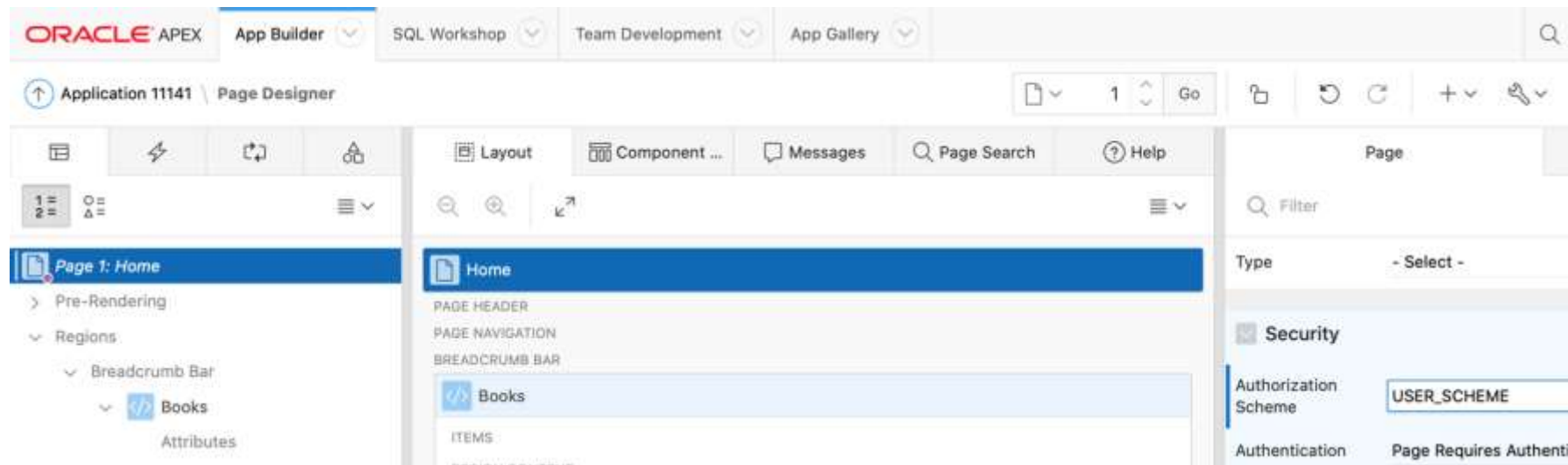
```
SELECT * FROM APEX_WORKSPACE_APEX_USERS
WHERE USER_NAME = :APP_USER
AND USER_NAME LIKE 'USER%'
```
- Identify error message displayed when scheme violated:** Access denied

At the bottom, there are buttons for '< Cancel' and 'Create Authorization Scheme'.

Вот полный список схем авторизации

ORACLE [®] APEX	App Builder	SQL Workshop	Team Development	App Gallery
Application 11141	Shared Components	Authorization Schemes		
Authorization Schemes	Subscription	by Component	Utilization	History
Q	Go	Grid	Actions	
Name	Type	Caching		
ADMIN_SCHEME	Exists SQL Query	Once per session		
Administration Rights	PL/SQL Function Returning Boolean	Once per page view		
USER_SCHEME	Exists SQL Query	Once per session		

Установим схемы авторизации для страниц приложения



без домашнего задания