



# APEX 5.0: Kleine Features im Detail

SQL, PL/SQL und kleinere, neue Funktionen

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Berlin, 16.09.2015

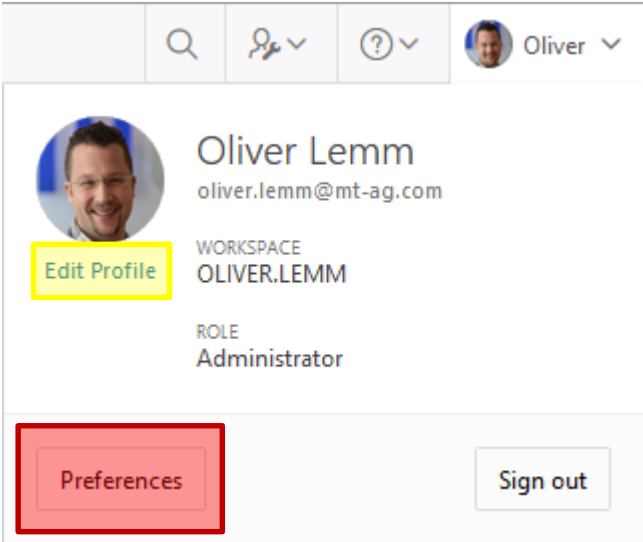
# Agenda

1. **Developer Preferences & Developer SSO**
2. **Supporting Objects & Static Files**
3. **API & Packages**
4. **weiteres**




# Developer Preferences & Developer SSO

# Developer Preferences



Search, Profile, Help, Oliver

 **Oliver Lemm**  
oliver.lemm@mt-ag.com

**Edit Profile**

WORKSPACE  
OLIVER.LEMM

ROLE  
Administrator

**Preferences** Sign out

## Preferences

Username **OLIVER.LEMM@MT-AG.COM** ?

Default Schema OLIVERLEMM ?

Default Date Format ?

Run application in new window Yes ?

Use single window to run all applications No ?

Cancel

Apply Changes

# Developer Profile

- Passwortänderung ohne neuen Login
- Foto quadratisch sonst verzerrt
- Entwickleraccounts mit LDAP besitzen kein initiales Passwort im Workspace
  - Bei Application Express Account Authentifizierung muss im Workspace das Passwort gesetzt werden

## Profile Details

Workspace OLIVER.LEMM ?

Username OLIVER.LEMM@MT-AG.COM ?

\* Email Address  ?

First Name  ?

Last Name  ?

## Profile Photo

[Remove Current Photo](#)

Your profile photo personalizes your activity by showing up in the Top Users list. Add, change, or remove your photo.

Current Photo



Photo  Keine Datei ausgewählt. ?

## Change Password

If you wish to change your password, enter a new password. Otherwise, leave the password columns null and the current password will not be changed.

Enter Current Password  ?

Enter New Password  ?

Confirm Password  ?

# Entwickler SSO






- Internal -> Manage Instance -> Security -> Authentication Control

Security Account Password Lifetime (days) 45 Cancel Apply Changes

Current Workspace Authentication Scheme LDAP Directory

Show All Security HTTP Protocol RESTful Access Session Timeout Workspace Isolat... Region and Web ... **Authentication C...** Password Policy

## Development Environment Authentication Schemes

	Name	Description	Status
	Application Express Accounts	This is the default authentication scheme. It authenticates users against the workspace user repository.	Not Current
	Database Accounts	This scheme utilizes database credentials. The user name and password of the database account is used to authenticate the user.	Not Current
	HTTP Header Variable	This scheme relies on a HTTP header variable to contain the username and on an external login method to log in. Application Express presents the available workspaces for the user.	Not Current
	LDAP Directory	This scheme checks credentials against an LDAP repository.	Current
	Oracle Application Server Single Sign-On	This scheme authenticates developers with Oracle Single Sign-On, using SSO's external login page. After authentication, Application Express presents the available workspaces for the user.	Not Current

# Entwickler SSO - LDAP

- Login mittels LDAP
- MS Active Directory Einstellungen ->
- Achtung  
bisherige Usernamen  
müssen gleich sein  
ansonsten vorher  
anpassen

Authentication Scheme Attributes

* Host	<input type="text" value="ldap.domain.com"/>	?
Port	<input type="text" value="389"/>	?
Use SSL	<input type="text" value="No SSL"/>	?
* Distinguished Name (DN) String	<input type="text" value="domain_name\%LDAP_USER%"/>	?
Use Exact Distinguished Name (DN)	<input type="text" value="Yes"/>	?
LDAP Username Edit Function	<div style="border: 1px solid #ccc; height: 150px;"></div>	
Username Escaping	<input type="text" value="Standard"/>	?

# Entwickler SSO - LDAP

- Achtung: Vor LDAP Nutzung Entwickleraccounts migrieren!
- Aktuelle Entwickleraccounts: Oliver, LemmO, Olemm
- Neuer Account (via LDAP) [oliver.lemm@mt-ag.com](mailto:oliver.lemm@mt-ag.com)
- per Skript migrieren (oder händisch)

```
BEGIN
  APEX_UTIL.SET_USERNAME(
    p_userid      => APEX_UTIL.GET_USER_ID('OLIVER'),
    p_username    => 'OLIVER.LEMM@MT-AG.COM');
END;
```

- Zurückstellen auf „Standard“ Login über Workspace Accounts

```
SQL>exec apex_instance_admin.set_parameter('APEX_BUILDER_AUTHENTICATION','APEX');
```



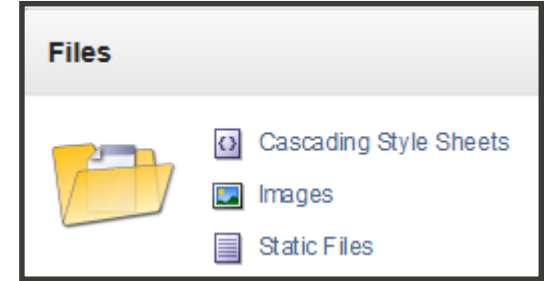


# Supporting Objects & Static Files

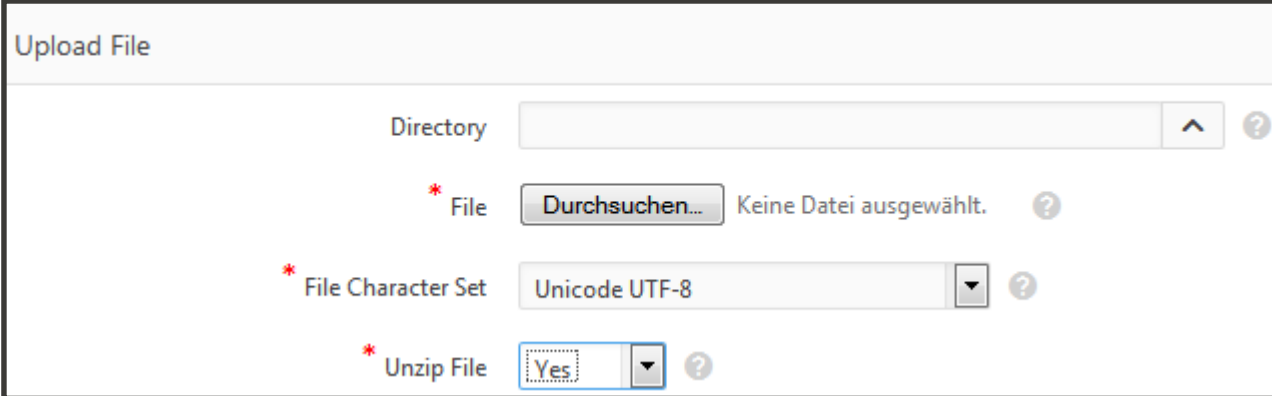
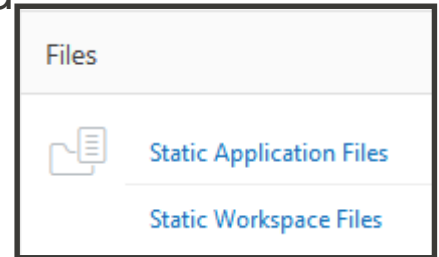
# Static Files

- Logische Zusammenfassung
  - Anwendung & Workspace
- Dateien gepackt/gezippt hochladbar
- „Verzeichnis“ beim Upload definierbar
- pro Aktualisierung der Dateien neue Versionsnummer im Pfad

## APEX 4.x



## APEX 5



The screenshot shows the 'Upload File' dialog box in APEX 5. It contains the following fields and options:

- Directory:** A text input field with an upward arrow and a help icon.
- File:** A text input field with a red asterisk, a 'Durchsuchen...' button, and the text 'Keine Datei ausgewählt.' with a help icon.
- File Character Set:** A dropdown menu with a red asterisk, currently set to 'Unicode UTF-8', and a help icon.
- Unzip File:** A dropdown menu with a red asterisk, currently set to 'Yes', and a help icon.

# Static Files

- **#APP\_IMAGES#** dient als Platzhalter und wird übersetzt:
- **my\_home/r/80810/files/static/v9/Workshop/Bilder/Neu/profil.jpg**
- **/v9/**: Beim hochladen der gleichen Datei, wird versioniert
- Und Browser-Cache gelöscht
- Löschen von allen Dateien in einem „Verzeichnis“ nicht möglich
- Achtung beim Versionieren der Anwendung, dort sind immer alle Dateien enthalten

# Supporting Objects

# DEMO



# Autorisierung

# Autorisierung

## APEX 5

### Authorization Scheme

\* Scheme Type - Select Authorization Scheme Type -

Editor Setting: Text

\* Identify error message

Evaluation Point

- Select Authorization Scheme Type -
- Exists SQL Query
- Item in Expression 1 is NULL
- Item in Expression1 is NOT NULL
- NOT Exists SQL Query
- PL/SQL Function Returning Boolean
- Value of Item in Expression 1 Does NOT Equal Expression 2
- Value of Item in Expression 1 Equals Expression 2
- Value of Preference in Expression 1 Does NOT Equal Expression 2
- Value of Preference in Expression 1 Equals Expression 2

### Authorization Scheme

\* Scheme Type Is In Group

\* Group Name

\* Identify error message displayed when scheme violated

Evaluation Point

- Select Authorization Scheme Type -
- Exists SQL Query
- Is In Group
- Is Not In Group
- Item in Expression 1 is NULL
- Item in Expression1 is NOT NULL
- NOT Exists SQL Query
- PL/SQL Function Returning Boolean
- Value of Item in Expression 1 Does NOT Equal Expression 2
- Value of Item in Expression 1 Equals Expression 2
- Value of Preference in Expression 1 Does NOT Equal Expression 2
- Value of Preference in Expression 1 Equals Expression 2

## APEX 4.2

# Autorisierung

APEX 5.x

APEX 4.x

## Evaluation Point

Validate authorization scheme:

- Once per page view
- Once per session

## Authorization Scheme

Use this page to define an authorization scheme. By creating an authorization schemes, you can protect applications, pages, and application components and extend the security provided by your application authentication scheme. You can use authorization schemes to identify additional security beyond simple user authentication. For example a user with administration rights may need access to more navigation bar icons, pages, and tabs than other users.

Application: **9893 Sample Database Application** ?

\* Name  ?

### Authorization Scheme

\* Scheme Type  ?

\* Group Name  ?

\* Identify error message displayed when scheme violated

### Evaluation Point

- Validate authorization scheme:
- Once per session
  - Once per page view
  - Once per component
  - Always (No Caching)

### Comments

Comments

< Cancel

Create Authorization Scheme

# Autorisierung

## ▪ Individuelle Parameter in Autorisierung auswertbar

- APP\_COMPONENT\_TYPE => APEX\_APPLICATION\_PAGE\_ITEMS,...
- APP\_COMPONENT\_ID => 32421432434 (APEX\_ELEMENT\_ID)
- APP\_COMPONENT\_NAME => ITEM\_NAME

Evaluation Point

Validate authorization scheme:  Once per session  
 Once per page view  
 Once per component  
 Always (No Caching)

Comments

Comments

### Validate authorization scheme

Authorization schemes are evaluated on first use in a session. The *Validate authorization scheme* attribute controls if future uses cause re-evaluations and when a memorized result can be taken instead. The list below describes the available options:

- **Once per session:** Evaluate only once and always use the memorized result afterwards.
- **Once per page view:** Evaluate once for each request that is processed. Use the memorized result if the authorization scheme is referenced in more than one component on the page.
- **Once per component:** Evaluate once for each component that references the authorization scheme, but save the result in the session. Further requests to render or process the scheme use the memorized result.
- **Always (No Caching):** The authorization scheme will always be evaluated.

The default value *Once per session* is the most efficient. You should choose another value if the authorization check depends on changing session state or other factors that are not consistent over an entire session. The options *Once per component* and *Always (No Caching)* provide additional information about the component that is secured by the authorization scheme. In authorization plugins, you can use the *component.type*, *component.id* and *component.name* attributes of the *\_authorization* parameter. For the built-in *Exists SQL Query* and *PL/SQL Function* scheme types, equivalent bind variables *:APP\_COMPONENT\_TYPE*, *:APP\_COMPONENT\_ID* and *:APP\_COMPONENT\_NAME* are available.

Created: 90 minutes ago - OLEMM



# Autorisierung

```
auth_pkg.can_access(pi_app_id          => :APP_ID
                   ,pi_app_page_id     => :APP_PAGE_ID
                   ,pi_app_component_type => :APP_COMPONENT_TYPE
                   ,pi_app_component_name => :APP_COMPONENT_NAME
                   ,pi_app_component_id  => :APP_COMPONENT_ID
                   ,pi_app_user         => :APP_USER);
```

- Spezifische Auswertung pro
  - Komponente möglich
  - Über ein einziges Autorisierungsschema
  - Achtung Branches ohne Namen!

# Create Application Process - Identification



## Identification

Application Processes run PL/SQL logic at specific points for each page in an application or as defined by the conditions under which they are set to fire. Note that "On Demand" processes fire only when called from specific pages.

\* Name  ?

\* Sequence  ?

\* Point  ?

"On Demand" processes should be de

- On Load: Before Header (page template header)
- On Load: Before Header (page template header)
- On Load: After Header (page template header)
- On Load: Before "Body" Region(s)
- On Load: After "Body" Region(s)
- On Load: Before Footer (page template footer)
- On Load: After Footer (page template footer)
- On Submit: After Page Submission - Before Computations and Validations
- On Submit: After Page Submission - After Computations and Validations
- On New Instance (new session)
- After Authentication
- On Demand: Run this application process when requested by a page process.

Cancel

Next >



# API & Packages

# jQuery

- jQuery 2.1.3
  - Achtung Auswirkung auf Custom JS Code
- jQuery UI 1.10.4
  - Dadurch Design Änderungen im Datepicker
- jQuery Mobile 1.4.5

# API & Packages – APEX\_JSON

- Erzeugen von JSON
  - to\_xmltype( l\_json );
  - open\_object();
  - write('Element','Wert');
  - close\_object();
  - open\_array('Eigenschaften');
  - close\_array();
  - close\_all();
- Verarbeiten von JSON
  - parse( l\_json );
  - l\_val := apex\_json.get\_varchar2( p\_path => 'Element' );

# APEX\_JSON Beispiel – JSON erzeugen

```
begin
  apex_json.initialize_clob_output;
  apex_json.initialize_output(p_http_header => false);
  apex_json.open_object();
  apex_json.write('Item1','value1');
  apex_json.open_array('Attributes');
  apex_json.open_object();
  for i in 1..3 loop
    apex_json.write('Attr'||i, i);
  end loop;
  apex_json.close_object();
  apex_json.close_array();
  apex_json.write('ExtraData','More to come');
  apex_json.close_all();

  dbms_output.put_line(apex_json.get_clob_output);
end;
```

```
{
  "Item1":"value1"
  , "Attributes":[
    {
      "Attr1":1
      , "Attr2":2
      , "Attr3":3
    }
  ]
  , "ExtraData":"More to come"
}
```

# APEX\_JSON Beispiel – JSON parsen

```
declare
  l_json varchar2(32767) := '{"empno":333, "empname":"Tom", "empsal":3000}';
begin
  apex_json.parse( l_json );
  http.prn( apex_json.get_number( p_path => 'empno' ) );
  http.prn( apex_json.get_varchar2( p_path => 'empname' ) );
end;
```

333 Tom

[https://docs.oracle.com/cd/E59726\\_01/doc.50/e39149/apex\\_json.htm#AEAPI29635](https://docs.oracle.com/cd/E59726_01/doc.50/e39149/apex_json.htm#AEAPI29635)

# API & Packages – APEX\_SPATIAL

- CHANGE\_GEOM\_METADATA Procedure
- CIRCLE\_POLYGON Function
- DELETE\_GEOM\_METADATA Procedure
- INSERT\_GEOM\_METADATA Procedure
- INSERT\_GEOM\_METADATA\_LONLAT Procedure
- POINT Function
- RECTANGLE Function
- (in 4.2.5 technisch aufgenommen, jetzt dokumentiert)



# API & Packages – APEX\_ZIP

- ADD\_FILE
- FINISH
- GET\_FILE\_CONTENT
- GET\_FILES

# API & Packages

- APEX\_UTIL

- feedback\_enabled return boolean -> Ist Feedback aktiv oder nicht?
- reset\_password -> eigene Passwordrücksetzung einbauen
- prepare\_url -> Funktion wurde erweitert zur Unterstützung von Dialogen und Anzeige von Fehlern

- APEX\_PAGE

- get\_url => mittels Parameter einfacher die APEX URL erzeugen
- get\_page\_mode => NORMAL, MODAL oder NON\_MODAL

# API & Packages

- APEX\_ESCAPE
  - JSON => Anführungsstriche können einfach escaped werden
  - Regexp => Bindestriche und weitere Sonderzeichen werden nicht interpretiert
- APEX\_LDAP
  - Search => Suchanfragen mittels PL/SQL fürs LDAP definieren (Community Tip vorhanden)

# API & Packages

- `sys_context` für APEX Sessionvariablen (schneller und entspricht anderen Sessionparameter innerhalb einer Datenbanksession)
  - anstatt `v(APP_USER)`
  - `select sys_context('APEX$SESSION', 'app_user') from dual`
- Dadurch sind die Sessionvariablen auch in Views nutzbar



**weiteres**

## weiteres – Import/Export

- Statische Dateien immer Bestandteil des Im/Exports
- IDs pro Komponente können gleich exportiert werden
- Statische Dateien nicht mehr einzeln exportierbar / deprecated importierbar

\* File Type:

- Database Application, Page or Component Export
- Worksheet Application Export
- Plug-in
- Theme Export
- User Interface Defaults
- Team Development Feedback
- CSS Export [Deprecated]
- Image Export [Deprecated]
- File Export [Deprecated]

Export Developer Comments Yes  ?

Export Translations Yes  ?

**Export with Original IDs** Yes  ?

Recent Exports to Export Repository

0 exports found for this application.

### Export with Original IDs

Help

Specify whether the export file should contain the application component IDs as of now or as of the last import of this application. Available options include:

- **Yes** includes the IDs as of the last import.
- **No** includes the current IDs of the components.

# Weiteres – Import/Export Workspace

- Exportiert alles (z.B.)
  - Mails & Mail Log
  - Users & Groups
  - Preferences
  - Workspace Files...

## Export Workspace

Exports workspace, user groups, users, and team development data.

Workspace User Count: 2 ?

Include Team Development: Yes ?

Export Type: Full

File Format: Minimal

File Character Set: Unicode UTF-8 ?

Reset Export

### Export Type

Help

Set to **Full** only if you want to replicate to another instance all workspace artifacts including SQL Scripts, SQL Command History, saved SQL, user preferences, developer login history, email logs, and user interface defaults. In most cases, you should not change the default value **Minimal**.

# weiteres – Session Joining

when your application is run.

Application **9893** ?

Public User  ?

Authentication Scheme  ?

Rejoin Sessions  ?

Deep Linking

Authorization Scheme

Run on Public Pages  ?

## Rejoin Sessions

- **Disabled** - If the URL does not contain a session ID, Application Express creates a new session.
- **Enabled for Public Sessions** - If the URL goes to a public page and does not contain a session ID, Application Express attempts to utilize the existing session cookie established for that application. For applications with both public and authenticated pages, a session ID is defined after the end user authenticates. Application Express only joins using the cookie when the session is not yet authenticated.
- **Enabled for All Sessions** - If the URL does not contain a session ID, Application Express attempts to utilize the existing session cookie established for that application, providing the following conditions are met:
  - Session State Protection is enabled for the application and the URL includes a valid checksum. For public bookmarks, the most restrictive item level protection must be either *Unrestricted* or *Checksum Required - Application Level*.
  - OR, the URL does not contain payload (a request parameter, clear cache or data value pairs).This setting also requires that Embed In Frames is set to Allow from same origin or to Deny for the application.



## weiteres – Item Handling

- `&P1_ITEM.`
  - Syntax auch für Spalten, List View und weiteren Stellen möglich
  - `#P1_ITEM#` wird weiterhin interpretiert soll aber durch `&`-Syntax abgelöst werden
  
- `&P1_ITEM!HTML.`           =>        `apex_escape.html`
- `&P1_ITEM!ATTR.`           =>        `apex_escape.html_attribute`
- `&P1_ITEM!JS.`             =>        `apex_escape.js_literal(,null)`
- `&P1_ITEM!RAW.`             =>        `unescaped`
- `&P1_ITEM!STRIPHTML.` =>        `strip tags und apex_escape.html`

# weiteres - trim

- Deklaratives Entfernen von führenden und/oder abschließenden Leerstellen

Subtype	Text
Trim Spaces	Leading and Trailing
Submit when Enter pressed	Leading and Trailing

The image shows a configuration interface for a text field. It consists of three rows. The first row is labeled 'Subtype' and has a dropdown menu with 'Text' selected. The second row is labeled 'Trim Spaces' and has a dropdown menu with 'Leading and Trailing' selected. The third row is labeled 'Submit when Enter pressed' and has a dropdown menu with 'Leading and Trailing' selected. The dropdown menu for 'Submit when Enter pressed' is open, showing four options: 'Leading', 'Trailing', 'Leading and Trailing' (highlighted), and 'None'.

# Weiteres - Branches

- andere Anwendung als Ziel möglich
- mehr als 3 Elemente änderbar

Link Builder - Target

▼ Target

Type: Page in a different application

Application: 5

Page: 6

▼ Set Items

P6_PRODUCT_NAME	^		^	X
P6_PRODUCT_AVAIL	^		^	X
P6_LIST_PRICE	^		^	X
P6_TAGS	^		^	X

Property Editor - Branch

▼ Identification

Name: Branch To Page Identified By Item

▼ Execution Options

Sequence: 10

Point: After Processing

▼ Behavior

Type: Page Identified by Item (Show only)

Item: Page or URL (Redirect)  
URL Identified by Item (Redirect)  
Function Returning a URL (Redirect)

▼ Condition: Page (Show only)  
Page Identified by Item (Show only)

When Button Pressed: Function Returning a Page (Show only)  
PL/SQL Procedure  
Page Processing {not common}

Type: - Select -

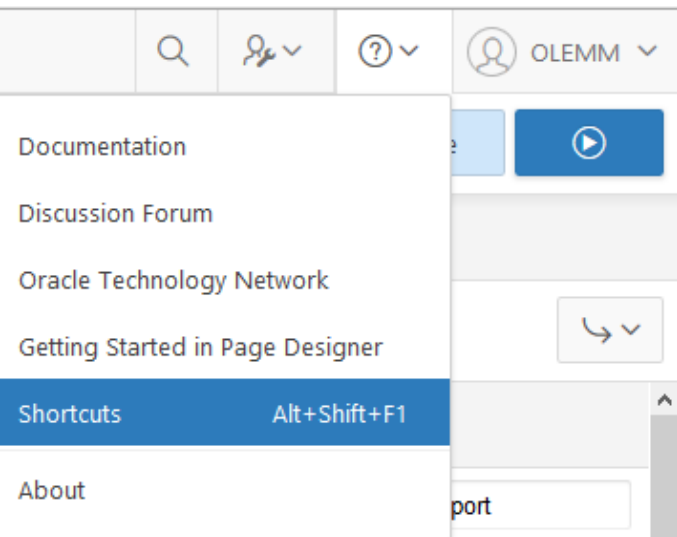
# Dynamic Actions

- Gruppierung der Dynamic Actions nach Event
- „Create Opposite Action“
- Actions für Modale Dialoge
  - Dialog Closed

# weiteres

- Advisor (deprecated attribute checks)
  - jetzt im eigenem (non-modalem) Fenster
- Neue Dictionary Views
- Neue zentrale Substitution Variable APP\_PAGE\_ALIAS

# Shortcuts



## Keyboard Shortcuts



Display From Here	Ctrl+Alt+D	Go to Page Shared Components	Alt+4
Display From Page	Ctrl+Alt+T	Go to Processing	Alt+3
Go to Dynamic Actions	Alt+2	Go to Property Editor	Alt+6
Go to Gallery Buttons	Alt+9	Go to Rendering	Alt+1
Go to Gallery Items	Alt+8	Keyboard Shortcuts	Alt+Shift+F1
Go to Gallery Regions	Alt+7	Page Search	Ctrl+Alt+F
Go to Grid Layout	Alt+5	Redo	Ctrl+Y
Go to Help	Alt+F1	Restore/Expand	Alt+F11
Go to Messages	Ctrl+F1	Save	Ctrl+Alt+S
		Save and Run Page	Ctrl+Alt+R
		Toggle Hide Empty Positions	Ctrl+Alt+E
		Undo	Ctrl+Z

# Alte Anwendung auf APEX 5

- Elemente mit Read Only können nicht durch Dynamic Action angepasst werden  
-> Fehler!
- Anordnung der Elemente kann zu Fehlern führen, dass die Seite nicht gerendert werden kann (maximal Anzahl von 12 Spalten)
- Elemente heißen anders bzw. der Name wird vom Type getrennt
  - Vorher Select List SQL Query
  - Nachher Name Select List und Type SQL Query

# Deprecated Features

- Region
  - Classic Tree
  - SVG Charts
- Tabular Form
  - Date Picker (Classic)
- Item
  - Date Picker (Classic)
  - Stop and Start Grid Layout



# Deprecated Features

- `WWV_FLOW_FILES` -> `APEX_APPLICATION_TEMP_FILES`
  - Automatisches Löschen nach Request
  - Kein permanentes Speichern in APEX eigenen Tabellen mehr
- Package
  - `APEX_PLSQL_JOB`
- Dynamic Actions
  - DOM fällt weg

# Deprecated Features

- `HtmlDb_get` -> `apex.server`
  - Umsteigen auf neue Logik für AJAX Aufrufe

# Desupported

- Keine IE6 Unterstützung mehr
- Item: Textfield with Calculate PopUp entfällt
  - Elemente werden als Textfields gerendert
- Flash 3 Charts entfallen
  - Automatisches Update zu aktuellen Anycharts

# VIELEN DANK.

business by  MT AG



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