APEX 18.1 "hidden" features

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○ https://github.com/mgoricki/

🅱 APEX related blog - apexbyg.blogspot.com

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APEX APIs

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APEX PL/SQL APIs

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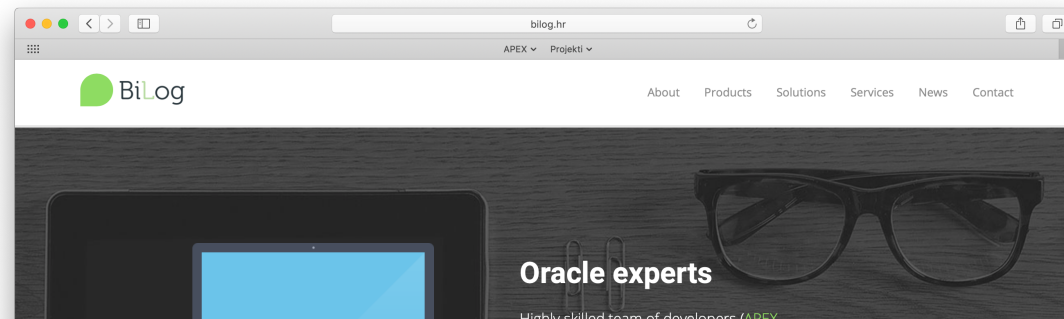ⓑ APEX related blog - apexbyg.blogspot.com

About Me

- Software Consultant @ BiLog (Croatia)
- More than 10 years of experience with APEX
- Presenter at HROUG, SIOUG, APEX World, KSCOPE, APEX Alpe Adria (https://www.a... APEX Connect
- apex.world Member of the year 2017 (and month November 2017)
- 🅱 APEX related blog - apexbyg.blogspot.com
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BiLog

- Software development company focused on consulting and business solution development
- Technology focus Oracle (APEX)
- Forms > APEX migrations, APEX educations, consulting, plugin development
- Our APEX solutions:
  - HR management software
  - Regulatory reporting for insurance
  - Reinsurance
  - GDPR

Agenda

- New APEX 18.* PL/SQL APIs and features:
  - Session
  - Application Settings
  - ACL
  - Export
  - Mail templates
  - Dynamically Set Parsing Schema
- APEX 5.* APIs and features
  - Session Cloning
  - APEX URL
  - APEX String
- Other APIs

Why to use APIs?

Where to start?

- APEX documentation
  - apex.oracle.com/doc182
  - [Release Notes](#) / New Features
  - [Changes in this release](#)
  - Sample Applications
- 🐦 [#orclapex](#)
- Ⓑ Blogs
- https://github.com/Dani3lSun/awesome-orclapex
- apex.oracle.com/shortcuts

APEX_SESSION package

- **set_debug** and **set_trace** available from 5.1
- New in 18.1:
  - **create_session**
  - **attach**
  - **delete_session**
  - **detach**

SET_DEBUG

- sets debug level for all future requests in a session.
- 7 levels ([constants](#)):
  - 1 - error
  - 2 - warning
  - 4 - info (default) - same as YES
  - 5 - app_enter
  - 6 - app_trace

Application Settings

- No more need for simple key-value configuration tables
- Key feature: **On Upgrade Keep Value**
- **API package**: apex_app_settings (get_value/set_value)
- **dictionary view**: apex_application_settings

GET_VALUE

- gets the application setting value

```
-- before use, not enough to just set workspace (security_group_id)
exec apex_util.set_workspace(:WORKSPACE);

-- you need to create or attach to session if used outside APEX session
begin
  apex_session.create_session (p_app_id   => 114
                             , p_page_id  => 1
                             , p_username => :USER);
end;
/

-- get_value example
select name
     , apex_app_setting.get_value(p_name => name) as val
     , on_upgrade_keep_value
  from apex_application_settings
 where application_id = 114;
```

Application Access Control (ACL)

- Developers define roles and assign users to roles
- Control access to pages and components with Authorization Schemes
- **dictionary views**:
  - apex_appl_acl_roles
  - apex_appl_acl_users
  - apex_appl_acl_user_roles

- **API package**: apex_acl
  - add_user_role
  - add_user_roles
  - remove_user_role
  - remove_all_user_roles
  - replace_user_roles
  - has_user_role
  - has_user_any_roles

- can create administration page through features (also new feature)

APEX Export

- can be done in APEX Builder, with Java Utility or SQLcl
- can export the app definitions, files, feedback, and workspaces to text files as CLOBs
- available from APEX 5.1 (but not documented)
- uses utility types APEX_T_EXPORT_FILE and APEX_T_EXPORT_FILES

```
-- APEX_T_EXPORT_FILE
create or replace type wwv_flow_t_export_file force is object (
    name      varchar2(255),
    contents clob
)

-- APEX_T_EXPORT_FILES
create or replace type wwv_flow_t_export_files is table of wwv_flow_t_export_file
```

GET_APPLICATION

- Definition:

```
function get_application (
    p_application_id         in number,
    p_split                  in boolean  default false,
    p_with_date              in boolean  default false,
    p_with_ir_public_reports in boolean  default false,
    p_with_ir_private_reports in boolean default false,
    p_with_ir_notifications  in boolean  default false,
    p_with_translations      in boolean  default false,
```

APEX Mail Templates

- new feature in APEX 18.1 (Shared Components > Email Templates)

- API package: apex_mail - (2 new procedures and one function):

  - send (procedure and function)
  - prepare_template procedure

- **dictionary views**

  - apex_mail_log
  - apex_mail_queue
  - apex_mail_attachments

SEND procedure

- new template_static_id parameter

```
declare
  v_placeholders clob;
begin
```

Dynamically Set Parsing Schema

- change the parsing user for the current page view to another workspace schema
- can only call it from Initialization PL/SQL Code

```
begin
  apex_util.set_parsing_schema_for_request (
    p_schema => :SCHEMA
  );
end;
/
```

Example

```
if :APP_PAGE_ID between 1 and 100 then
    apex_util.set_parsing_schema_for_request (
        p_schema => :G_PARSING_SCHEMA );
end if;
```

Links

- [Demo](#)
- [Documentation](#)

Session Cloning

- before using it, you have to enable it with **sys** user or **apex_administrator_role** user:

```
grant apex_administrator_role to sioug2018;
```

```
begin
  apex_instance_admin.set_parameter(
    p_parameter => 'CLONE_SESSION_ENABLED',
    p_value     => 'Y');
end;
/
```

- to use it add request to the link APEX_CLONE_SESSION:
  - .../f?p=114:10:15609087012832:**APEX_CLONE_SESSION**:::

Links

- [Demo](#)

APEX URL

- bad way - DB needs to hard parse query for each SQL statement

```sql
select 'f?p=&APP_ID.:17:&APP_SESSION.:::P17_ITEM:1' as my_url
     , apex_util.prepare_url('f?p=&APP_ID.:17:&APP_SESSION.:::P17_ITEM:1') as my_url_with_cs
  from some_table;
```

- better - not so readable and developer can easily make errors

```sql
select 'f?p=&APP_ID.:17:'||:APP_SESSION||':::P17_ITEM:1' as my_url
     , apex_util.prepare_url('f?p=&APP_ID.:17:'||:APP_SESSION||':::P17_ITEM:1') as my_url_with_cs
  from some_table;
```

- good way - readable, creates checksum if needed

```sql
select apex_page.get_url(p_page => '17'
                       , p_items => 'P17_ITEM'
                       , p_values => '1') as my_url
  from some_table;
```

- other parameters

Strings (APEX_STRING)

- new in 5.1
- utilities for varchar2, clob, apex_t_varchar2, and apex_t_number types

JOIN and SPLIT

- apex_util.string_to_table and apex_util.table_to_string are <u>DEPRECATED</u>
- **SPLIT**:

```
 -- apex_util.string_to_table DEPRECATED
declare
  v_arr     apex_application_global.vc_arr2;
begin
  v_arr := apex_util.string_to_table('One:Two:Three');
  for i in 1..v_arr.count
  loop
    dbms_output.put_line(v_arr(i));
  end loop;
end;
/
```

```
-- apex_string
select * from apex_string.split('One:Two:Three', ':');
-- doesn't work: select * from APEX_UTIL.STRING_TO_TABLE('One:Two:Three');
```

- **JOIN**:

Other APIs

- New in 18.1

  - **APEX_PKG_APP_INSTALL** - utilities you can use to manage Packaged Applications.
  - **APEX_JWT** - utilities for JSON Web Tokens (JWT)
  - **APEX_EXEC** - contains procedures and functions to execute queries or procedural calls on local and remote data sources as well as web source modules
  - **APEX_CREDENTIAL** (new in 18.2) - package to change stored credentials either persistently or for the current APEX session only

- Useful from previous versions:

  - **APEX_ZIP** - compress and to uncompress files and store them in a ZIP file
  - **APEX_JSON** - utilities to parse and generate JSON
  - **APEX_WEB_SERVICE** - utilities to invoke WS

- Non APEX APIs

  - https://github.com/mortenbra/alexandria-plsql-utils

Questions?

http://bit.do/apex-hidden-features

Thank You!