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Oracle Application Express 4.0 - It's all about Plug-Ins!

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Principal Member of Technical Staff - Database Tools



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Inside Oracle APEX by Patrick Wolf

http://www.inside-oracle-apex.com/

Inside Oracle APEX by Patrick Wolf

Home Overview About APEX Builder Plugin ApexLib Framework APEX Essentials Free updates by RSS or Email



11. May 2009 6 Comments

Spreadsheet Master - He is the man! ;-)

Just came across a new fun video produced by Jeff Erickson (Oracle Publishing) who runs the blog Tech Spreadsheets. He writes about the challenges that are faced by producing some kind of new video which is not just a simple corporate presentation. I really enjoyed the outcome of the video because it was so fun to watch.

[Continue reading...](#)

The Developer Conference Sign up!

Pro Oracle Application Express READ IT!!!

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- ★ Generic solution for cascading select lists/lovs
- ★ Plug & play tabular form handling
- ★ Oracle APEX Builder Plugin v1.0 release!
- ★ Question on using %S% functions in SQL statement
- ★ SQL statement
- ★ Caution when using PL/SQL functions in a
- ★ Oracle APEX Builder Plugin v1.0 release!
- ★ Plug & play tabular form handling

www.oracleapex.info
twitter.com/patrickwolf

Plug-ins

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A photograph of three construction workers building a wooden frame structure outdoors. The workers are positioned around a rectangular frame made of vertical wooden studs. One worker on the left is wearing a light blue shirt and pants, another in the center is shirtless with blue pants and a cap, and a third on the right is shirtless with grey shorts. The background shows green trees and a clear sky. A semi-transparent white banner is overlaid across the middle of the image, containing the title text.

Using Plug-ins

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D E M O N S T R A T I O N

Using Plug-ins

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Development

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Architecture

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Callbacks - Rendering

```
function render_item_type (  
    p_item          in apex_plugin.t_page_item,  
    p_plugin        in apex_plugin.t_plugin,  
    p_value         in varchar2,  
    p_is_readonly   in boolean,  
    p_is_printer_friendly in boolean )  
return apex_plugin.t_page_item_render_result
```

Callbacks - Validation

```
function validate_item_type (  
    p_item      in apex_plugin.t_page_item,  
    p_plugin    in apex_plugin.t_plugin,  
    p_value     in varchar2 )  
    return apex_plugin.t_page_item_validation_result
```

Callbacks - AJAX

```
function validate_item_type (  
    p_item      in apex_plugin.t_page_item,  
    p_plugin    in apex_plugin.t_plugin )  
    return apex_plugin.t_page_item_ajax_result
```

Interface Record Types

```
type t_page_item is record (  
    id                number,  
    name              varchar2(255),  
    label             varchar2(4000),  
    format_mask       varchar2(255),  
    is_required       boolean,  
    standard_validations varchar2(20),  
    lov_definition     varchar2(4000),  
    lov_display_extra  boolean,  
    lov_display_null   boolean,  
    lov_null_text      varchar2(255),  
    lov_null_value     varchar2(255),  
    lov_query_result_translated boolean,  
    lov_cascade_parent_items varchar2(255),  
    ajax_items_to_submit varchar2(255),  
    ajax_optimize_refresh boolean,  
    ...
```

Interface Record Types

```
...
element_width                number,
element_max_length          number,
element_height              number,
element_attributes          varchar2(2000),
element_option_attributes   varchar2(4000),
escape_output               boolean,
attribute_01                varchar2(32767),
attribute_02                varchar2(32767),
attribute_03                varchar2(32767),
attribute_04                varchar2(32767),
attribute_05                varchar2(32767),
attribute_06                varchar2(32767),
attribute_07                varchar2(32767),
attribute_08                varchar2(32767),
attribute_09                varchar2(32767),
attribute_10                varchar2(32767) );
```

Interface Record Types

```
type t_plugin is record (  
    name          varchar2(45) ,  
    file_prefix   varchar2(4000) ,  
    attribute_01  varchar2(32767) ,  
    attribute_02  varchar2(32767) ,  
    attribute_03  varchar2(32767) ,  
    attribute_04  varchar2(32767) ,  
    attribute_05  varchar2(32767) ,  
    attribute_06  varchar2(32767) ,  
    attribute_07  varchar2(32767) ,  
    attribute_08  varchar2(32767) ,  
    attribute_09  varchar2(32767) ,  
    attribute_10  varchar2(32767) ) ;
```

Interface Record Types

```
type t_page_item_render_result is record (  
    is_navigable          boolean default false,  
    navigable_dom_id     varchar2(255)  
    /* should only be set if navigable element  
       is not equal to item name */  
);
```


Interface Record Types

```
type t_page_item_validation_result is record (  
    message                varchar2(32767) ,  
    display_location       varchar2(40) ,  
    /* if not set the application default will  
       be used */  
    page_item_name         varchar2(255) );  
    /* if not set the validated page item name  
       will be used */
```

A person wearing a plaid shirt and jeans is holding a hammer with a wooden handle. The background is a blurred wooden structure, possibly a building under construction. The word "Coding" is overlaid in large white letters on a semi-transparent grey background.

Coding

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D E M O N S T R A T I O N

Coding a Plug-in

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A photograph of a blue bucket and a yellow shovel on a sandy beach. The bucket is in the foreground, filled with sand. The shovel is leaning against it. The background shows the ocean and a clear blue sky. A semi-transparent grey box is overlaid on the right side of the image, containing the text 'Wrong Tool!'.

Wrong Tool!

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A yellow wheel loader is shown from a low angle, its large bucket filled with sand. The scene is set against a warm, orange-hued sunset sky. The loader's large, treaded tires and the heavy-duty bucket are prominent features. The overall atmosphere is one of industrial strength and productivity.

Tool we need!

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Package

apex_plugin_util

apex_javascript

apex_css

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Security

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XSS Attacks

XSS Attacks

Attack 1 - Value in database column:

XSS Attacks

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This is a `<script>alert('XSS Attack');</script>`
comment with bad code injected..

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Attack 2 - Value submitted - Error page:

XSS Attacks

Attack 1 - Value in database column:

This is a `<script>alert('XSS Attack');</script>` comment with bad code injected..

Attack 2 - Value submitted - Error page:

This is a `<script>alert('XSS Attack');</script>` comment with bad code injected..

XSS Attacks

Attack 1 - Value in database column:

This is a `<script>alert('XSS Attack');</script>` comment with bad code injected

Attack 2 - Value submitted - Error page:

This is a `<script>alert('XSS Attack');</script>` comment with bad code injected..

XSS Attack Prevention

```
sys.htf.escape_sc(l_data_value)
```

```
apex_plugin_util.escape (  
    p_value      => l_data_value,  
    p_escape     => p_item.escape_output  
);
```

SQL Injection

SQL Injection

Don't trust user data!

Data from Browser

Data from Browser

Don't trust!

Check List

Check List

- Test with multiple instances!

Check List

- Test with multiple instances!
- Avoid inline JavaScript and CSS

Check List

- Test with multiple instances!
- Avoid inline JavaScript and CSS
- Read Only and Printer Friendly Mode

Check List

- Test with multiple instances!
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- Secure? XSS & Data Validation

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- AJAX - Don't leak internal data

Check List

- Test with multiple instances!
- Avoid inline JavaScript and CSS
- Read Only and Printer Friendly Mode
- Secure? XSS & Data Validation
- AJAX - Don't leak internal data
- Help Text for Plug-In and Attributes!

Check List

- Test with multiple instances!
- Avoid inline JavaScript and CSS
- Read Only and Printer Friendly Mode
- Secure? XSS & Data Validation
- AJAX - Don't leak internal data
- Help Text for Plug-In and Attributes!
- Translateable

Check List

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- AJAX - Don't leak internal data
- Help Text for Plug-In and Attributes!
- Translateable
- Accessibility

Check List

- Test with multiple instances!
- Avoid inline JavaScript and CSS
- Read Only and Printer Friendly Mode
- Secure? XSS & Data Validation
- AJAX - Don't leak internal data
- Help Text for Plug-In and Attributes!
- Translateable
- Accessibility
- License Information

Sharing





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The Oracle logo, a stylized red 'O' with a vertical line through it, is positioned in the center. Overlaid on the logo is the text 'ORA' in a grey, serif font. The 'O' is positioned above the 'A', and the 'R' is positioned between the 'O' and the 'A'.

ORA

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SOFTWARE. HARDWARE. COMPLETE.

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