Lapstone Framework

Content

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Lapstone CLI

The lapstone CLI provides useful functions:

- lapstone page operations
- lapstone plugin operations
- deployment / updating lapstone
- release / compile lapstone app

You need it at least to create a release version of your app.
To use the CLI you have to go to the root directory of the lapstone framework and type:

```
java –jar lapstone.jar
```

The CLI will display a description how to use it.
You can find the description in the root directory of lapstone too. Have a look to `lapstone.txt`

Coding Conventions

Pages

Create a page

To create a page, you must do the following steps in any order:

- Create a HTML file `/pages/page.<page name>.html`.
    1. Copy the template HTML in the file.
       `/tools/template/page.template.html`
    2. Search for `##page` and replace it with `<page name>`.
- Create a javascript file under `/js/page/page.<page name>.js`.
    1. Copy the template javascript in the file.
       `/tools/template/page.template.js`
    2. Search for `##page` and replace it with `<page name>`.
- Create a json file `/js/page/page.<page name>.json`.
    1. Copry the template json in the file.
       `/tools/template/page.template.json`
    2. Search for `##page` and replace it with `<page name>`.
- Register the page in the `/js/page/pages.json` file.
  `"<page name>": true`

Now the page is created and can be used in your app.

Templates

Each page needs a HTML template. Templates can be used for multiple pages.
Lapstone uses the html template plugin to get the templates.
A template is the basic html structure of a lapstone page.

Configuring a page

The `page.<page name>.json` file contains a set of obligate parameters. You can extend them if you need your special parameters.

Obligate fields

name

Your <page name>.

shortname

Reserved for the future. Please fill it with your <page name>

template

Define your page template. An empty string for no page template.

asyncLoading

`true` or `false`
If you want to use asynchronous page loading or not.

useKeepAlive

`true` or `false`
More details at the plugin.KeepAlive section.

loginObligate
`true` or `false`
More details at the plugin.Session section.

isGlobalPage
`false`
Deprecated mechanic. Will be updated in future versions.

contentRefresh
`true` or `false`
Automatically reload the page after contentRefreshInterval seconds.

contentRefreshInterval
`int (>0)`
Interval in seconds when the page should be reloaded. Necessary when contentRefresh is `true`.

Sample configuration

```
{
      "name": "competenceProfile",
      "shortname": "competenceProfile",
      "template": "DefaultPage",
      "asyncLoading": true,
      "useKeepAlive": true,
      "loginObligate": true,
      "isGlobalPage": false,
      "contentRefresh": false,
      "contentRefreshInterval": 0
}
```

Minimal structur of a page / Create the DOM
Depending on your configuration in the json file lapstone calls the `creator()` or the `async.creator()` function in your page.<page name>.js.

config
The config object contains the object which is defined in the page.<page name>.json file.
Have a look how to configure a page.

include
Files which are defined in the include array are loaded every time before the `creator()` or the `async.creator()` function is called.

include_once

elements
If you using page templates the the `async.elements` object is containing the jQuery objects.

constructor()
On startup lapstone calls the `constructor()` function of every page. The plugins are already loaded at this time.
You have to return a `jQuery.Deferred().promise()` object.

creator()

Create your HTML page in the function body. Please use the DOM manipulation conventions. If you are using a page template the `elements` object contains the jQuery objects.
Now DOM manipulation is over and lapstone will run a jquery enchantment and shows the page.

async.promise

Todo – should contain the jQuery promise.

async.result

After the `jQuery.Deferred()` object returned by `async.creator()` is either rejected or resolved the `async.result` object contains the result.

async.elements

If you using page templates the the `async.elements` object is containing the jQuery objects.

async.creator()

Create your HTML page in the function body. Please use the DOM manipulation conventions. If you are using a page template the `async.elements` object contains the jQuery objects.
You have to return a `jQuery.Deferred().promise()` object. E.g.: a asynchronous webservice call: `app.rc.getJson()`

async.done()

After resolving the deferred object the `async.done()` function of your page is called.
The `async.result` object of your page contains the <parameter> of the `jQuerry.Deferred.resolve(<parameter>)` method.

Create your HTML page in the function body. Please use the DOM manipulation conventions. If you are using a page template the `async.elements` object contains the jQuery objects.

Now DOM manipulation is over and lapstone will run a jquery enchantment and shows the page.

async.fail()

After rejecting the deferred object the `async.done()` function of your page is called.
The `async.result` object of your page contains the <parameter> of the `jQuerry.Deferred.reject(<parameter>)` method.

Create your HTML page in the function body. Please use the DOM manipulation conventions. If you are using a page template the `async.elements` object contains the jQuery objects.

Now DOM manipulation is over and lapstone will run a jquery enchantment and shows the page.

async.always()

After resolving or rejecting the deferred object the `async.done()` function of your page is called.
The `async.result` object of your page contains the <parameter> of the `jQuerry.Deferred.resolve/reject(<parameter>)` method.

Create your HTML page in the function body. Please use the DOM manipulation conventions. If you are using a page template the `async.elements` object contains the jQuery objects.

Now DOM manipulation is over and lapstone will run a jquery enchantment and shows the page.

async.abort()

Todo – cancle the deferred object

setEvents()

Register events in the setEvents() function of the page. Nowhere else!
To avoid a huge amount of events within you app lapstone has a mechanism for unbinding and rebinding events.
Declare your events in the following way:

```
$("#<page name>").on("<event name>", "selector", function(event){});
```

or use the page id form your configuration:

```
$(this.config.pageId).on("...
```

Lapstone will unbind the events after leaving the page and rebinds it when you come back again.

functions

Write your private page functions in the `functions` object.

events

The events object contains the events triggered by jQuery mobile. You can use them, but they will be updated when jQuery mobile v.2.0 is released.

Plugins

Create a plugin

To create a plugin you have to do the following steps in any order:

- Create a javascript file /js/plugin/plugin.<plugin name>.js
    1. Copy the template HTML in the file.
       `/tools/template/template.plugin.js`
    2. Search for ##plugin and replace it with <plugin name>.
- Create a json file /js/plugin/plugin.<plugin name>.json.
    1. Copy the template json in the file.
       `/tools/template/template.plugin.json`
    2. Search for `##plugin` and replace it with `<plugin name>`.
- Register the page in the `/js/plugin/plugins.json` file.
  `"<plugin name>": true`

Now the plugin is created and can be used in your app.

Configuring a plugin

Obligate fields

name

`string`

Your <plugin name>

shortname

`string`

A short name to acces the plugins public functions.

```
e.g.: app.<shortname>.<public function>();
```

Minimum sample configuration

```
{
	"name": "Exa",
	"shortname": "exa"
}
```

Functions and fields

config

The config object contains the object which is defined in the plugin.<plugin name>.json file.
Have a look how to configure a plugin.

constructor()

The `constructor()` function is called once when the plugin is loaded on startup.
You have to return a `jQuery.Deferred().promise()` object.

pluginsLoaded()

The `pluginsLoaded()` function is called when all plugins `constructor()` functions have been run.
At this point you have access to the the plugins public functions.
You have to return a `jQuery.Deferred().promise()` object.

pagesLoaded()

You have to return a `jQuery.Deferred().promise()` object.

definePluginEvents()

afterHtmlInjectedBeforePageComputing()

pageSpecificEvents()

functions

Lapstone startup

Just for information. Do not care if you have no idea.

1. Lapstone initialisation
2. Load the configuration for lapstone. /js/lapstone.json
3. Load plugins.
    1. Load plugins configuration
    2. Verify the plugins configuration.
    3. Load the plugins and call the constructor.
    4. Verify the plugins.
    5. Calling the plugins loaded event.
    6. Define the plugin events.
4. Load pages.
    1.
5. Update framework.
6. Enchant pages.
7. Wait for jQuery mobile `mobileinit` event.
8. Wait for apache cordovas deviceready event.
9. Trigger `lapstone` event.

DOM manipulation

Use jQuery and nothing else!

1) Create the HTML element without attributes:
   `e.g.: $("<div>")`
2) Add classes to the element.
   `e.g.: .addClass();`
3) Add attributes to the element by using an attribute object:
   `e.g.: .attr({})`
4) Append other HTML elements:
   `e.g.: .append();`
5) Always append with a function
   `e.g.: .append(function(){ return …; });`
6) Do not use the `.css()` function. For styling use LESS. Documented here.
7) Use `.show()` and `.hide()` or `.toggle()` to change visibility of html elements.

Examples

Add a nested HTML element

```
$("<div>").addClass("myClass").append(function() {
      return $("<a>").attr({
            "href" : "#"
      }).addClass("click").append(function() {
            return $("<img>").attr({
                  "src" : "../images/content/myImage.svg"
            });
      }).append(function() {
            return $("<p>").text(name);
      }).on("storagefilled", function(event) {
            app.debug.event(event);
            $(this).parent().parent().next().toggle();
      });
});
```

User Session

login

Login with the app.action.login function.
Set

Styling

Skinning

Styling

In debug mode Lapstone uses LESS to style the apps. Get further information at lesscss.org.
The style files are locadted under the /css/ folder. Depending on using the skin plugin the files are in the /css/ folder or in the /css/skin/<skin name>/ folder.
Lapstone comes out of the box with three skin files:

- colors.less
  Define all of your colors here.
- fonts.less
  Define all your fonts here.
  The folder for fonts is ./fonts/
- global.css.less
  @import all other less files in this file.

In release mode every <style name>.css.less file is mapped an compressed to a <style name>.css file.
The LoadExternalScripts or the Skin plugins will automatically loads CSS version of your style.

Style file conventions

1) Create a page.<page name>.less file for each page in your app.
2) Create a layout.<layout name>.less file for each style overlap in your pages.
3) If you need more style files in your app add <style name>.css.less files. Add it to the plugin_LoadExternalScripts.config or plugin_Skin.json file.

Plugins

Actions
Helps you to define global functions and actions which can be used in pages or plugins.

Public functions

Debug
Helps you to create debug output which will be removed in the release version.

Public functions

Detector
Detects different devices and operating systems.

Public functions

DeviceManager
Manages different devices and provides different code depending which device you are using.

Public functions

dep. FormInputDesigner

Public functions

HelperFunctions
Functions that

Public functions

HTML5Storage – store
Manages, hanles and extends the HTML5 local storage.

Public functions

HtmlTemplates – template

Motivation: In your app you need the same HTML element multiple times.
e.g.: the layout of a pupup; the layout of a page; the layout of tables;
The HtmlTemplates plugin provides predefined HTML elements with less styling as jQuery elements.
And it helps you to get more structure in your app.
Each template consists of two files. A html file with a html structure and a less file with the same name.
Both files are in the `/files/template/` folder. The files have the same name bit a different extension (*.css.less, *.html).
You must register a template in the `/js/plugin/plugin.HtmlTemplates.json` file.

```
"PageTemplate": {
      "content": "../files/template/PageTemplate.html",
      "style": "../files/template/PageTemplate.css.less",
      "elements": {
            "left": "div[data-role=left]",
            "menuHeadline": "div[data-role=menu] > .headline",
            "menu": "div[data-role=menu] > #slideMenuItemContainer",
            "content": "div[data-role=content]",
            "statusBar": "#statusBar"
      }
}
```

It has 3 fields:

- "`content`" – The url of the templates html file;
- "`style`" – The url of the templates less file;
- "`elements`" – A dictionary with css selectors to get jQuery elements of the templates html element quickly;

Public functions

get(templateId, $templateObject)

get("PageTemplate");

Returns the template with the name "PageTemplate" as a jQuery object.
The jQuery object will be extended with a getter function for each field in the "elements" dictionary.
e.g: _left()
The getter returns the element which is defined by the selector.

get("PageTemplate", $("#pageTemplate");

Working like get("PageTemplate") but you can pass a jQuery object as a second parameter. It returns the extended jQuery object with the getters.
e.g.: You have a template which is already in your DOM. After an event ("click") you want to change something on that template in the DOM. So you use get("PageTemplate", $("<unique selector>")). And it will return the passed jQuery object with the getters.

HtmlView – view

Public functions

ImageProvider – img

Public functions

Informator – info

Public functions

dep. jQueryExtend

Public functions

KeepAlive

Public functions

LoadExternalScripts

Public functions

MultilanguageIso639_3

Public functions

Navigation – nav

Helps you to navigate between pages.

Public functions

OAuth – oa

Handles oAuth.

Public functions

RestClient – rc

Takes care of user defined webservices and handles the webservice cache.

Public functions

Session – sess

Handles persistent sessions by using the HTML5 storage.

Public functions

Skin – skin

Handles different sets of stylesheets and images.

Public functions

WebServiceClient – wsc

Handles the communication between your app and one or more servers.

Public functions

WebServiceError – wse

Takes control of handling webservice results and handles user defined and common errors.

Public functions

Workflow