Code documentation

SaltOS 4.0 r388

September 2023

Contents

1 core/php/action/adderror.php

1.1 Add Error Action

This file implements the adderror action, requires a POST JSON request with the follow elements: jserror, details and backtrace, this action is called from window.onerror in order to store the details of the js error

- @jserror => text used as title in the error report
- @details => text used as details in the error report
- @backtrace => array with the backtrace used in the error report

2 core/php/action/addfiles.php

2.1 Add Files Action

This file implements the delete files action, requires a POST JSON request with an array of files, and each array must contain the follow entries: id, name, size, type, data, error, file, hash

This action checks that not error is found, get the data and clear the data element of the array, check the prefix of the data using the type, check the size of the data, and then, set the file and hash to the array and store the file in the upload directory

- @files => array of files, each element must contain the follow elements:
- @id => unique id that is used by the client to identify the response
- @name => the name of the file
- @size => the size of the file
- @type => the type of the file
- @data => the contents of the file encoded as inline base64
- @error => the error in case of errors
- @file => this field is used here to put the local filename used in the file
- @hash => this field contains the hash of the contents of the file

3 core/php/action/addlog.php

3.1 Add Log Action

This file implements the addlog action, requires a POST JSON request with an element in the json that contains the message to be added

- @msg => message that you want to add to the log file

4 core/php/action/app.php

4.1 Application Action

This file implements the app action, requires a GET REST request and the order of the elements are:

- @1 => the app that you want to execute
- @2 => the subapp that tou want to use, if the app only contains one subapp, this parameter is not necesary
- @3 => the id used in some subapps, for example, to get the data of specific customer using the id

5 core/php/action/authtoken.php

5.1 Authentication Token Action

This file implements the login action, allowing to authenticate users using the pair of login/password to validate the credentials and get a valid token to operate in SaltOS

- @user => username used in the authentication process
- @pass => password used in the authentication process

This action not requires a valid token, all valid tokens associated to the user will be revoked when a new token is assigned

6 core/php/action/authupdate.php

6.1 Authentication Update Action

This file implements the update password action, allowing to authenticated users by a token, and providing the old password to update a new password

- @oldpass => Old password, must to validate the active password of the user associated to the token used in the action
- @newpass => New password, must to be new, must to pass the score check and never must to be used in the system for the user
- @renewpass => The repeated new password, to prevent writing errors

This action requires a valid token associated to the user that wants to do the password update

7 core/php/action/barcode.php

7.1 BarCode Action

This action allow to generate a barcode, you can pass the desired message that you want to convert in barcode

- @msg => the msg that you want to codify in the qrcode
- @format => the format used to the result, only can be png or json
- @w => width of each unit's bar of the barcode
- @h => height of the barcode (without margins and text footer)
- @m => margin of the barcode (white area that surround the barcode)
- @s => size of the footer text, not used if zero
- @t => type of the barcode, C128 is the most common type used

8 core/php/action/captcha.php

8.1 Captcha Action

This action allo to retrieve the captcha of a randomly number or math operation, used to prevent massive requests, can perform the action of create the captcha image and return the result as a simple image or as a json image

- @type => the type used to the result, only can be number or math
- @format => the format used to the result, only can be png or json
- @width => the width of the generated image
- @height => the height of the generated image
- @letter => the size of the letters of the generated image
- @number => the size of the numbers of the generated image
- @angle => the angle allowed to rotate the letters and numbers
- @color => the color user to paint the code
- @bgcolor => the background color of the image
- @fgcolor => the color used to paint the letters of the background of the image
- @period => parameter for the wave transformation
- @amplitude => parameter for the wave transformation
- @blur => true or false to enable or disable the blur effect

9 core/php/action/deauthtoken.php

9.1 Deauthentication Token Action

This file implements the logout action, allowing to deauthenticate users using a valid token, for security reasons, the deauth action only can be performed by the same actor that execute the login action

The unique requirement to execute this action is to have a valid token

10 core/php/action/delete.php

10.1 Delete action

This action allow to delete registers in the database associated to each app

TODO

11 core/php/action/delfiles.php

11.1 Delete Files Action

This file implements the delete files action, requires a POST JSON request with an array of files, and each array must contain the follow entries: id, name, size, type, data, error, file, hash

This action checks that not error is found, checks the file element, the size of the file, the hash of the file, and then, remove the file and clear the file and hash element of the array

- @files => array of files, each element must contain the follow elements:
- @id => unique id that is used by the client to identify the response
- @name => the name of the file
- @size => the size of the file
- @type => the type of the file
- @data => the contents of the file encoded as inline base64
- @error => the error in case of errors
- @file => this field is used here to put the local filename used in the file
- @hash => this field contains the hash of the contents of the file

12 core/php/action/insert.php

12.1 Insert action

This action allow to insert registers in the database associated to each app

TODO

13 core/php/action/qrcode.php

13.1 QRCode Action

This action allow to generate a qrcode with the SaltOS logo embedded in the center of the image, you can pass the desired message that you want to convert in qrcode.

- @msg => the msg that you want to codify in the qrcode

- @format => the format used to the result, only can be png or json

- @s => size of each pixel used in the qrcode

- @m => margin of the qrcode (white area that that surround the qrcode)

14 core/php/action/reauthtoken.php

14.1 Reauthentication Token Action

This file implements the renew action, allowing to renew tokens before expire, for security reasons, the deauth action only can be performed by the same actor that execute the login action

The unique requirement to execute this action is to have a valid token and have a token with available renewals

15 core/php/action/score.php

15.1 Score Action

This action allo to retrieve the score of a password, intended to be used as helper previously to the authupdate call, can perform the action of compute the score and return the result as a simple image or as a json image

- @pass => the password that you want to compute the score

- @format => the format used to the result, only can be png or json

- @width => the width of the generated image

- @height => the height of the generated image

- @size => the size of the font of the generated image

16 core/php/action/update.php

16.1 Update action

This action allow to update registers in the database associated to each app

TODO

17 core/php/autoload/apps.php

17.1 Apps helper function

```
function __apps($fn, $arg)
```

This function is used by the XXX2YYY functions as helper, it stores the dictionary of all conversions and resolves the data using it

- @fn => the caller function
- @arg => the argument passed to the function

17.2 Id to App

```
function id2app($id)
```

This function resolves the code of the app from the app id

- @id => the app id used to resolve the code

17.3 App to Id

```
function app2id($app)
```

This function resolves the id of the app from the app code

- @app => the code used to resolve the id

17.4 Id to Table

```
function id2table($id)
```

This function resolves the table of the app from the app id

- @id => the app id used to resolve the table

17.5 App to Table

```
function app2table($app)
```

This function resolves the table of the app from the app code

- @app => the app code used to resolve the table

17.6 Table to Id

```
function table2id($table)
```

This function resolves the id of the app from the app table

- @table => the app table used to resolve the id

17.7 Table to App

```
function table2app($table)
```

This function resolves the code of the app from the app table

- @table => the app table used to resolve the app code

17.8 Id to Subtables

```
function id2subtables($id)
```

This function resolves the subtables of the app from the app id

- @id => the app id used to resolve the subtables

17.9 App to Subtables

```
function app2subtables($app)
```

This function resolves the subtables of the app from the app code

- @app => the app code used to resolve the subtables

17.10 Table to Subtables

```
function table2subtables($table)
```

This function resolves the subtables of the app from the app table

- @table => the app table used to resolve the subtables

17.11 App Exists

```
function app_exists($app)
```

This function detect if an app exists

- @app => the app that you want to check if exists

18 core/php/autoload/array2xml.php

18.1 Check Node Name

```
function __array2xml_check_node_name($name)
```

This function acts as helper of the array2xml function, is intended to return if the node name is valid

- @name => the name that you want to validate

18.2 Check Attr Name

```
function __array2xml_check_node_attr($name)
```

This function acts as helper of the array2xml function, is intended to return if the attribute name is valid

- @name => the name that you want to validate

18.3 Write Nodes array2xml helper

```
function __array2xml_write_nodes(&$array, $level = null)
```

This function acts as helper of the array2xml function, is intended to return a string with the tree array

- @array => the tree array that you want to convert to XML
- @level => can be null to minify the output zero to indent the XML contents

18.4 Array to XML

```
function array2xml($array, $usecache = true, $usexmlminify = true)
```

This function returns a string with the contents of array converted into a XML language file, to do it, uses some helpers as __array2xml_* functions

- @array => the array that contains the tree structure that you want to convert to XML
- @usecache => a boolean to enable or disable the cache usage
- @usexmlminify => a boolean to enable or disable the minify feature

19 core/php/autoload/arrayutils.php

19.1 Null to array converter

```
function null2array($arr)
```

This function convert all nulls into an array, is intended to be used as helper for example in the glob output, to force to have an array in all cases

- @arr => the input, generally must to be an array, if a null is passed, then a void array will be returned

20 core/php/autoload/barcode.php

20.1 BarCode function

```
function __barcode($msg, $w, $h, $m, $s, $t)
```

This function allow to generate a barcode, you can pass the desired message that you want to convert in barcode and it returns an image with the data

- @msg => Contents of the barcode

- @w => width of each unit's bar of the barcode

- @h => height of the barcode (without margins and text footer)

- @m => margin of the barcode (white area that surround the barcode)

- @s => size of the footer text, not used if zero

- @t => type of the barcode, C128 is the most common type used

Notes:

The normal behavior is returns a png image, but if something was wrong, the function can returns an empty string

21 core/php/autoload/captcha.php

21.1 Captcha Is Prime Number

```
function __captcha_isprime($num)
```

This function is a detector of prime numbers, uses some optimizations and ideas from www.polprimos.com, please, see the previous web to understand the speedup of this function in the prime numbers validation

- @num => the number that you want to check if it is a primer numner

Notes:

See www.polprimos.com for understand it

21.2 Captcha Image

```
function __captcha_image($code, $args = [])
```

This function returns an image with the code drawed in a background that contains white noise to prevent that robots read the code

- @code => the code that you want to paint

- @width => the width of the generated image

- @height => the height of the generated image

- @letter => the size of the letters of the generated image

- @number => the size of the numbers of the generated image

- @angle => the angle allowed to rotate the letters and numbers

- @color => the color user to paint the code

- @bgcolor => the background color of the image

- @fgcolor => the color used to paint the letters of the background of the image

- @period => parameter for the wave transformation

- @amplitude => parameter for the wave transformation

- @blur => true or false to enable or disable the blur effect

Notes:

The main idea to program this captcha was obtained from this post:

- http://sentidoweb.com/2007/01/03/laboratorio-ejemplo-de-captcha.php

Too appear in ther posts if you search for it in google:

- http://www.google.es/search?q=captcha+alto_linea

21.3 Captcha Make Number function

```
function __captcha_make_number($length)
```

This function returns a random number of the desired length and as trick, checks that the output is a prime number

- @length => the length of the desired output string

21.4 Captcha Make Math Operation function

```
function __captcha_make_math($length)
```

This function returns a random math operation of the desired length and as trick, checks that the output operation is performed by prime numbers

- @length => the length of the desired output string

22 core/php/autoload/colorutils.php

22.1 Color To Dec function

```
function color2dec($color, $component)
```

This function is a helper that allow to get from a RGB hex color the value in decimal of the specified component, usefull to get the amount of color red, green or blue in decimal base from an string

Is able to understand colors with the formats #abcdef, abcdef, #000, #fff

- @color => The color that you want to parse
- @component => The component that you want to retrieve their value

23 core/php/autoload/compat.php

23.1 Array Key Last

```
function array_key_last(array $array)
```

This function appear in PHP 7.3, and for previous version SaltOS uses this code

- @array => the array where you want to obtain the last key

Notes:

Code copied from the follow web: https://www.php.net/manual/es/function.array-key-last.php#124007

23.2 Array Key First

```
function array_key_first(array $arr)
```

This function appear in PHP 7.3, and for previous version SaltOS uses this code

- @array => the array where you want to obtain the first key

Notes:

Code copied from the follow web: https://www.php.net/manual/es/function.array-key-last.php#124007

24 core/php/autoload/config.php

24.1 Get config

```
function get_config($key, $user_id = -1)
```

This function is intended to be used to retrieve values from the config system, as first level, the function try to get the value from the tbl_config, and if it is not found, then the function try to get the values from the config file.

- @key => the key that you want to retrieve the value
- @user_id => the user_id used in the first search step

Notes:

This function is a new release of the olds getConfig and getDefault, depending of the user_id argument, it tries to search in the config file or in the database, for negative values the function uses the config file and for zero or positive values, tries to search it in the database

24.2 Set config

```
function set_config($key, $val, $user_id = -1)
```

This function sets a value to a config key, the data will be stored in the database using the tbl_config for zero or positive values of user_id, and in the memory of the config file for negative user_id values

- @key => the key that you want to set
- @val => the value that you want to set
- @user_id => the user_id used as filter

25 core/php/autoload/control.php

25.1 Make Control function

```
function make_control($app, $reg_id, $user_id = null, $datetime = null)
```

This function allow to insert and delete the control registers associacted to any application and to any register of the application

- @app => code of the application that you want to index
- @reg_id => register of the app that you want to index
- @user_id => user id of the owner of the app register
- @datetime => time mark used as creation time of the app register

Notes:

You can pass a null user_id and/or null datetime, in these cases, the function will determine the user_id and datetime automatically

This function returns an integer as response about the control action:

- +1 => insert executed, this is because the app register exists and the control register not exists
- +2 => delete executed, this is because the app register not exists and the control register exists
- -1 => app not found, this is because the app requested not have a table in the apps config
- -2 => control table not found, this is because the has_control feature is disabled by dbstatic
- -3 => data not found, this is because the app register not exists and the control register too not exists
- -4 => control exists, this is because the app register exists and the control register too exists

As you can see, negative values denotes an error and positive values denotes a successfully situation

25.2 Add Version function

```
function add_version($app, $reg_id, $user_id = null, $datetime = null)
```

This function allow to add a new version to a reg_id of an app, to do it, the function requires to specify the app, reg_id, the original data and the new data to compute the diff patch that must to be stored in the data field and create the register for the new version

To do this, the function validate the input data, checks the existence of registers of data and versions, prepare the data patch to store, get the old hash to do the blockchain, get the last ver_id and compute all needed things to do the insert of the new version register

- @app => code of the application that you want to add a new version
- @reg_id => register of the app that you want to add a new version
- @user_id => user id of the owner of the version register
- @datetime => time mark used as creation time of the version register

Notes:

You can pass a null user_id and/or null datetime, in these cases, the function will determine the user_id and datetime automatically

This function returns an integer as response about the control action:

- +1 => insert executed, this is because the app register exists and they can add a new version register

- +2 => delete executed, this is because the app register not exists and the version register exists

- -1 => app not found, this is because the app requested not have a table in the apps config

- -2 => version table not found, this is because the has_version feature is disabled by dbstatic

- -3 => data not found, this is because the app register not exists and the control register too not exists

As you can see, negative values denotes an error and positive values denotes a successfully situation

25.3 Get Version

```
function get_version($app, $reg_id, $ver_id)
```

This function allow to get an specific version of a register and app, intended to get the data used in a specific version to compare with other versions and to restore data to the requested version

- @app => code of the application that you want to add a new version

- @reg_id => register of the app that you want to add a new version

- @ver_id => the version that you want to get

Notes:

This function is not a simple select of the register that matches with the ver_id requested, it does an accumulative merge to get the register data in the moment where the version will be stored, to do it, they must to restore versions from 1 to ver_id, and must to discard the next versions

26 core/php/autoload/database.php

26.1 DB Connect

```
function db_connect($args = null)
```

This function is intended to stablish the connection to the database

- @args => is an array with key val pairs

- @host => the host for the connection

- @port => the port used for the connection

- @name => name of the database for the connection

- @user => user used to stablish the connection

- @pass => pass used to stablish the connection

- @file => the file that contains the database

Notes:

The parameters can be different depending of each database driver, in general the arguments can be the host, port, name, user and pass for database's servers and only file for the sqlite database

If the args argument is null, the the function try to use the configuration stored in the config file and

depending of the argument presense, it will return the database object or store it in the config to be used by the nexts functions of this php file

26.2 DB Check

`function db_check($query)`

This function is intended to check that the query execution will not trigger an error

- @query => the query that you want to validate

26.3 DB Query

`function db_query($query, $fetch = "query")`

This public function is intended to execute the query and returns the resultset

- @query => the query that you want to execute

- @fetch => the type of fetch that you want to use, can be auto, query, column or concat

Notes:

The fetch argument can perform an speed up in the execution of the retrieve action, and can modify how the result is returned

auto: this fetch method try to detect if the resultset contains one or more columns, and sets the fetch to column (if the resultset only contains one column) or to query (otherwise)

query: this fetch method returns all resultset as an array of rows, and each row contain the pair of key val with the name of the field and the value of the field

column: this fetch method returns an array where each element is each value of the field of the each row, this is usefull when for example do you want to get all ids of a query, with this method you can obtain an array with each value of the array is an id of the resultset

concat: this fetch method is an special mode intended to speed up the retrieve of large arrays, this is usefull when you want to get all ids of a query and you want to get a big sized array, in this case, is more efficient to get an string separated by commas with all ids instead of an array where each element is an id

26.4 DB Disconnect

`function db_disconnect()`

This function close the database connection and sets the link to null

26.5 DB Fetch Row

`function db_fetch_row(&$result)`

This function returns the next row of the resultset queue

- @result => this argument is passed by reference and contains the resultset queue obtained by the db_query

26.6 DB Fetch All

```
function db_fetch_all(&$result)
```

This function returns all rows of the resultset queue

- @result => this argument is passed by reference and contains the resultset queue obtained by the db_query

26.7 DB Num Rows

```
function db_num_rows($result)
```

This function returns the total number of the results in the resultset queue

- @result => this argument is passed by reference and contains the resultset queue obtained by the db_query

26.8 DB Free

```
function db_free(&$result)
```

This function releases all memory used by the resultset queue

- @result => this argument is passed by reference and contains the resultset queue obtained by the db_query

26.9 DB Num Fields

```
function db_num_fields($result)
```

This function returns the number of fields of the resultset queue

- @result => this argument is passed by reference and contains the resultset queue obtained by the db_query

26.10 DB Field Name

```
function db_field_name($result, $index)
```

This function returns the name of the field identified by the index field

- @result => this argument is passed by reference and contains the resultset queue obtained by the db_query

27 core/php/autoload/datetime.php

27.1 Current Date

```
function current_date($offset = 0)
```

This function returns the current date in a YYYY-MM-DD format, this is used by a lot of functions in SaltOS, allow to specify a bias used to move the current time mark

- @offset => the bias added to the current time mark

27.2 Current Time

```
function current_time($offset = 0)
```

This function returns the current time in a HH:II:SS format, this is used by a lot of functions in SaltOS, allow to specify a bias used to move the current time mark

- @offset => the bias added to the current time mark

27.3 Current DateTime

```
function current_datetime($offset = 0)
```

This function returns the current date and time in a YYYY-MM-SS HH:II:SS format, this is used by a lot of functions in SaltOS, allow to specify a bias used to move the current time mark

- @offset => the bias added to the current time mark

27.4 Current Decimals

```
function current_decimals($offset = 0, $size = 4)
```

This function returns the current decimals to be added to the seconds as a decimal part, this function uses the microtime function to get this level of precision that can not be obtained using the original date and time functions

- @offset => the bias added to the current time mark
- @size => the size of the returned decimal part

Notes:

This function is used by current_datetime_decimals, and don't have more uses that provice more precision in the logs files

27.5 Current DateTime Decimals

```
function current_datetime_decimals($offset = 0, $size = 4)
```

This function returns the current date and time with decimals in the seconds in a YYYY-MM-DD HH:II:SS.XXXX format, usefull when do you want to log information more accuracy to debug issues, for example

- @offset => the bias added to the current time mark
- @size => the size used by the decimal part

27.6   Dateval

```
function dateval($value)
```

This function try to do the same thing that intval or strval, but for date values, to do this, this function try to separate all elements and identify the year position and the other elements, the result will be of the format YYYY-MM-DD

- @value => the input value to validate

Notes:

This function try to cast the year, month and day from 0000-00-00 to valid values, this is because the databases accepts the 0000-00-00 date and is used as emulated null, the month are limited to 12 and the day is limited to the days of the month and year, this is usefull because the dates that are more greather that zero, will have a valid and an existing value

27.7   Day of a Month helper

```
function __days_of_a_month($year, $month)
```

This function is a helper used by other date and datetime functions, this is usefull because allow to fix problems in dates that use days out of range

- @year => year that you want to use in the validation
- @month => month that you want to use in the validation

27.8   Timeval

```
function timeval($value)
```

This function try to do the same thing that intval or strval, but for time values, to do this, this function try to separate all elements and identify the elements, the result will be of the format HH:II:SS

- @value => the input value to validate

27.9   Datetimeval

```
function datetimeval($value)
```

This function try to do the same thing that intval or strval, but for datetime values, to do this, this function try to separate all elements and identify the year position and the other elements, the result will be of the format YYYY-MM-DD HH:II:SS

- @value => the input value to validate

Notes:

This function try to cast the year, month and day from 0000-00-00 to valid values, this is because the databases accepts the 0000-00-00 date and is used as emulated null, the month are limited to 12 and the day is limited to the days of the month and year, this is usefull because the dates that are more greather that zero, will have a valid and an existing value

27.10 Time to Seconds

```
function __time2secs($time)
```

This function converts the time format into seconds

- @time => time to be converted into seconds, the format will be HH:II:SS

27.11 Seconds to Time

```
function __secs2time($secs)
```

This function converts the seconds into time format

- @secs => seconds to be converted to time format, the format will be a number

27.12 Current Day Of Week

```
function current_dow($offset = 0)
```

This function returns the current day of week as integer between 1 and 7 range, this is used by some functions in SaltOS, allow to specify a bias used to move the current time mark

- @offset => the bias added to the current time mark

28 core/php/autoload/dbschema.php

28.1 DB Schema

```
function db_schema()
```

This function try to maintain the database structure, to do it, this feature uses the dbschema.xml file to store the database structure.

28.2 DB Static

```
function db_static()
```

This function try to maintain the database contents, to do it, this feature uses the dbstatic.xml file to store the database contents that must to be maintaned.

This version of the db_static allow you to use a comma separated values in fields as "id", start by "id_" or end by "_id"

28.3 DB Static insert

```
function __dbstatic_insert($table, $row)
```

This function is a helper of previous function, is intended to be used by db_static and allow to use a comma separated values in fields as "id", start by "id_" or end by "_id"

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- @table => the table that you want to use in the insert process

- @row => the row that you want to add in the table

Notes:

This feature allow to you to use comma separated lists of values, commonly used for id fields as user_id, perms_id, or similar.

28.4 Get Tables from DB Schema

```
function get_tables_from_dbschema ()
```

This function returns the tables from the DB Schema file

28.5 Get Fields from DB Schema

```
function get_fields_from_dbschema ($table)
```

This function returns the fields from the DB Schema file

- @table => the table that you want to request the fields

28.6 Get Indexes from DB Schema

```
function get_indexes_from_dbschema ($table)
```

This function returns the indexes from the DB Schema file

- @table => the table that you want to request the indexes

28.7 Get Ignores from DB Schema

```
function get_ignores_from_dbschema ()
```

This function returns the ignores tables from the DB Schema file

28.8 Get Fulltext from DB Schema

```
function get_fulltext_from_dbschema ()
```

This function returns the fulltext tables from the DB Schema file

28.9 Get Fkeys from DB Schema

```
function get_fkeys_from_dbschema ($table)
```

This function returns the fkeys from the DB Schema file

- @table => the table that you want to request the fkeys

28.10 DB Schema helper

```
function __dbschema_helper($fn, $table)
```

This function is a helper for the previous functions, is intended to be used to returns the tables of the DB Schema or the fields of a table

- @fn => the caller function name
- @table => the table used by some features

28.11 DB Schema Auto Apps

```
function __dbschema_auto_apps($dbschema)
```

This function is a helper to the dbschema functions, to create an indexing table for each app

- @dbschema => the dbschema array

Notes:

This feature creates a table and try to use Mroonga storage engine with one field, the main idea of this tables is to store all contents of the register to do quick searchs using a fulltext search engine

28.12 DB Schema Auto Fkey

```
function __dbschema_auto_fkey($dbschema)
```

This function is a helper to the dbschema functions, to create an index for each fkey

- @dbschema => the dbschema array

Notes:

By default, MariaDB creates an index for each foreign key, but SQLite not does is by default and for this reason, SaltOS creates an index automatically, to improve the performance

This function checks that the field not exists in the defined indexes to prevent error in duplicates indexes

28.13 DB Schema Auto Name

```
function __dbschema_auto_name($dbschema)
```

This function is a helper to the dbschema functions, to auto name the indexes

- @dbschema => the dbschema array

Notes:

This function allow to specify indexes only specifying the fields that you want to conform the index, but the engines as MariaDB and SQLite, requires that each index have a unique name, and for this reason, we add this feature to automate this part of the process

You can see how the name of the index is different for MySQL and SQLite, this is because in MySQL, the name can be repeated in different tables, but in SQLite, the name must be unique in the database

28.14 Get Apps From DBStatic

```
function get_apps_from_dbstatic ()
```

This function returns the list of apps that have a table and field defined in the dbstatic file

28.15 Get Tables From DBStatic

```
function get_tables_from_dbstatic ()
```

This function returns the list of tables that have a table and field defined in the dbstatic file

28.16 Get Field From DBStatic

```
function get_field_from_dbstatic ($table, $field = "field")
```

This function return the field associated to the table in the dbstatic file and associated to the apps table

- @table => the table of the dbstatic that want to convert to field

Notes:

This function uses the special feature in the helper that allow to use as table parameter an app code to retrieve the field, this is usefull if you want some field of the app table and you want to use the app code instead of the app table to identify what row do you want to use

28.17 DB Static helper

```
function __dbstatic_helper ($fn, $table, $field)
```

This function is intended to act as helper of the dbstatic ecosystem, this function can return the apps that contain table and field definitions and too, can return the field associated to a apps table, usefull for the indexing feature

- @fn => the caller function name
- @table => the table used by some features

29 core/php/autoload/error.php

29.1 Show PHP Error

```
function show_php_error ($array)
```

This function allow to SaltOS to trigger the errors in a multiple levels:

1) Check if the error is caused by a memory allocation error, and in this case, try to setup more memory to continue executing the error function, sometimes if the system is using all memory, this function can not do all tasks and don't know whats be happening

2) Add some extra traces if they are not found in the input array

3) Create a human readable message in text and json format, the text will be used to log the error using a regular file and the json will be used as stdout response

4) If the error is caused by a deprecation, the error will be logged in the log file but the execution of the code will continue (if it can continue!!!)

5) Try to categorize the error and log the text in the specific log file, this part is optimized to prevent the addition of repeated errors using a hash as a trick

6) Send a json to the stdout using the output handler.

THs input @array can contain pairs of key val:

- @dberror => The text used in the DB Error section

- @phperror => The text used in the PHP Error section

- @xmlerror => The text used in the XML Error section

- @jserror => The text used in the JS Error section

- @dbwarning => The text used in the DB Warning section

- @phpwarning => The text used in the PHP Warning section

- @xmlwarning => The text used in the XML Warning section

- @jswarning => The text used in the JS Warning section

- @source => The text used in the Source section

- @exception => The text used in the Exception section

- @details => The text used in the Details section

- @query => The text used in the Query section

- @backtrace => The text used in the Backtrace section

- @debug => The text used in the Debug section

Notes:

The unset for the pid and the time keys of the debug array is justificate because each execution modify the pid and the time entries and break the optimization of the hash with the checklog to prevent repetitions in the log file

29.2   Do Message Error

```
function do_message_error($array)
```

This function acts as a helper of the show_php_error, is intended to build the text and the json messages used to the log file and for the stdout channel

THs input @array can contain pairs of key val:

- @dberror => The text used in the DB Error section

- @phperror => The text used in the PHP Error section

- @xmlerror => The text used in the XML Error section

- @jserror => The text used in the JS Error section

- @dbwarning => The text used in the DB Warning section

- @phpwarning => The text used in the PHP Warning section

- @xmlwarning => The text used in the XML Warning section

- @jswarning => The text used in the JS Warning section

- @source => The text used in the Source section

- @exception => The text used in the Exception section

- @details => The text used in the Details section

- @query => The text used in the Query section

- @backtrace => The text used in the Backtrace section

- @debug => The text used in the Debug section

Returns an array with the text and the json formated output ready to be used in the log file and in the stdout channel

29.3 Program Handlers

```
function  program_handlers()
```

This function program all error handlers

29.4 Error Handler

```
function  __error_handler($type,  $message,  $file,  $line)
```

This function is the callback function used by the set_error_handler

Ths arguments are defined by the set_error_handler:

- @type => The code of the error

- @message => The descriptive message of the error

- @file => The filename of the file that trigger the error

- @line => The line where the error will occurred

29.5 Exception Handler

```
function  __exception_handler($e)
```

This function is the callback function used by the set_exception_handler

Ths arguments are defined by the set_exception_handler:

- @e => object that contains the getMessage, getCode, getFile, getLine and getTrace methods

29.6 Shutdown Handler

```
function __shutdown_handler()
```

This function is the callback function used by the register_shutdown_function, try to detect if an error is the cause of the shutdown of the script, note that a correct execution will execute this function and only it must to trigger an error if a real error is in the stack of the errors events, to do it this function uses the error_get_last to check if the value in in the list of typified errors

29.7   Get Code From Trace

```
function __get_code_from_trace($trace, $index = 0)
```

This function acts as helper of the show_json_error, and try to get the filename and the line where the error will be triggered, for example, an error triggered from the index.php at line 23 will generate a code index:23, this information will be usefull for our technical service to help the users when live issues with our API

- @trace => the array returned by the debug_backtrace function
- @index => the position of the array used to get the filename and the line

29.8   Show JSON Error

```
function show_json_error($msg)
```

This function is triggered from the code in a controlate errors, the idea is to have a simple way to send controled errors to the user using a json output channel, and to do it, we have this function that can be called with a simple message and the code is created automatically to help the backtrace of the issues

- @msg => this contains a simple text that is used in the json output

30   core/php/autoload/exec.php

30.1   OB Passthru

```
function ob_passthru($cmd, $expires = 0)
```

This function is a join of ob_start and passthru, the main idea is to execute a program using the command line and get the output (only stdout and not stderr) and return the data

- @cmd => the command line that you want to execute
- @expires => the expires time used to compute if the cache is valid

This funtion tries to execute the command using some of the provided methods, passthru, system, exec and shell_exec, another feature is that the function detects what command are available to use

30.2   Check Commands

```
function check_commands($commands, $expires = 0)
```

This function tries to validate if the commands are available in the system, to do it, uses the unix command witch

- @commands => the commands that you want to check if are they available
- @expires => the expires time used to compute if the cache is valid

30.3 Is Disabled Function

```
function is_disabled_function($fn = "")
```

This function check if the argument contains a disabled function, this feature uses the variables disable_functions and suhosin.executor.func.blacklist to get the list of all disabled functions

- @fn => the function that you want to check if is it disabled

30.4 Exec Timeout

```
function __exec_timeout($cmd)
```

This helper function allow to execute commands using the external command timeout, this unix command allow to define the timeout for an execution of other command, and when the timeout is reached, then break the execution killing the process

- @cmd => the command that you want to execute with a timeout control

Returns the string that contains the command with ths timeout control

31 core/php/autoload/export.php

31.1 Export File

```
function export_file($args)
```

This function is intended to export data in the supported formats

- @type => can be xml, csv, xls, xlsx, edi or json
- @data => the matrix to export
- @sep => separator char used only by csv format
- @eol => enf of line char used by csv and xml format
- @encoding => charset used by csv and xml format
- @replace => array with two elements, from and to, used to do replacements of the matrix values
- @escape => array with two elements, char and mode, used to specify the escape character and the escape mode
- @title => title used only by excel format
- @file => local filename used to store the results
- @ext => extension used for the filename if provided
- @wrap => boolean argument used only for edi indentation
- @indent => boolean argument used only for json indentation

If file argument is specified, void string is returned If file argument is not specified, then they will returns all data

31.2 Export File XML

```
function __export_file_xml($matrix, $eol = "\n", $encoding = "UTF−8")
```

This function is intended to export data in xml format

- @matrix => the matrix to export
- @eol => enf of line char
- @encoding => charset used

They will returns all data

31.3 Export File CSV

```
function __export_file_csv(
```

This function is intended to export data in csv format

- @matrix => the matrix to export
- @sep => separator char
- @eol => enf of line char
- @encoding => charset used
- @replace => array with two elements, from and to, used to do replacements of the matrix values
- @escape => array with two elements, char and mode, used to specify the escape character and the escape mode

They will returns all data

31.4 Export File Excel

```
function __export_file_excel($matrix, $title = "", $type = "Xlsx")
```

This function is intended to export data in excel format

- @matrix => the matrix to export
- @title => title used in the excel file
- @type => can be Xls or Xlsx

They will returns all data

31.5 Export File JSON

```
function __export_file_json($matrix, $indent = false)
```

This function is intended to export data in json format

- @matrix => the matrix to export

- @indent => boolean argument to enable or disable the indent feature

They will returns all data

32 core/php/autoload/fileutils.php

32.1 Get Directory

```
function get_directory ($key)
```

This function returns the directory configured to the key requested, too can define a default value, usefull when the configuration still not loaded and SaltOS need some directory to do something as store data in the log file, for example

- @key => the key used in get_config to request the configured directory

32.2 Get Temp File

```
function get_temp_file ($ext = "")
```

This function is intended to get a unique temporary file, used for temporary purposes as put contents to be used as input in a command

- @ext => the extension of the temporary file, usefull for some commands that try to detect the contents using the extension

Notes:

This function uses the dirs/tempdir config key

32.3 Get Cache File

```
function get_cache_file ($data, $ext = "")
```

This function is intended to get a cache filename, used for caching purposes

- @data => data used to compute the hash used by the cache, can be an string or an array with lot of contents

- @ext => extension of the cache filename

Notes:

This function uses the dirs/cachedir config key

32.4 Cache Exists

```
function cache_exists ($cache, $files)
```

This function check the existence of valid cache by comparing the timestamp of the filemtime between the cache file and all files of the second argument

- @cache => cache filename

- @files => array of files that are considered as dependencies of the cache

32.5 URL Get Contents

```
function url_get_contents($url)
```

This file is an equivalent of the file_get_contents but intended to be used for request remote files using protocols as http or https

- @url => the url that you want to retrieve

Notes:

This function only returns the body of the request, if you are interested to get the headers of the request, try to use the __url_get_contents

32.6 URL Get Contents helper

```
function __url_get_contents($url, $args = [])
```

This file is an equivalent of the file_get_contents but intended to be used for request remote files using protocols as http or https

- @url => the url that you want to retrieve

- @args => Array of arguments, explained in the follow lines

- @cookies => an array with the cookies to be restored before send the request

- @method => method used in the request

- @values => an array with the post values, usefull when you want to send a POST request with pairs of variables and values

- @referer => the referer string

- @headers => an array with the headers to be send in the request

- @body => the full body used of the request, usefull when you want to send a json file in the body instead of pairs of keys vals

This function returns an array with three elements, body, headers and cookies

Notes:

This function uses the httpclient library

32.7 Extension

```
function extension($file)
```

This function returns the PATHINFO_EXTENSION of the file

- @file => file used in the pathinfo call

32.8   Encode Bar Chars File

`function encode_bad_chars_file($file)`

This function is equivalent to encode_bad_chars but intended to be used with filenames, in this case, the extension and the rest of the filename will be encoded separately and the return value will contain the dot separating the filename with the extension

- @file => filename used in the encode process

32.9   Realpath Protected

`function realpath_protected($path)`

This function returns the realpath of the path, this version of the function allow to return the path of an unexistent file, this is usefull when do you want to get the realpath of a unexistent file, for example, to the output of a command that must to generate the file but at the moment of the execution of this function the file is not found

- @path => path used in the realpath call

32.10   Getcwd Protected

`function getcwd_protected()`

This function returns the same result that the getcwd function but checking that the result is not an slash, this is an issue in some cases caused by permissions problems, and a good solution for this cases is to get the directory of the script as current work directory

32.11   Glob Protected

`function glob_protected($pattern)`

This function returns the same result that the glob function but checking that the result is an array, if glob fails or not get a files by the pattern, can return other values that an array, and this can cause problems if you are expecting an array to iterate in each element, this function prevent this problem

- @pattern => pattern used in the glob command

32.12   Chmod Protected

`function chmod_protected($file, $mode)`

This function tries to change the mode of the file using the chmod function only if the fileperms of the file are different that the requested mode

- @file => file used by the chmod function
- @mode => mode used by the chmod function

32.13 Fsockopen Protected

```
function fsockopen_protected($hostname, $port, &$errno = 0, &$errstr = "",
    $timeout = null)
```

This function is only used by the httpclient library to avois problems with the certificates validations

Ths arguments is the same that the fsockopen function, in this case, the function uses the stream_socket_client to emulate the original fsockopen

32.14 File with Mtime

```
function file_with_hash($file)
```

This function returns the name of the file adding as argument the hash of the file for the http/https requests, this allow to helps the browser to know when the file has changed

- @file => the file that you want to add the hash querystring argument

33 core/php/autoload/gc.php

33.1 Garbage Collector Executor

```
function gc_exec()
```

This function tries to clean the cache, temporary and upload directories of old files, the parameters that this function uses are defined in the config file, uses three directories (cachedir, tempdir and uploaddir) and the timeout is getted from the server/cachetimeout config file key, too is able to detect hidden files and remove except the special files as current directory, parent directory and htaccess file

34 core/php/autoload/getdata.php

34.1 Get data

```
function get_data($key)
```

This function is intended to be used to retrieve values from the data system

- @key => the key that you want to retrieve the value

34.2 Set data

```
function set_data($key, $val)
```

This function sets a value in the data system for the specified key

- @key => the key that you want to set
- @val => the value that you want to set

35 core/php/autoload/gettext.php

35.1 Get Text function

`function T($text)`

This function replaces the gettext abreviation _() using the SaltOS gettext feature, is based in the original system of the SaltOS 3 with improvements to do more open as the GNU gettext

36 core/php/autoload/import.php

36.1 Import File

`function import_file($args)`

This function is intended to import data in the supported formats

- @data => contents used as data instead of file
- @file => local filename used to load the data
- @type => can be xml, csv, xls, bytes, edi or json
- @sep => separator char used only by csv format
- @sheet => sheet that must to be read
- @map => map used as dictionary for each field, pos and length
- @offset => the offset added to the start position in each map field
- @nomb => boolean to disable or enable the multibyte support
- @novoid => boolean to enable or disable the removevoid feature
- @prefn => function executed between the load and the tree construction
- @notree => boolean to enable or disable the array2tree feature
- @nodes => an array with the fields that define each nodes used in the tree construction
- @nohead => if the first row doesn't contains the header of the data, put this field to one
- @noletter => if you want to use numeric index instead of excel index, put this field to one
- @postfn => function executed after the tree construction

This function returns an array with the loaded data from file Can return a matrix or tree, depending the nodes parameter

36.2 UTF8 BOM helper

`function __import_utf8bom($data)`

This function remove the bom header of the string

- @data => the data that must to be checked

Returns the data without the bom characters

36.3 XML to Array

```
function __import_xml2array($file)
```

This function convert an xml into an array

- @file => the file that contains the xml

Returns an array with the contents of the xml

36.4 Struct to Array helper

```
function __import_struct2array(&$data)
```

This function is a helper of the __import_xml2array

- @data => an array with all nodes of the xml file

Returns an array with the correct structure that matches the xml structure

36.5 Get Node helper

```
function __import_getnode($path, $array)
```

This function is a helper used to get a node in a xml structure

- @path => a path of the desired node
- @array => the array with nodes of the xml structure

Returns the contents of the node of the specified path

36.6 Get Value helper

```
function __import_getvalue($array)
```

This function is a helper used to get a value if exists of a node structure

- @array => an array

Retusn the value if exists, otherwise the same input

36.7 Get Attr helper

```
function __import_getattr($elem, $array)
```

This function is a helper used to get a attr element if exists of a node structure

- @elem => a string representing an element
- @array => an array containing the node

Returns the attr if exists, otherwise null

36.8 Set Node helper

```
function __import_setnode($path, &$array, $value)
```

This function is used to set data into a xml structure

- @path => the desired path where do you want to put the data,
- @array => the array with the xml structure
- @value => the value that do you want to put

Returns true if the function can set the value, false otherwise

36.9 Del Node helper

```
function __import_delnode($path, &$array)
```

This function is used to remove data of the xml structure

- @path => the desired path where do you want to remove
- @array => the array with the xml structure

Returns true if the function can remove the path, false otherwise

36.10 Add Node helper

```
function __import_addnode($path, &$array, $value)
```

This function is used to add data into a xml structure

- @path => the desired path where do you want to add the data
- @array => the array with the xml structure
- @value => the value that do you want to add

true if the function can add the data, false otherwise

36.11 Special Chars helper

```
function __import_specialchars($arg)
```

This function is a helper used by the csv2array function

- @arg => a string or array

Returns the input with the expected replacements

36.12 CSV to Array helper

```
function __import_csv2array($file, $sep)
```

This function is a helper of the __import_xml2array

- @file => the filename and the sheet that do you want to retrieve
- @sep => the separator field used in the csv file

Returns a matrix with the contents

36.13 XLS to Array helper

```
function __import_xls2array ( $file , $sheet )
```

This fuction can convert an excel file into a matrix structure, it has some additional features as:

- If the file exceds the 1Mbyte and the server has the xlsx2csv executable, it tries to convert the xslx to an excel to use less memory
- Do some internals trics to solve some knowed issues
- @file => the filename and the sheet that do you want to retrieve
- @sheet => the second parameter can be a number or a sheet name

Returns a matrix with the contents

36.14 Bytes to Array helper

```
function __import_bytes2array ( $file , $map, $offset , $nomb )
```

This function can read files as blocks of bytes, they can use a map, can specify an offset and can be used using multibyte if it is needed

- @file => local filename used to load the data
- @map => map used as dictionary for each field, pos and length
- @offset => the offset added to the start position in each map field
- @nomb => boolean to disable or enable the multibyte support

Returns a matrix with the contents

Notes:

The map must be an array of strings of the follow form: ["field1;0;10", "field2;10;20", "field3;20;40"]

36.15 Edit to Array helper

```
function __import_edi2array ( $file )
```

This fuction can convert an excel file into a tree structure

- @file => local filename used to load the data

36.16 JSON to Array helper

```
function __import_json2array ( $file )
```

This fuction can convert an excel file into a tree structure

- @file => local filename used to load the data

36.17 Check Real Matrix helper

```
function __import_check_real_matrix($array)
```

This function checks that the argument is a matrix, to do this, checks that the argument is an array, that all keys are numeric and that all entries of the main array is another array, and for each another array, checks that the keys are numeric and that all values are non arrays

- @array => the array to check

36.18 Remove Void helper

```
function __import_removevoid($array)
```

This function is able to remove an entire row or column if it is void

- @array => the array to fix

36.19 Array to Tree helper

```
function __import_array2tree($array, $nodes, $nohead, $noletter)
```

This function tries to convert the array into a tree using the nodes, specification

- @array => the matrix that you want to convert into a tree
- @nodes => the dictionary used to the conversion, must to be an array with the fields used by each node, for example ["A,B,C","D,E,F"]
- @nohead => set it to true to prevent the usage of the first row of the matrix as header, this option uses the letter as id of each element of the tree
- @noletter => set it to true to prevent the usage of letters, if the previous option is set to true

36.20 Array Intersect

```
function __import_array_intersect($data, $filter)
```

This function returns the same result that array_intersect_key($data,array_flip($filter)) maintaining the order of the filter array.

- @data => the array that you want to apply the filter
- @filter => the array where obtain the keys to apply the filter

36.21 Array to Tree Set helper

```
function __import_array2tree_set(&$result, $parts)
```

This function tries to set values in a tree structure, to do it, it uses the parts array that contains a list of paired keys and values used to move by the tree setting the values of each pair of key val

- @result => the array where do you want to put the parts

- @parts => an array with pairs of key val

36.22   Array to Tree Clean helper

```
function __import_array2tree_clean ($array)
```

This function tries to clean the tree by setting an automatic indexes

- @array => the array to clean

36.23   Tree to Array

```
function __import_tree2array ($array)
```

This function convert a tree into a 2D matrix, it's intended to convert a tree structure into a csv, for example

- @array => the tree that you want to convert into a 2D matrix

36.24   Column to Name helper

```
function __import_col2name ($n)
```

This function returns the name of the column from the position n

- @n => the position number

Notes:

This function was copied from:

- http://www.php.net/manual/en/function.base-convert.php#94874

36.25   Name to Column helper

```
function __import_name2col ($a)
```

This function returns the position number of the column from the name

- @a => the column name

Notes:

This function was copied from:

- http://www.php.net/manual/en/function.base-convert.php#94874

36.26   Is Name helper

```
function __import_isname($name)
```

This function returns true if the name argument contains only valid letters used in the name of the column

- @name => the name that you want to check

36.27   Cell to Column and Row helper

```
function __import_cell2colrow($cell)
```

This function extract the column part and the row part from a cell name

- @cell => the cell that you want to process

Notes:

This function tries to retusn an array with two elements, for example, for the cell AX23, the function returns [AX,23]

36.28   Get Keys

```
function __import_getkeys($array)
```

This function tries to return an array with all the keys used internally in the tree

- @array => the tree array that you want to process

36.29   Filter helper

```
function __import_filter($array, $filter, $eval = 0)
```

This function tries to apply a filter to a tree array, too allow to use the evaluation system to allow to pass as filter an expression like this A=M23

- @array => the tree array that you want to apply the filter
- @filter => the filter to apply
- @eval => set to 1 if you want to enable the eval feature

36.30   Filter Recursive helper

```
function __import_filter_rec($node, $filter, $eval, $parent = [])
```

This function is a helper of the previous function and is able to to the same but with recursivity

- @node => the tree node that you want to filter
- @filter => the filter to apply
- @eval => set to 1 if you want to enable the eval feature
- @parent => this parameter is intended to be used internaly by the function

36.31　Apply Patch

`function __import_apply_patch(&$array, $key, $val)`

This function is able to apply a patch in the tree array, this allow to update the desired branch of the tree using a xpath notation

- @array => the array that you want to apply the patch
- @key => the xpath where you want to apply the patch
- @val => the val that you want to put in the desired xpath

36.32　Apply Patch Recursive helper

`function __import_apply_patch_rec(&$array, $key, $val)`

This function is a helper of the previous function and is able to to the same but with recursivity

- @array => the array that you want to apply the patch
- @key => the xpath where you want to apply the patch
- @val => the val that you want to put in the desired xpath

36.33　Make Table ASCII

`function __import_make_table_ascii($array)`

This table is intended for debug purposes and is able to paint in ascii mode the contents of a matrix

- @rows => the contents of the matrix to paint
- @head => set to true if you want to use the first row as header
- @compact => set to true if you want to minify the ascii table

37　core/php/autoload/indexing.php

37.1　Make Index main function

`function make_index($app, $reg_id)`

This function implements the make index feature of SaltOS, this consists in a concatenation of fields and subqueries to retrieve all data related to the tables involved in the desired application and the register reg_id

- @app => code of the application that you want to index
- @reg_id => register of the app that you want to index

Notes:

This function returns an integer as response about the index action:

- +1 => insert executed, this is because the app register exists and the index register not exists

- +2 => update executed, this is because the app register exists and the index register too exists

- +3 => delete executed, this is because the app register not exists and the index register exists

- -1 => app not found, this is because the app requested not have a table in the apps config

- -2 => index table not found, this is because the has_index feature is disabled by dbstatic

- -3 => data not found, this is because the app register not exists and the indexting register too not exists

As you can see, negative values denotes an error and positive values denotes a successfully situation

37.2   Make Index helper

```
function __make_index_helper($table, $id = "")
```

This function allow the make_index to retrieve all data of the fiels and all data of the related fields of the related tables, this is done by using the fkey information of the dbschema, this function uses some features of the dbschema functions to get the fields, types, fkeys and too, the dbstatic information of the app table

This function uses a cache technique to improve the performance, returns an array with all fields and subqueries to allow to retrieve all data related to the app register

38   core/php/autoload/iniset.php

38.1   Eval Iniset

```
function eval_iniset($array)
```

This function evaluates the iniset section of the config file, is intended to execute all ini_set commands detecting the current values and determining if is needed to change or not the current setting, is able to understand boolean values as On/Off, and too is able to set keys as mbstring.internal_encoding or mbstring.detect_order that must to be set by using another mb_* functions

- @array => the array with the pairs of keys vals

38.2   Eval Putenv

```
function eval_putenv($array)
```

This function evaluates the putenv section of the config file, is intended to execute all putenv commands detecting the current values and determining if is needed to change or not the current setting

- @array => the array with the pairs of keys vals

38.3   Eval Extras

```
function eval_extras($array)
```

This function evaluates the extra init requirements, intended for the multibyte functions and for the gettext initialization process

- @array => the array with the pairs of keys vals

Notes:

If the val of the pair key val is an array, then each value of the array is used as an argument for the key function, only is intended at the moment to accept functions with one and two arguments, otherwise an error is triggered

39 core/php/autoload/list.php

39.1 Add list actions helper

```
function add_list_actions($rows, $actions)
```

This function returns the input rows adding to each row an array of actions, to do this function uses the permissions to check that each register and each action is allowed by the token

- @rows => the rows used to do the list
- @actions => an array with the actions that want to be added in each row

Notes:

This function add to each row the actions using the permissions of the system associated to the current user, for each permission and using the new owner concept

40 core/php/autoload/log.php

40.1 Check Log

```
function checklog($hash, $file)
```

This function is a helper for the show_php_error, allow to detect repetitions of the same text in the log file to prevent to add repeated lines, the usage is very simple, only requires a hash and a file to check that the hash is not found in the contents of the file, you can think in this function as a grep replacement that is able to found the hash in the file

- @hash => the pattern that you want to search in the file
- @file => the file where search the pattern

40.2 Add Log

```
function addlog($msg, $file = "")
```

This function add messages to the specified log file

- @msg => message that you want to add to the log file
- @file => the log file that you want to use without directory

Notes:

If not file is specified, the debug/logfile (saltos.log) is used by default

The logs files are stored in the logsdir (/data/logs)

This function performs the log rotation is the maxfilesize is reached

40.3 Add Trace

```
function addtrace($array, $file)
```

This function performs the addlog to the file using as input the array, the main idea is to pass the same array that the used in the show_php_error, the difference is that addtrace, only add the backtrace and debug to the array and then, saves the log to the specified file

- @array => the array that can contains the same info that show_php_error
- @file => the file where do you want to store the log contents

40.4 Get Trace

```
function gettrace($array)
```

This function get an array as show_php_error, add the backtrace and debug information and convert all array into a string

- @array => the array that can contains the same info that show_php_error

40.5 Session Backtrace

```
function session_backtrace()
```

Returns a string with the pid, sessid and current datetime with decimals

Notes:

The fields of this array allow to do low level debug processes, this data is generally used by the semaphores and some forced addtrace calls, but causes problems in the error reporting because break the hash and checklog optimization

41 core/php/autoload/memory.php

41.1 Memory Get Free

```
function memory_get_free($bytes = false)
```

This function returns the free memory in bytes or the percentage of the memory_limit

- @bytes => if true, returns the free bytes, if false, returns the percentage

41.2 Get Time Usage

```
function time_get_usage($secs = false)
```

This function returns the time usage in seconds or in percentage of the max_execution_time

- @secs => if true, returns the used seconds, if false, returns the percentage

41.3   Get Free Time

```
function time_get_free($secs = false)
```

This function returns the free time in seconds or in percentage of the max_execution_time

- @secs => if true, returns the used seconds, if false, returns the percentage

41.4   Init Time Get

```
function init_timer()
```

This function call the helper to initialize the static ini to the current microtime

41.5   Get Time helper

```
function __time_get_helper($fn, $secs)
```

This function is a helper of the time_get_usage and time_get_free functions, is used to check the time usage and the free time that remain to finish the execution of the script

41.6   Set Max Memory Limit

```
function set_max_memory_limit()
```

This function is intended to do a ini_set with a more greather value to allow an exceptionally amount of memory usage

41.7   Set Max Execution Time

```
function set_max_execution_time()
```

This function is intended to do a ini_set with a more greather value to allow an exceptionally amount of execution time

42   core/php/autoload/output.php

42.1   Output Handler

```
function output_handler($array)
```

This function is intended to send data to the output channel, and can have the follow arguments:

- @array => array with the follow pairs of key val

- @file => file that contains the contents that you want to send

- @data => contents that you want to send to the output channel

- @type => content type header used

- @cache => boolean to enable the cache usage, includes the etag algorithm

- @name => the filename used in the content disposition attachment header

- @extra => headers that you can add to the transfer

42.2 Output Handler JSON

```
function output_handler_json($array)
```

This function allow to quickly send json output, the unique argument that it requires is the data that you want to send

- @array => content to convert to json and send to the output channel

43 core/php/autoload/password.php

43.1 Password Strength

```
function password_strength($pass)
```

This fucntion returns a number between 0 and 100 that try to categorize the quality of the pass checked, this is usefull to known if the new password is a good option or maybe is needed to request another new password

- @pass => password that do you want to check

44 core/php/autoload/perms.php

44.1 Check User

```
function check_user($app, $perm)
```

This function checks the permissions using the tables apps_perms, users_apps_perms and groups_apps_perms, to do it, this function uses the user_id and groups_id (note that groups_id contains all groups where the user is associated), and try to check that the permissions permutations exists in the apps_perms, if some permission is found in the users and groups tables and it is not found in the apps_perms, an integrity error is launched.

- @app => the app to check
- @perm => the perm to check

44.2 Check SQL

```
function check_sql($app, $perm)
```

This function returns the fragment of SQL intended to filter by app and perm for the current user

- @app => the app to check
- @perm => the perm to check

Notes:

This function returns the portion of sql used to check permissions associated to an user with a specific permission and to an specific register, as an optimization, it detects if the all owner is on and return a true expression to improve the performance

44.3 Perms helper function

```
function __perms($fn, $arg)
```

This function is used by the XXX2YYY functions as helper, it stores the dictionary of all conversions and resolves the data using it

- @fn => the caller function
- @arg => the argument passed to the function

44.4 Id to Perm

```
function id2perm($id)
```

This function resolves the code of the perm from the perm id

- @id => the id used to resolve the perm

44.5 Perm to Id

```
function perm2id($perm)
```

This function resolves the id of the perm from the perm code

- @perm => the perm code used to resolve the id

Notes:

This function can return an integer or an array of integers, depending if the app is using the owner parameter or not

44.6 Perm Exists

```
function perm_exists($perm)
```

This function detect if a perm exists

- @perm => the perm that you want to check if exists

Notes:

This function returns true if a perm exists, and in case of the usage of the owner parameter, the function will return true for a perm that contains the owner and for the perm without the owner, for exampe, this function returns true for perm list and form perm list|user

45   core/php/autoload/qrcode.php

45.1   QRCode function

```
function __qrcode($msg, $s, $m)
```

This function allow to generate a qrcode with the SaltOS logo embedded in the center of the image, you can pass the desired message that you want to convert in qrcode and it returns an image with the data

- @msg => Contents of the qrcode

- @s => size of each pixel used in the qrcode

- @m => margin of the qrcode (white area that that surround the qrcode)

Notes:

The normal behavior is returns a png image, but if something was wrong, the function can returns an empty string

46   core/php/autoload/random.php

46.1   Init Random

```
function init_random()
```

This function initialize the random number generator

Notes:

This function previously sets the seed using the microtime, but reading the srand php documentation, I see that the seed is not needed because if it is not provided, a randomly seed is used by default

47   core/php/autoload/score.php

47.1   Score Image function

```
function __score_image($score, $width, $height, $size)
```

This function generates an image with a gradient from red to yellos and then, to green, depending of the score passed to the function, the params allos to define the size of the image or the size of the font used to write the score percent

- @score => a number between 0 and 100

- @width => the width of the generated image

- @height => the height of the generated image

- @size => the size of the font of the generated image

48 core/php/autoload/semaphores.php

48.1 Semaphore Acquire

```
function semaphore_acquire($name = "", $timeout = INF)
```

This function implement the acquire of a semaphore

- @name => the name of the semaphore
- @timeout => the timeout used in waiting operations

48.2 Semaphore Release

```
function semaphore_release($name = "")
```

This function implement the release of the semaphore

- @name => the name of the semaphore

48.3 Semaphore Shutdown

```
function semaphore_shutdown()
```

This function implement the shutdown of all semaphores, to do it, the function will iterate in each semaphore to release and set to null the semaphore pointer

48.4 Semaphore File

```
function semaphore_file($name = "")
```

This function returns the associated semaphore file used by the named semaphore, usefull for debug purposes

- @name => the name of the semaphore

48.5 Semaphore helper

```
function __semaphore_helper($fn, $name, $timeout)
```

This function implements the real semaphore functionalities, includes the code to do an acquire, the release, the shutdown and to get the file, is programmed as a function instead of a class by historical motivation, in reality, the statics fds acts as a properties of a class and each if stripos acts as a methods of a class

- @fn => the function name that call the helper, to detect the feature
- @name => the name of the semaphore
- @timeout => the timeout used in waiting operations

48.6 Semaphore USleep helper

```
function __semaphore_usleep($usec)
```

This function implements an usleep (micro sleeper) using sockets, this allow to break the execution of the function if a signal is received by the process, in reality, the feature is powered by the socket_select that is allowed to wait for read and write operations with a very precise timeout.

The returned value will be the difference between the end less the start, in other words, the returned value is the ellapsed time sleeped by the function

- @usec => the micro seconds that you want to sleep

49 core/php/autoload/server.php

49.1 Get Server

```
function get_server($index)
```

This function returns the server variable requested by index if it exists

- @index => the index key used to get the value of the server
- @default => the default value returned if the key is not found

50 core/php/autoload/sqlutils.php

50.1 Parse Query

```
function parse_query($query, $type = "")
```

This function is intended to apply the query filters defined by the users when write queries for multiples db engines as MySQL and/or SQLite, for example, if you want to write a fragment of SQL with one version for MySQL and another version for SQLite, you can do / *MYSQL ... * // *SQLite ... * /

Note that the previous example add a spaces between the bar and the asterisc because we can not put comments inside another comment!!!

- @query => the query that must be parsed
- @type => the db type that you want to allow by the filters

50.2 Parse Query Type helper

```
function __parse_query_type()
```

This function returns the type used by parse_query using as detector the dbtype of the config file, currently only allow to return MYSQL and/or SQLITE

50.3   Parse Query Strpos helper

`function __parse_query_strpos($haystack, $needle, $offset = 0)`

This function is the same that strpos, but with some improvements required by the parse_query funcion, the idea is to use the strpos functionality, but controlling that the found position must acomplish some constraints as the number of simple and double quotes must to be even

The arguments are the same that the strpos function

- @haystack => string where search the needle
- @needle => the needle text that must be found in the haystack
- @offset => bias applied to begin the search of the needle

50.4   Execute Query

`function execute_query($query)`

This function executes the query and depending in the result, returns the resultset trying to do the more good combination in the return data

- @query => the SQL query that you want to execute

Note that the db_query is executed with the "auto" fetch mode, this causes that the db_query returns an array with one dimension if the query only generates a resultset with only one column, or returns an array with two dimensions if the query generates a resultest with more that one column

To be more practice:

If you execute a query that select one field and only returns one row, the return value will be the value of the field

If you execute a query that select one field and returns more that one row, the return value will be an array of one dimension with all values of this field

If you execute a query that select multiples fields and only return one row, the return value will be an array of one dimension with all fields

Ig you execute a query that select multiples fields and returns more that one row, the return value will be an array of two dimensions with all rows and each row with all fields

Be carefully to use the output of this command in an foreach, for example because you can get for the same query differents output types, if you need to be more standarized in the output types, see the execute_query_array

50.5   Execute Query Array

`function execute_query_array($query)`

This function is the same that execute_query but guarantee that for the same query, you get the same output type if the resultet contains one row or more rows, usefull is you want to use the output of this function in a foreach, for example

- @query => the SQL query that you want to execute

50.6 Get Fields

```
function get_fields($table)
```

This function returns the fields of the requested table

- @table => the table where that you want to know the fields

50.7 Get Indexes

```
function get_indexes($table)
```

This function returns the indexes of the requested table

- @table => the table where that you want to know the indexes

50.8 Get Tables

```
function get_tables()
```

This function returns the tables of the database

50.9 Get Field Type

```
function get_field_type($type)
```

This function returns an standarized type for the specific types used in the real database, for example, returns string if the field is of TEXT type

- @type => the real type in the database

50.10 Get Field Size

```
function get_field_size($type)
```

This function returns the size for the types used in the database, for example, returns 65535 if the field is of TEXT type

- @type => the real type in the database

50.11 SQL Create Table

```
function sql_create_table($tablespec)
```

This function returns the SQL needed to create the table defined in the tablespec argument

- @tablespec => the specification for the create table, see the dbschema file to understand the tablespec structure

This function creates the table, supports the primary key, supports the foreign key, and detect fulltext indexes with mroonga engines

50.12 Has Engine

```
function __has_engine ($engine)
```

This function allow to SaltOS to ask to the database if an enxine is availabie

- @engine => the engine that you want to get information about existence

50.13 SQL Alter Table

```
function sql_alter_table ($orig, $dest)
```

This function returns the alter table command

- @orig => source table
- @dest => destination table

50.14 SQL Insert From Select

```
function sql_insert_from_select ($dest, $orig)
```

This function returns the insert from select command

- @orig => source table
- @dest => destination table

50.15 SQL Drop Table

```
function sql_drop_table ($table)
```

This function returns the drop table command

- @table => table that you want to drop

50.16 SQL Create Index

```
function sql_create_index ($indexspec)
```

This function returns the SQL needed to create the index defined in the indexspec argument

- @indexspec => the specification for the create index, see the dbschema file to understand the indexspec structure

This function creates the index, supports fulltext indexes

50.17 SQL Drop Index

```
function sql_drop_index ($index, $table)
```

This function returns the drop index command

- @index => index that you want to drop
- @table => table where the indes is part of

50.18 Make Insert Query

`function make_insert_query($table, $array)`

Returns the insert query for the table with all fields specified by the array param

- @table => table where you want to add the register
- @array => array with key val pairs that represent the field and the value of the field

Notes:

This function tries to cast each value to their data type getting this information from dbschema config, you can pass in array all fields that you want and not is needed to put all fields of the table, only the fields that appear in the array will be used in the insert, if some field is not a part of the fields of the table, an error will be triggered

This function uses the array_key_exists instead of isset because the check of the $array[$name] fails when the item exists but is false or null, for example

50.19 Make Update Query

`function make_update_query($table, $array, $where)`

Returns the update query for the table with all fields specified by the array param and using the specified where

- @table => table where you want to update the register
- @array => array with key val pairs that represent the field and the value of the field
- @where => where clausule used to update only the expected registers, can be the output of make_where_query

Notes:

This function tries to cast each value to their data type getting this information from dbschema config, you can pass in array all fields that you want and not is needed to put all fields of the table, only the fields that appear in the array will be used in the update, if some field is not a part of the fields of the table, an error will be triggered

This function uses the array_key_exists instead of isset because the check of the $array[$name] fails when the item exists but is false or null, for example

50.20 Make Where Query

`function make_where_query($array)`

This function allow to create where sentences joinin all fields by AND

- @array => array with key val pairs that represent the field and the value of the field

Notes:

The keys normally contains the name of the field, but if you need to use a different comparison operator, you can use the field name and add the operator that you want to use in the comparison, the allowed comparison operators are $>, <, =, >=, <=, !=$

50.21 Escape Reserved Word

```
function escape_reserved_word($word)
```

This function tries to escape the reserved words that can not be used in sql queries as field names or table names, currently is only used to escape field names but in a future, if it is needed, can be added to escape table names too

- @word => the word that must to be escape if needed

50.22 Make Like Query

```
function make_like_query($keys, $values, $args = [])
```

This function is intended to returns the sql fragment to be added to the where condition to filter for the specified keys and values

- @keys => an string with comma separated field names
- @values => the value of the input search
- @minsize => the minimal size of the length used in each like
- @default => sql fraement returned if some thing was wrong

Notes:

This function generates a sequence of (like or like) and (like and like) and is able to understand the prefix plus or minus in each word of the search string, this allow to the function to use the like or not like depending the sign of the word, and too to use the disjunction or conjunction in each like group

50.23 Make Fulltext Query Helper

```
function __make_fulltext_query_helper($values, $args = [])
```

This function is similar to the make_like_query, but uses the match agains clausule instead of the like clausule, the match agaings is used for fulltext searches and generally, this function is not intended to be used directly, it must acts as a helper of the make_fulltext_query

- @values => the value of the input search
- @minsize => the minimal size of the length used in each like
- @default => sql fraement returned if some thing was wrong

Notes:

This function differs between the make_like_query in the idea that this function only is used to search using fulltext indexes and in one unique field named search

50.24 Make Fulltext Query

```
function make_fulltext_query($values, $app, $args = [])
```

While the two version returns the fragment that must to be added to the query that search in the table that contains the search field, this function allow to specify the same that the two version with two fields more, the app and the prefix to be added to the id field of the in subquery

- @values => the value of the input search

- @app => the app used to detect the indexing table

- @prefix => the prefix added to the id used in the in subquery

- @minsize => the minimal size of the length used in each like

- @default => sql fraement returned if some thing was wrong

51   core/php/autoload/strutils.php

51.1   Remove Bar Chars

```
function remove_bad_chars($temp, $pad = "")
```

This function removes chars from keycodes 0 to 31 except 9, 10, 13 (tab, newline, return)

- @temp => input string that you want to fix

- @pad => padding string used as replacement for bar chars (void by default)

51.2   Encode Bar Chars

```
function encode_bad_chars($cad, $pad = "_", $extra = "")
```

This function tries to replace accender chars and other extended chars into an ascii chars, to do it, they define an array with the pairs of chars to do a quick replace, too is converted all to lower and are removed all chars that are out of range (valid range are from 0-9 and from a-z), the function allow to specify an extra parameter to add extra chars that must to be allowed in the output, all other chars will be converted to the padding argument, as a bonus extra, all padding repetitions will be removed to only allow one pading char at time

- @cad => the input string to encode

- @pad => the padding char using to replace the bar chars

- @extra => the list of chars allowed to appear in the output

51.3   Prepare Words

```
function prepare_words($cad, $pad = " ")
```

This function allow to prepare words removing repetitions in the padding char

- @cad => the input string to prepare

- @pad => the padding char using to replace the repetitions

Notes:

Apart of remove repetitions of the padding char, the function will try to remove padding chars in the start and in the end of the string

51.4   Sprintr

```
function sprintr($array)
```

This function is an improved version of the print_r, allow to convert an array into a string removing some extra lines that not contain information, lines that contains only contains an open or close parenthesis, or nothing, are removed, optimizing the output string

- @array => the array that do you want to convert into string

51.5   Get Unique ID MD5

```
function get_unique_id_md5()
```

This function returns an unique hash using the random generator

51.6   Intelligence Cut

```
function intelligence_cut($txt, $max, $end = "...")
```

This function allow to cut text by searching spaces to prevent to break words

- @txt => the text that you want to cut
- @max => the size of the expected output text
- @end => the suffix added if the text is cutted

51.7   Normalize Value

```
function normalize_value($value)
```

This function allow to detect the last letter to detect what magnitude is using (K, M or G) and multiply the numeric part by the needed factor to get the number without factor

- @value => the string that contain the number, for example "123k"

51.8   HTML to Text

```
function html2text($html)
```

This function uses the html2text roundcube function to convert html to plain text, this code have the issue that requires the error_reporting(0) because it have a lot of errors causes by use nondefined variables, for example

- @html => the html code that you want to convert to plain text

51.9   Get UTF-8

```
function getutf8($str)
```

This function returns the string codified in a UTF-8 encoding

- @str => the input string that you want to covnert to UTF-8

51.10   Words Exists

```
function words_exists($words, $buffer)
```

This function check that all words exists in the buffer

- @words => the string that contains words separated by spaces
- @buffer => the string where we must to found the words

51.11   String Replace Assoc

```
function str_replace_assoc($array, $cad)
```

This function do the same that str_replace, but using only one associative array, using the keys as search and the values as replace, intended only to do more prerry the code

- @array => the associative array with the pairs keys vals
- @cad => the string that you want to apply the replacement

51.12   Get Part From String

```
function get_part_from_string($input, $delim, $index)
```

This function explodes de input using delim and returns the element of the index position

- @input => the string that you want to cut in parts
- @delim => the delimiter char used to cut in parts
- @index => the index that you want to request of the explode result

51.13   Get Unique Token

```
function get_unique_token()
```

This function returns a string with a new and unique token

52   core/php/autoload/system.php

52.1   Check System

```
function check_system ()
```

This function checks the system to detect if all knowed dependencies are found in the system, to do it, defines an array with the type (class or function), the name and some extra info for the error message that is triggered if the dependency is not satisfied

Too, check all directories of the data directory to validate that the process can write inside it

53 core/php/autoload/user.php

53.1 This file contains the functions associated to the user validation, to

that performs an important speed up

53.2 Current Token

```
function current_token ()
```

This function returns the id of the current token, this info is retrieved using the token of the request, for security reasons, this validation only can be performed by the same origin that execute the login action

53.3 Current User

```
function current_user ()
```

This function returns the id of the current user, this info is retrieved using the token of the request

53.4 Current Group

```
function current_group ()
```

This function returns the id of the current group, this info is retrieved using the token of the request

53.5 Current Groups

```
function current_groups ()
```

This function returns the id of all current groups, this info is retrieved using the token of the request and the main idea of this function is to returns the list of all groups associated to the current user to facily the permissions checks

53.6 Crontab Users

```
function crontab_users ()
```

This function executes the maintenance queries to update the active field in the passwords and tokens tables, it's intended to be used as helper

Notes:

This function uses an internal static variable to detect repeated executions and only accepts the first execution, this is to prevent that multiples calls to other actions and functions that requires the integrity of the passwords and tokens

54 core/php/autoload/version.php

54.1 Get Name Version Revision

```
function get_name_version_revision ( $copyright = false )
```

This function returns a string with the SaltOS name, version, revision and copyright if needed

- @copyright => boolean to specify if you want to add the copyright to the output

54.2 SVN Version

```
function svnversion ( $dir = "." )
```

This function tries to return the svn version of the project

- @dir => allow to specify where do you want to execute the svnversion command

54.3 GIT Version

```
function gitversion ( $dir = "." )
```

This function tries to return the git version of the project

- @dir => allow to specify where do you want to execute the gitversion command

54.4 IS PHP

```
function isphp ( $version )
```

This function returns a boolean as a response about the comparison between the version requested and the current version.

- @version => the version where do you want to compare

55 core/php/autoload/xml2array.php

55.1 Eval Protected

```
function eval_protected ( $input , $global = "" )
```

This function allow to execute PHP code using the eval function in a controlled environment, you can specify some global variables to improve the eval execution

- @input => the code to be executed
- @global => the list (separated by comma) of global variables that you want to use

55.2 Set Array

```
function set_array(&$array, $name, $value)
```

This function allow to specify multiples entries in an array with the same key, to do this, the function will add #num where num is a unique number, in reality if you want to set multiples entries for the key "test", you get in reality an array with entries as "test", "test#1", "test#2"

This function works in concordance of the fix_key, that is able to get the key as "test#1" and return only "test" that is the original key without the suffix added to allow multiples instances of the same key in an associative array

- @array => array that you want to add the key with the value (by reference)
- @name => the key used in the array, if exists, it will try to add the suffix to prevent collisions
- @value => the value that you want to set in this position of the array

55.3 Unset Array

```
function unset_array(&$array, $name)
```

This function remove all entries of the array that matches with the name of the key, for example, if you specify the name "test", the function unset all entries as "test" or begin by "test#", in the example of the previous function will remove "test", "test#1" and "test#2"

- @array => array that you want to remove the key (by reference)
- @name => the key used in the array and as prefix of the entries of the array

55.4 Fix Key

```
function fix_key($arg)
```

This function returns the "real" part of the key removing the suffix added to prevent collisions in the associative array, for the above example, if you request the fix_key of the "test#2", the function will returns "test"

- @arg => the name of the key that you want to remove the suffix part (if exists)

55.5 Detect Recursion

```
function detect_recursion($fn)
```

This function allow to SaltOS to detect the recursión, to do it, uses the debug_backtrace function that returns all information about the execution of the current function, the main idea of this function is to detect in what lines of the backtrace appear the file or the function, and returns the count of times that appear

- @fn => the name of the function or file, can be multiples functions or files separated by a comma

55.6   XML File to Array

```
function xmlfile2array($file, $usecache = true)
```

This function allow to convert a XML file to an array, allow to use cache to optimize repetitive calls of the same file

As an special mention, this function internally uses semaphores to prevent multiple instances of the same execution with the same file, too uses a cache management to optimize the usage

- @file => the file that you want to convert from xml to array
- @usecache => if do you want to enable the cache feature

55.7   XML to Array

```
function xml2array($xml, $file = "")
```

This function allow to convert a XML string to an array

- @xml => xml code to be converted to an array
- @file => filename of the contents, only used when an errors occurs

55.8   XML to Struct

```
function xml2struct($xml, $file = "")
```

This function is a helper of the xml2array function, the main purpose of this function is to convert the xml string into a struct to be processed by the struct2array function

The motivation to use the xml_parse_into_struct function is that this function is the more quick to parse xml files, after a lot of tests, the more quickly execution is to use the xml_parse_into_struct, reverse the array and then program a simple recursive function that convert a unidimensional array into a tree

At the begining of this function, we will try to detect the enconding of the xml file, the main objective is to convert all xml to UTF-8 that is the default enconding of SaltOS

The returned value is the result of the xml_parse_into_struct function, that is the key of this feature and this function

- @xml => xml fragment that must be converted into struct
- @file => the source filename, it is used only to generate error reports

55.9   Struct to Array

```
function struct2array(&$data, $file = "")
```

This function is the second part in the xml2array convertsion, here, the function receives an unidimensional array with commands to open, close, and their respective values and attributes, with this information, this function is able to generate a tree with the xml converted to an array tree

- @data => the struct array, by reference

- @file => the source filename, it is used only to generate error reports

Notes:

This function uses recursivity to accomplish the objetive, returns the portion of xml between the open and close command, in each call, the data array passed by reference will decrement in size because the array_pop removes the last element of the array

Remember that previously of call this function, the array is reversed, this is because is more efficient to do a reverse and then pops instead of use directly the array_shift to get the next element, the reason is that array_shift must to reorder all keys of the resulted array and this add a very big cost if the xml is big, this problem was detected in 2014 and was optimized by add the reverse and the pop instead of only shift

55.10   Eval Attributes

```
function eval_attr($array)
```

This function is very special in SaltOS, is part of the initial code an is used by a lot of parts of the program, currently are using a simplified version of the original function and have improvements that allow to return arrays with attributes without evaluate and without causing an error, this allow to define xml with attributes that can be used by other processes and SaltOS only interpret three attributes

- @array => the array that contains a tree representation of the xml

The three attributes are:

- @global => this attribute allow to SaltOS to prepare what variales must to be global in the eval_protected call

- @eval => this attribute must be a boolean and allow to evaluate the value of the node

- @ifeval => this attribute must contains an expression that must evaluate as true or false, and allow to maintain or remove the entire node thas contains the ifeval attribute, this is usefull when you need a node in some conditions

The great change between the eval_attr of the previous versions of SaltOS is that this version only accepts three internal commands and the other attributes can be maintained in order to be used by other processes (internally or externally)

55.11   Eval Bool

```
function eval_bool($arg)
```

This function returns a boolean depending on the input evaluation, the main idea is to get an string, for example, and determine if must be considered true or false otherwise will finish in an error

The valid inputs are the strings one, zero, void, true, false, on, off, yes and no

- @arg => the value that do you want to evaluates as boolean

56   core/php/autoload/zindex.php

57 core/php/database/libsqlite.php

57.1 About this file

SQLite's database allow to define external functions that can be used from the SQL language, this is a great feature that allow to use SQLite as MySQL, and using this feature of the database, the SQLite drivers use the libsqlite to add a lot of features found in MySQL and used in a lot of queries by SaltOS

More info about this feature by searching:

- @PDO => sqliteCreateFunction/sqliteCreateAggregate
- @SQLite3 => createFunction/createAggregate

57.2 GROUP_CONCAT

```
function __libsqlite_group_concat_step ($context, $rows, $string, $separator
    = ",")
```

This function add the GROUP_CONCAT to the SQLite database

57.3 GROUP_CONCAT

```
function __libsqlite_group_concat_finalize ($context, $rows)
```

This function add the GROUP_CONCAT to the SQLite database

57.4 REPLACE

```
function __libsqlite_replace ($subject, $search, $replace)
```

This function add the REPLACE to the SQLite database

57.5 LPAD

```
function __libsqlite_lpad ($input, $length, $char)
```

This function add the LPAD to the SQLite database

57.6 CONCAT

```
function __libsqlite_concat ()
```

This function add the CONCAT to the SQLite database

57.7 UNIX_TIMESTAMP

```
function __libsqlite_unix_timestamp ($date)
```

This function add the UNIX_TIMESTAMP to the SQLite database

57.8 FROM_UNIXTIME

```
function __libsqlite_from_unixtime ($timestamp)
```

This function add the FROM_UNIXTIME to the SQLite database

57.9 YEAR

```
function __libsqlite_year ($date)
```

This function add the YEAR to the SQLite database

57.10 MONTH

```
function __libsqlite_month ($date)
```

This function add the MONTH to the SQLite database

57.11 WEEK

```
function __libsqlite_week ($date, $mode)
```

This function add the WEEK to the SQLite database

57.12 TRUNCATE

```
function __libsqlite_truncate ($n, $d)
```

This function add the TRUNCATE to the SQLite database

57.13 DAY

```
function __libsqlite_day ($date)
```

This function add the DAY to the SQLite database

57.14 DAYOFYEAR

```
function __libsqlite_dayofyear ($date)
```

This function add the DAYOFYEAR to the SQLite database

57.15 DAYOFWEEK

```
function __libsqlite_dayofweek ($date)
```

This function add the DAYOFWEEK to the SQLite database

57.16 HOUR

```
function __libsqlite_hour ($date)
```

This function add the HOUR to the SQLite database

57.17 MINUTE

```
function __libsqlite_minute ($date)
```

This function add the MINUTE to the SQLite database

57.18 SECOND

```
function __libsqlite_second ($date)
```

This function add the SECOND to the SQLite database

57.19 MD5

```
function __libsqlite_md5 ($temp)
```

This function add the MD5 to the SQLite database

57.20 REPEAT

```
function __libsqlite_repeat ($str, $count)
```

This function add the REPEAT to the SQLite database

57.21 FIND_IN_SET

```
function __libsqlite_find_in_set ($str, $strlist)
```

This function add the FIND_IN_SET to the SQLite database

57.22 IF

```
function __libsqlite_if ($condition, $value_if_true, $value_if_false)
```

This function add the IF to the SQLite database

57.23 POW

```
function __libsqlite_pow($base, $exp)
```

This function add the POW to the SQLite database

57.24 DATE_FORMAT

```
function __libsqlite_date_format($date, $format)
```

This function add the DATE_FORMAT to the SQLite database

57.25 NOW

```
function __libsqlite_now()
```

This function add the NOW to the SQLite database

58 core/php/database/mysqli.php

58.1 Database MySQL improved class

```
class database_mysqli
```

This class allow to SaltOS to connect to MySQL databases using the MySQL improved driver

58.2 Private link variable

```
private $link = null;
```

This private variable contains the link to the database

58.3 Constructor

```
public function __construct($args)
```

This public function is intended to stablish the connection to the database

- @args => is an array with key val pairs
- @host => the host for the connection
- @port => the port used for the connection
- @name => name of the database for the connection
- @user => user used to stablish the connection
- @pass => pass used to stablish the connection

58.4 DB Check

`public function db_check($query)`

This public function is intended to check that the query execution will not trigger an error

- @query => the query that you want to validate

58.5 DB Query

`public function db_query($query, $fetch = "query")`

This public function is intended to execute the query and returns the resultset

- @query => the query that you want to execute
- @fetch => the type of fetch that you want to use, can be auto, query, column or concat

Notes:

The fetch argument can perform an speed up in the execution of the retrieve action, and can modify how the result is returned

auto: this fetch method try to detect if the resultset contains one or more columns, and sets the fetch to column (if the resultset only contains one column) or to query (otherwise)

query: this fetch method returns all resultset as an array of rows, and each row contain the pair of key val with the name of the field and the value of the field

column: this fetch method returns an array where each element is each value of the field of the each row, this is usefull when for example do you want to get all ids of a query, with this method you can obtain an array with each value of the array is an id of the resultset

concat: this fetch method is an special mode intended to speed up the retrieve of large arrays, this is usefull when you want to get all ids of a query and you want to get a big sized array, in this case, is more efficient to get an string separated by commas with all ids instead of an array where each element is an id

58.6 DB Disconnect

`public function db_disconnect()`

This function close the database connection and sets the link to null

59 core/php/database/pdo_mssql.php

59.1 Database PDO MsSQL class

`class database_pdo_mssql`

This class allow to SaltOS to connect to MsSQL databases using the PDO driver

59.2 Private link variable

```
private $link = null;
```

This private variable contains the link to the database

59.3 Constructor

```
public function __construct($args)
```

This public function is intended to stablish the connection to the database

- @args => is an array with key val pairs
- @host => the host for the connection
- @port => the port used for the connection
- @name => name of the database for the connection
- @user => user used to stablish the connection
- @pass => pass used to stablish the connection

59.4 DB Check

```
public function db_check($query)
```

This public function is intended to check that the query execution will not trigger an error

- @query => the query that you want to validate

59.5 DB Query

```
public function db_query($query, $fetch = "query")
```

This public function is intended to execute the query and returns the resultset

- @query => the query that you want to execute
- @fetch => the type of fetch that you want to use, can be auto, query, column or concat

Notes:

The fetch argument can perform an speed up in the execution of the retrieve action, and can modify how the result is returned

auto: this fetch method try to detect if the resultset contains one or more columns, and sets the fetch to column (if the resultset only contains one column) or to query (otherwise)

query: this fetch method returns all resultset as an array of rows, and each row contain the pair of key val with the name of the field and the value of the field

column: this fetch method returns an array where each element is each value of the field of the each row, this is usefull when for example do you want to get all ids of a query, with this method you can obtain an array with each value of the array is an id of the resultset

concat: this fetch method is an special mode intended to speed up the retrieve of large arrays, this is usefull when you want to get all ids of a query and you want to get a big sized array, in this case, is more efficient to get an string separated by commas with all ids instead of an array where each element is an id

59.6   DB Disconnect

`public function db_disconnect()`

This function close the database connection and sets the link to null

60   core/php/database/pdo_mysql.php

60.1   Database PDO MySQL class

`class database_pdo_mysql`

This class allow to SaltOS to connect to MySQL databases using the PDO driver

60.2   Private link variable

`private $link = null;`

This private variable contains the link to the database

60.3   Constructor

`public function __construct($args)`

This public function is intended to stablish the connection to the database

- @args => is an array with key val pairs
- @host => the host for the connection
- @port => the port used for the connection
- @name => name of the database for the connection
- @user => user used to stablish the connection
- @pass => pass used to stablish the connection

60.4   DB Check

`public function db_check($query)`

This public function is intended to check that the query execution will not trigger an error

- @query => the query that you want to validate

60.5   DB Query

```
public function db_query ( $query ,   $fetch = " query " )
```

This public function is intended to execute the query and returns the resultset

- @query => the query that you want to execute

- @fetch => the type of fetch that you want to use, can be auto, query, column or concat

Notes:

The fetch argument can perform an speed up in the execution of the retrieve action, and can modify how the result is returned

auto: this fetch method try to detect if the resultset contains one or more columns, and sets the fetch to column (if the resultset only contains one column) or to query (otherwise)

query: this fetch method returns all resultset as an array of rows, and each row contain the pair of key val with the name of the field and the value of the field

column: this fetch method returns an array where each element is each value of the field of the each row, this is usefull when for example do you want to get all ids of a query, with this method you can obtain an array with each value of the array is an id of the resultset

concat: this fetch method is an special mode intended to speed up the retrieve of large arrays, this is usefull when you want to get all ids of a query and you want to get a big sized array, in this case, is more efficient to get an string separated by commas with all ids instead of an array where each element is an id

60.6   DB Disconnect

```
public function db_disconnect ( )
```

This function close the database connection and sets the link to null

61   core/php/database/pdo_sqlite.php

61.1   Database PDO SQLite class

```
class database_pdo_sqlite
```

This class allow to SaltOS to connect to SQLite databases using the PDO driver

61.2   Private link variable

```
private $link = null ;
```

This private variable contains the link to the database

61.3   Constructor

```
public function __construct ( $args )
```

This public function is intended to stablish the connection to the database

- @args => is an array with key val pairs
- @file => the file that contains the database

Notes:

This database allow to define external functions that can be used from the SQL language, this is a great feature that allow to use SQLite as MySQL, and using this feature of the database, this driver uses the libsqlite to add a lot of features found in MySQL and used in a lot of queries by SaltOS

61.4   DB Check

```
public function db_check($query)
```

This public function is intended to check that the query execution will not trigger an error

- @query => the query that you want to validate

61.5   DB Query

```
public function db_query($query, $fetch = "query")
```

This public function is intended to execute the query and returns the resultset

- @query => the query that you want to execute
- @fetch => the type of fetch that you want to use, can be auto, query, column or concat

Notes:

The fetch argument can perform an speed up in the execution of the retrieve action, and can modify how the result is returned

auto: this fetch method try to detect if the resultset contains one or more columns, and sets the fetch to column (if the resultset only contains one column) or to query (otherwise)

query: this fetch method returns all resultset as an array of rows, and each row contain the pair of key val with the name of the field and the value of the field

column: this fetch method returns an array where each element is each value of the field of the each row, this is usefull when for example do you want to get all ids of a query, with this method you can obtain an array with each value of the array is an id of the resultset

concat: this fetch method is an special mode intended to speed up the retrieve of large arrays, this is usefull when you want to get all ids of a query and you want to get a big sized array, in this case, is more efficient to get an string separated by commas with all ids instead of an array where each element is an id

61.6   DB Disconnect

```
public function db_disconnect()
```

This function close the database connection and sets the link to null

62 core/php/database/sqlite3.php

62.1 Database SQLite3 class

```
class database_sqlite3
```

This class allow to SaltOS to connect to SQLite databases using the SQLite3 driver

62.2 Private link variable

```
private $link = null;
```

This private variable contains the link to the database

62.3 Constructor

```
public function __construct($args)
```

This public function is intended to stablish the connection to the database

- @args => is an array with key val pairs
- @file => the file that contains the database

Notes:

This database allow to define external functions that can be used from the SQL language, this is a great feature that allow to use SQLite as MySQL, and using this feature of the database, this driver uses the libsqlite to add a lot of features found in MySQL and used in a lot of queries by SaltOS

62.4 DB Check

```
public function db_check($query)
```

This public function is intended to check that the query execution will not trigger an error

- @query => the query that you want to validate

62.5 DB Query

```
public function db_query($query, $fetch = "query")
```

This public function is intended to execute the query and returns the resultset

- @query => the query that you want to execute
- @fetch => the type of fetch that you want to use, can be auto, query, column or concat

Notes:

The fetch argument can perform an speed up in the execution of the retrieve action, and can modify how the result is returned

auto: this fetch method try to detect if the resultset contains one or more columns, and sets the fetch to column (if the resultset only contains one column) or to query (otherwise)

query: this fetch method returns all resultset as an array of rows, and each row contain the pair of key val with the name of the field and the value of the field

column: this fetch method returns an array where each element is each value of the field of the each row, this is usefull when for example do you want to get all ids of a query, with this method you can obtain an array with each value of the array is an id of the resultset

concat: this fetch method is an special mode intended to speed up the retrieve of large arrays, this is usefull when you want to get all ids of a query and you want to get a big sized array, in this case, is more efficient to get an string separated by commas with all ids instead of an array where each element is an id

62.6 DB Disconnect

```
public function db_disconnect()
```

This function close the database connection and sets the link to null

63 core/js/app.js

63.1 Show error helper

```
saltos.show_error = error
```

This function allow to show a modal dialog with de details of an error

63.2 Send request helper

```
saltos.send_request = data
```

This function allow to send requests to the server and process the response

63.3 Process response helper

```
saltos.process_response = response
```

This function process the responses received by the send request

63.4 Form constructor helper object

```
saltos.form_app = {};
```

This object allow to the constructor to use a rational structure for a quick access of each helper

63.5 Data helper object

```
saltos.__form_app = {
```

This object allow to the app to store the data of the fields map

63.6 Form data helper

```
saltos.form_app.data = data
```

This function sets the values of the request to the objects placed in the document

63.7 Form layout helper

```
saltos.form_app.layout = (layout, extra)
```

This function process the layout command, its able to process nodes as container, row, col and div and all form_field defined in the bootstrap file, too have 2 modes of work:

1) normal mode => requires that the user specify all layout, container, row, col and fields.

2) auto mode => only requires set auto="true" to the layout node, and with this, all childrens of the node are created inside a container, a row, and each field inside a col.

63.8 Form style helper

```
saltos.form_app.style = data
```

This function allow to specify styles, you can use the inline of file key to specify what kind of usage do you want to do.

63.9 Form javascript helper

```
saltos.form_app.javascript = data
```

This function allow to specify scripts, you can use the inline of file key to specify what kind of usage do you want to do.

63.10 Hash change management

```
window.onhashchange = event
```

This function allow to SaltOS to update the contents when hash change

63.11 Loading helper

```
saltos.loading = on_off
```

This function adds and removes the spinner to emulate the loading effect screen

- @on_off => if you want to show or hide the loading spinner, the function returns true when can do the action, false otherwise

63.12 Clear Screen

```
saltos.clear_screen = ()
```

This function remove all contents of the body

63.13 Source helper

```
saltos.__source_helper = field
```

This function is intended to provide an asynchronous sources for a field, using the source attribute, you can program an asynchronous ajax request to retrieve the data used to create the field. * This function is used in the fields of type table, alert, card and chartjs, the call of this function is private and is intended to be used as a helper from the builders of the previous types opening another way to pass arguments.

- @id => the id used to set the reference for to the object

- @type => the type used to set the type for to the object

- @source => data source used to load asynchronously the contents of the table (header, data, footer and divider)

Notes:

In some cases, the response for a source request can be an object that represents an xml node with attributes and values, as for the example, the widget/2 used in the app.php, that returns an array with all contents of the widget in the value entry and another entry used for the #attr that only contains the id used to select the widget in the app.php, is this case, the unique data that we want to use here is the contents of the value, and for this reason, the response is filtered to use only the value key in the case of existence of the #attr and value keys

63.14 Main code

This is the code that must to be executed to initialize all requirements of this module

64 core/js/bootstrap.js

64.1 Form fields constructor

```
saltos.form_field = field
```

This function and their helpers, allow the creation of the interface using the bootstrap widgets, the types that can be called are the follow:

- @div => id, class, style
- @container => id, class, style

- @row => id, class, style

- @col => id, class, style

- @text => id, class, placeholder, value, disabled, readonly, required, datalist, tooltip, label

- @hidden => id, class, placeholder, value, disabled, readonly, required, tooltip

- @integer => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @float => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @color => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @date => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @time => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @datetime => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @textarea => id, class, placeholder, value, disabled, readonly, required, rows, tooltip, label

- @ckeditor => id, class, placeholder, value, disabled, readonly, required, rows, label

- @codemirror => id, class, placeholder, value, disabled, readonly, required, rows, mode, label

- @iframe => value, id, class, height, tooltip, label

- @select => id, class, disabled, required, rows, multiple, size, value, tooltip, label

- @multiselect => id, class, disabled, required, rows, multiple, size, value, multiple, tooltip, label

- @checkbox => id, class, disabled, readonly, label, value, tooltip

- @switch => id, class, disabled, readonly, label, value, tooltip

- @button => id, class, disabled, value, onclick, tooltip

- @password => id, class, placeholder, value, disabled, readonly, required, tooltip, label

- @file => id, class, disabled, required, multiple, tooltip, label

- @link => id, disabled, value, onclick, tooltip, label

- @label => id, class, label, tooltip, value

- @image => id, class, value, alt, tooltip, label

- @excel => id, class, data, rowHeaders, colHeaders, minSpareRows, contextMenu, rowHeaderWidth, colWidths, label

- @pdfjs => id, class, value, label

- @table => id, class, header, data, footer, divider, value, label

- @alert => id, class, title, text, body, value, label

- @card => id, image, alt, header, footer, title, text, body, value, label

- @chartjs => id, mode, data, value, label

- @tags => id, class, placeholder, value, disabled, readonly, required, datalist, tooltip, label

- @gallery => id, class, label, images

- @placeholder => id

Notes:

The saltos. form_field object is part of this constructor and act with the constructor as a helper, the idea is that the user must to call the constructor and the helpers are only for internal use.

64.2 Form_field constructor helper object

```
saltos.__form_field = {};
```

This object allow to the constructor to use a rational structure for a quick access of each helper

64.3 Div constructor helper

```
saltos.__form_field.div = field
```

This function returns an object of the type class by default, you can pass the class argument in the field object to specify what kind of class do you want to use.

- @id => the id used by the object
- @class => the class used in the div object
- @style => the style used in the div object

64.4 Container constructor helper

```
saltos.__form_field.container = field
```

This function returns an object of the container-fluid class by default, you can pass the class argument in the field object to specify what kind of container do you want to do.

- @id => the id used by the object
- @class => the class used in the div object
- @style => the style used in the div object

64.5 Row constructor helper

```
saltos.__form_field.row = field
```

This function returns an object of the row class by default, you can pass the class argument in the field object to specify what kind of row do you want to do.

- @id => the id used by the object
- @class => the class used in the div object
- @style => the style used in the div object

64.6 Col constructor helper

```
saltos.__form_field.col = field
```

This function returns an object of the col class by default, you can pass the class argument in the field object to specify what kind of col do you want to do.

- @id => the id used by the object
- @class => the class used in the div object
- @style => the style used in the div object

64.7 Text constructor helper

```
saltos.__form_field.text = field
```

This function returns an input object of type text, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label
- @datalist => array with options for the datalist, used as autocomplete for the text input

64.8 Hidden constructor helper

```
saltos.__form_field.hidden = field
```

This function returns an input object of type hidden, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag

Notes:

This function allow the previous parameters but for hidden inputs, only id and value are usually used, in some cases can be interesting to use the class to identify a group of hidden input

64.9 Integer constructor helper

```
saltos.__form_field.integer = field
```

This function returns an input object of type integer, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

64.10 Float constructor helper

```
saltos.__form_field.float = field
```

This function returns an input object of type float, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

64.11 Color constructor helper

```
saltos.__form_field.color = field
```

This function returns an input object of type color, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

Notes:

Ths color input launch a warning if value is not in the format #rrggbb, for this reason it is set to #000000 if value is void

64.12 Date constructor helper

```
saltos.__form_field.date = field
```

This function returns an input object of type date, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

64.13 Time constructor helper

```
saltos.__form_field.time = field
```

This function returns an input object of type time, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

64.14 Datetime constructor helper

```
saltos.__form_field.datetime = field
```

This function returns an input object of type datetime, you can pass the same arguments that for the input object of type text

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @style => the style used in the div object
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

64.15 Textarea constructor helper

```
saltos.__form_field.textarea = field
```

This function returns a textarea object with the autogrow plugin enabled

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @required => this parameter raise the required flag

- @tooltip => this parameter raise the title flag

- @rows => the number used as rows parameter

- @label => this parameter is used as text for the label

64.16   Ckeditor constructor helper

`saltos.__form_field.ckeditor = field`

This function returns a textarea object with the ckeditor plugin enabled

- @id => the id used by the object

- @class => allow to add more classes to the default form-control

- @placeholder => the text used as placeholder parameter

- @value => the value used as value parameter

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @required => this parameter raise the required flag

- @tooltip => this parameter raise the title flag

- @rows => the number used as rows parameter

- @label => this parameter is used as text for the label

64.17   Codemirror constructor helper

`saltos.__form_field.codemirror = field`

This function returns a textarea object with the codemirror plugin enabled

- @mode => used to define the mode parameter of the codemirror

- @id => the id used by the object

- @class => allow to add more classes to the default form-control

- @placeholder => the text used as placeholder parameter

- @value => the value used as value parameter

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @required => this parameter raise the required flag

- @tooltip => this parameter raise the title flag

- @rows => the number used as rows parameter

- @label => this parameter is used as text for the label

64.18 Iframe constructor helper

```
saltos.__form_field.iframe = field
```

This function returns an iframe object, you can pass the follow arguments:

- @id => the id used by the object
- @value => the value used as src parameter
- @class => allow to add more classes to the default form-control
- @height => the height used as height for the style parameter
- @label => this parameter is used as text for the label

64.19 Select constructor helper

```
saltos.__form_field.select = field
```

This function returns a select object, you can pass the follow arguments:

- @id => the id used by the object
- @class => allow to add more classes to the default form-select
- @disabled => this parameter raise the disabled flag
- @required => this parameter raise the required flag
- @multiple => this parameter enables the multiple selection feature of the select
- @size => this parameter allow to see the options list opened with n (size) entries
- @value => the value used to detect the selected option
- @tooltip => this parameter raise the title flag
- @rows => this parameter contains the list of options, each option must be an object with label and value entries
- @label => this parameter is used as text for the label

64.20 Multiselect constructor helper

```
saltos.__form_field.multiselect = field
```

This function returns a multiselect object, you can pass the follow arguments:

- @id => the id used by the object
- @class => allow to add more classes to the default form-select
- @disabled => this parameter raise the disabled flag
- @size => this parameter allow to see the options list opened with n (size) entries
- @value => the value used as src parameter

- @tooltip => this parameter raise the title flag

- @rows => this parameter contains the list of options, each option must be an object with label and value entries

- @label => this parameter is used as text for the label

Notes:

This widget is created joinin 2 selects and 2 buttons, the user must get the value using the hidden input that is builded using the original id passed by argument.

TODO: detected a bug with this widget in chrome in mobile browsers

64.21 Checkbox constructor helper

```
saltos.__form_field.checkbox = field
```

This function returns a checkbox object, you can pass the follow arguments:

- @id => the id used by the object

- @class => allow to add more classes to the default form-check

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @label => this parameter is used as label for the checkbox

- @value => this parameter is used to check or unckeck the checkbox, the value must contain a number that raise as true or false in the if condition

- @tooltip => this parameter raise the title flag

Notes:

This widget returns their value by setting a zero or one (0/1) value on the value of the input.

64.22 Switch constructor helper

```
saltos.__form_field.switch = field
```

This function returns a switch object, you can pass the follow arguments:

- @id => the id used by the object

- @class => allow to add more classes to the default form-check and form-switch

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @label => this parameter is used as label for the switch

- @value => this parameter is used to check or unckeck the switch, the value must contain a number that raise as true or false in the if condition

- @tooltip => this parameter raise the title flag

Notes:

This widget uses the checkbox constructor

64.23   Button constructor helper

```
saltos.__form_field.button = field
```

This function returns a button object, you can pass the follow arguments:

- @id => the id used by the object
- @class => allow to add more classes to the default form-select
- @disabled => this parameter raise the disabled flag
- @value => value to be used as text in the contents of the buttons
- @onclick => callback function that is executed when the button is pressed
- @tooltip => this parameter raise the title flag

Notes:

You can add an icon before the text by addind the bi-icon class to the class argument

64.24   Password constructor helper

```
saltos.__form_field.password = field
```

This function returns an input object of type password, you can pass some arguments as:

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @placeholder => the text used as placeholder parameter
- @value => the value used as value parameter
- @disabled => this parameter raise the disabled flag
- @readonly => this parameter raise the readonly flag
- @required => this parameter raise the required flag
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

Notes:

This widget add an icon to the end of the widget with an slashed eye, this allow to see the entered password to verify it, in reality, this button swaps the input between password and text type, allowing to do visible or not the contents of the input

This widgets have a problem with the password managers of the browser that convert the previous field of this to a pair of login/password fields and autocomplete they with default values, to fix it, I'm using two tricks:

1) add the input of type=text with the display: none to fix the bug in firefox 2) add the autocomplete="new-password" to fix the problem in chrome browsers

I'm using previousElementSibling instead of previousSibling because between the input and the button, exists a new line that is identified as another previousSibling, but not as an element

64.25 File constructor helper

```
saltos.__form_field.file = field
```

This function returns an input object of type password, you can pass some arguments as:

- @id => the id used by the object
- @class => allow to add more classes to the default form-control
- @disabled => this parameter raise the disabled flag
- @required => this parameter raise the required flag
- @multiple => this parameter raise the multiple flag, intended to select more files at time
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

Notes:

This control allow to select file from the tradicional input, and automatically, send it to the server using the addfiles action, add a row in the widget's table to show information about the new file and allow too to delete it using the trash button.

To get the data, the controls store each file information in each added row of the table and in addition, too join all information in a data structure of the input of type file.

The difference between this control and the older controls is that they send the files to the server and store the information related to the file on the server to be processed after the real upload action.

64.26 Link constructor helper

```
saltos.__form_field.link = field
```

This function creates a field similar of text but with the appearance of a link using a button, the object can receive the follow arguments:

- @label => this parameter is used as text for the label
- @id => the id used by the object
- @disabled => this parameter raise the disabled flag
- @value => the value is conveted as label to be used in the button with the appearance of a link
- @onclick => callback function that is executed when the button is pressed

Notes:

This object is not a real link, it's a button that uses the btn-link class to get the link appearance

64.27 Label constructor helper

```
saltos.__form_field.label = field
```

This function returns a label object, you can pass some arguments as:

- @id => the id used to set the reference for to the object
- @class => allow to add more classes to the default form-label
- @label => this parameter is used as text for the label
- @tooltip => this parameter raise the title flag
- @value => this parameter is used as label when label is void

64.28 Image constructor helper

```
saltos.__form_field.image = field
```

This function returns an image object, you can pass some arguments as:

- @id => the id used to set the reference for to the object
- @class => allow to add more classes to the default img-fluid
- @value => the value used as src parameter
- @alt => this parameter is used as text for the alt parameter
- @tooltip => this parameter raise the title flag
- @label => this parameter is used as text for the label

64.29 Excel constructor helper

```
saltos.__form_field.excel = field
```

This function creates and returns an excel object, to do this they use the handsontable library, currently this library uses a privative license, by this reason, we are using the version 6.2.2 that is the latest release published using the MIT license.

This widget can receive the following arguments:

- @id => the id used to set the reference for to the object
- @class => allow to set the class to the div object used to allocate the widget
- @data => this parameter must contain a 2D matrix with the data that you want to show in the sheet
- @rowHeaders => can be an array with the headers that you want to use instead the def numbers
- @colHeaders => can be an array with the headers that you want to use instead the def letters
- @minSpareRows => can be a number with the void rows at the end of the sheet
- @contextMenu => can be a boolean with the desired value to allow or not the provided context menu of the widget
- @rowHeaderWidth => can be a number with the width of the headers rows
- @colWidths => can be an array with the widths of the headers cols
- @label => this parameter is used as text for the label

Notes:

You can get the values after to do changes by accessing to the data of the div used to create the widget.

64.30 Pdfjs constructor helper

```
saltos.__form_field.pdfjs = field
```

This function creates and returns a pdfviewer object, to do this they use the pdf.js library.

- @id => the id used to set the reference for to the object
- @class => allow to set the class to the div object used to allocate the widget
- @value => the file or data that contains the pdf document
- @label => this parameter is used as text for the label

64.31 Table constructor helper

```
saltos.__form_field.table = field
```

Returns a table using the follow params:

- @id => the id used to set the reference for to the object
- @class => allow to add more classes to the default table table-striped table-hover
- @header => array with the header to use
- @data => 2D array with the data used to mount the body table
- @footer => array with the footer to use
- @divider => array with three booleans to specify to add the divider in header, body and/or footer
- @checkbox => add a checkbox at the first of each row, for mono or multi selection
- @actions => each row of the data can contain an array with the actions of each row
- @label => this parameter is used as text for the label

Notes:

This function defines the yellow color used for the hover and active rows.

The header field can be an array with the labels of each field or can be an object with pairs of key and val to identify with the key the name of the field and with the val the label to be used in the field, this is used when the data contains more fields that the desired fields, for example, to store the id used in the str_replace

64.32 Alert constructor helper

```
saltos.__form_field.alert = field
```

This component allow to set boxes type alert in the contents, only requires:

- @id => the id used to set the reference for to the object
- @class => allow to add more classes to the default alert
- @title => title used in the body of the card, not used if void

- @text => text used in the body of the card, not used if void

- @body => this option allow to specify an specific html to the body of the card, intended to personalize the body's card

- @close => boolean to specify if you want to add the dismissible option to the alert

- @label => this parameter is used as text for the label

Note:

I have added the dismissible option using the close attribute, too I have added a modification for the style to allow the content to use the original size of the alert, in a future, I don't know if I maintain this or I remove it, but at the moment, this is added by default

64.33 Card constructor helper

```
saltos.__form_field.card = field
```

This functions creates a card with a lot of options:

- @id => the id used to set the reference for to the object

- @image => image used as top image in the card, not used if void

- @alt => alt text used in the top image if you specify an image

- @header => text used in the header, not used if void

- @footer => text used in the footer, not used if void

- @title => title used in the body of the card, not used if void

- @text => text used in the body of the card, not used if void

- @body => this option allow to specify an specific html to the body of the card, intended to personalize the body's card

- @label => this parameter is used as text for the label

64.34 Chart.js constructor helper

```
saltos.__form_field.chartjs = field
```

This function creates a chart using the chart.js library, to do this requires de follow arguments:

- @id => the id used by the object

- @mode => to specify what kind of plot do you want to do: can be bar, line, doughnut, pie

- @data => the data used to plot the graph, see the data argument used by the graph.js library

- @label => this parameter is used as text for the label

Notes:

To be more practice and for stetic reasons, I'm adding to all datasets the borderWidth = 1

64.35 Tags constructor helper

```
saltos.__form_field.tags = field
```

This function creates a text input that allow to manage tags, each tag is paint as a badge and each tag can be deleted, the result is stored in a text using a comma separated values

- @id => the id used by the object

- @value => comma separated values

- @datalist => array with options for the datalist, used as autocomplete for the text input

- @label => this parameter is used as text for the label

- @class => allow to add more classes to the default form-control

- @style => the style used in the div object

- @placeholder => the text used as placeholder parameter

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @required => this parameter raise the required flag

- @tooltip => this parameter raise the title flag

Notes:

This object creates a hidden input, a text input with/without a datalist, and a badge for each value, and requires the arguments of the specific widgets used in this widget

64.36   Gallery constructor helper

```
saltos.__form_field.gallery = field
```

This function returns a gallery object, you can pass some arguments as:

- @id => the id used to set the reference for to the object

- @class => allow to add more classes to the default img-fluid

- @label => this parameter is used as text for the label

- @images => the array with images, each image can be an string or object

64.37   Placeholder helper

```
saltos.__form_field.placeholder = field
```

This function returns a grey area that uses all space with the placeholder glow effect

- @id => id used in the original object, it must be replaced when the data will be available

64.38   Private text constructor helper

```
saltos.__text_helper = field
```

This function returns an input object of type text, you can pass some arguments as:

- @id => the id used by the object

- @class => allow to add more classes to the default form-control

- @style => the style used in the div object

- @placeholder => the text used as placeholder parameter

- @value => the value used as value parameter

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @required => this parameter raise the required flag

- @tooltip => this parameter raise the title flag

Notes:

This function is intended to be used by other helpers of the form_field constructor

64.39 Private textarea constructor helper

```
saltos.__textarea_helper = field
```

This function returns a textarea object, you can pass the follow arguments:

- @id => the id used by the object

- @class => allow to add more classes to the default form-control

- @placeholder => the text used as placeholder parameter

- @value => the value used as value parameter

- @disabled => this parameter raise the disabled flag

- @readonly => this parameter raise the readonly flag

- @required => this parameter raise the required flag

- @tooltip => this parameter raise the title flag

- @rows => the number used as rows parameter

Notes:

This function is intended to be used by other helpers of the form_field constructor

64.40 Private tooltip constructor helper

```
saltos.__tooltip_helper = obj
```

This function is intended to enable the tooltip in the object, too it try to do some extra features: program that only show the tooltip when hover and hide when will get the focus or get the click event

- @obj => the object that you want to enable the tooltip feature

64.41 Label helper

```
saltos.__label_helper = field
```

This function is a helper for label field, it is intended to returns the label object or a void string, this is because if no label is present in the field argument, then an empty string is returned, in the reception of the result, generally this is added to an object and it is ignored because an empty string is not an element, this thing is used by the optimizer to removes the unnecessary envelopment

- @field => the field that contains the label to be added if needed

64.42   Label Combine

```
saltos.__label_combine = ( field , old )
```

This function combine the label with the object, to do it, tries to create a new container object to put the label and the passed object, and then tries to optimize to detect if the label is void

- @field => the field that contains the label
- @old => the object

Notes:

This function acts as helper to add a label by the constructors that not implement any specific label container, in the other cases, each constructor must to implement their code because each case is different

64.43   Menu constructor helper

```
saltos.menu = args
```

This function creates a menu intended to be used in navbar, nabs and tabs

- @class => the class used in the main ul element
- @menu => an array with the follow elements:
- @name => name of the menu
- @disabled => this boolean allow to disable this menu entry
- @active => this boolean marks the option as active
- @onclick => the callback used when the user select the menu
- @dropdown_menu_end => this trick allow to open the dropdown menu from the end to start
- @menu => with this option, you can specify an array with the contents of the dropdown menu
- @name => name of the menu
- @disabled => this boolean allow to disable this menu entry
- @active => this boolean marks the option as active
- @onclick => the callback used when the user select the menu
- @divider => you can set this boolean to true to convert the element into a divider

64.44   Navbar constructor helper

```
saltos.navbar = args
```

This component creates a navbar intended to be used as header

- @id => the id used by the object

- @brand => contains an object with the name, logo, width and height to be used

- @name => text used in the brand

- @logo => filename of the brand image

- @width => width of the brand image

- @height => height of the brand image

- @items => contains an array with the objects that will be added to the collapse

64.45   Modal constructor helper object

```
saltos.__modal = {};
```

This object is used to store the element and the instance of the modal

64.46   Modal constructor helper

```
saltos.modal = args
```

This function creates a bootstrap modal and open it, offers two ways of usage:

1) you can pass an string to get a quick action

- @close => this string close the current modal

- @isopen => this string is used to check if some modal is open at the moment

2) you can pass an object with the follow items, intended to open a new modal

- @id => the id used by the object

- @class => allow to add more classes to the default dialog

- @title => title used by the modal

- @close => text used in the close button for aria purposes

- @body => the content used in the modal's body

- @footer => the content used in the modal's footer

- @static => forces the modal to be static (prevent close by clicking outside the modal or by pressing the escape key)

Returns a boolean that indicates if the modal can be open or not

Notes:

This modal will be destroyed (instance and element) when it closes, too is important to undestand that only one modal is allowed at each moment.

64.47 Offcanvas constructor helper object

```
saltos.__offcanvas = {};
```

This object is used to store the element and the instance of the offcanvas

64.48 Offcanvas constructor helper

```
saltos.offcanvas = args
```

This function creates a bootstrap offcanvas and open it, offers two ways of usage:

1) you can pass an string to get a quick action

- @close => this string close the current modal

- @isopen => this string is used to check if some modal is open at the moment

2) you can pass an object with the follow items, intended to open a new modal

- @id => the id used by the object

- @class => allow to add more classes to the default offcanvas

- @title => title used by the offcanvas

- @close => text used in the close button for aria purposes

- @body => the content used in the offcanvas's body

- @static => forces the offcanvas to be static (prevent close by clicking outside the offcanvas or by pressing the escape key)

Returns a boolean that indicates if the offcanvas can be open or not

Notes:

This offcanvas will be destroyed (instance and element) when it closes, too is important to undestand that only one offcanvas is allowed at each moment.

64.49 Toast constructor helper

```
saltos.toast = args
```

This function creates a bootstrap toast and show it, and can accept the follow params:

- @id => the id used by the object

- @class => allow to add more classes to the default toast

- @title => title used by the toast

- @subtitle => small text used by the toast

- @close => text used in the close button for aria purposes

- @body => the content used in the toast's body

Returns a boolean that indicates if the toast can be created (see the hash note)

Notes:

The toast will be destroyed (instance and element) when it closes.

All toasts are added to a toast-container placed in the body of the document, this container is created automatically if it not exists when the first toast need it.

Each toast includes a hash to prevent the creation of repeated toasts.

65 core/js/core.js

65.1 Main object

```
var saltos = saltos || {};
```

This object contains all SaltOS code

65.2 Error management

```
window.onerror = (event, source, lineno, colno, error)
```

This function allow to SaltOS to log in server the javascript errors produced in the client's browser

65.3 Log management

```
saltos.addlog = msg
```

This function allow to send messages to the addlog of the server side, requires an argument:

- @msg => the message that do you want to log on the server log file

65.4 Check params

```
saltos.check_params = (obj, params, value)
```

This function allow to prepare parameters to be used by other functions, the main idea is that the other functions can access to properties of an object without getting errors caused by the nonexistence, to do this, checks for the existence of all params in the obj and if some param is not found, then define it using the default value passed:

- @obj => the object that contains the arguments, for example
- @params => an array with the arguments that must to exists
- @value => the default value used if an argument doesn't exists

65.5 UniqID

```
saltos.uniqid = ()
```

This function generates an unique id formed by the word "id" and a number that can take values between 0 and 999999, useful when some widget requires an id and the user don't provide it to the widget constructor

65.6 When visible

```
saltos.when_visible = (obj, fn, args)
```

This function allow to execute some code when the object is visible, useful for third part widgets as ckeditor or codemirror that requires a rendered environemt to initialize their code and paint the widget correctly

- @obj => the object that do you want to monitorize the visibility
- @fn => the callback that you want to execute
- @args => the arguments passed to the callback when execute it

65.7 Get keycode

```
saltos.get_keycode = event
```

This function allow to get the keycode of a keyboard event detecting the browser

- @event => the event that contains the keyboard data

65.8 HTML builder

```
saltos.html = (...args)
```

This function allow to create an DOM fragment from a string that contains html code, can work with one or two arguments:

- @type => the type used when create the container element
- @html => contains the html code that you want to use as template

The main use is only using the html argument and omiting the type, in this case, the type used will be a div, but if you want to create a fragment of object, for example as tr or td, you need to specify that the coontainer type used to create the objects must to be a table or tr, is you don't specify the type, the div container creates a breaked portion of the element and they don't works as expected because the DOM builded is bad, you can see this problem in action when work with tables and try to create separate portions of the table as trs or tds.

65.9 AJAX

```
saltos.ajax = args
```

This function allow to use ajax using the same form that with jQuery without jQuery

- @url => url of the ajax call
- @data => data used in the body of the request
- @method => the method of the request (can be GET or POST, GET by default)
- @success => callback function for the success action (optional)
- @error => callback function for the error action (optional)
- @progress => callback function to monitorize the progress of the upload/download (optional)

- @async => boolean to use the ajax call asynchronously or not, by default is true

- @content_type => the content-type that you want to use in the transfer

- @headers => an object with the headers that you want to send

The main idea of this function is to abstract the usage of the XMLHttpRequest in a simple way as jQuery do but without using jQuery.

65.10   Key cleaner

```
saltos.fix_key = arg
```

This function is intended to fix the keys of the objects, this is caused because you can not have 2 repeated keys in an object, to have more entries with the same name, SaltOS add a suffix by adding #num, with this trick, SaltOS is able to process XML files with the same node name and convert it to an array structure, and when convert this to json, the same problem appear and for this reason, exists this function here

- @arg => can be an string or an array of strings and returns the same structure with the keys fixed

65.11   Open window

```
saltos.open = url
```

This function is intended to open new tabs in the window, at the moment only is a wrapper to the window.open but in a future, can add more features

- @url => the url of the page to load

65.12   Copy object

```
saltos.copy_object = arg
```

This function is intended to do copies of objects using as intermediate a json file

- @arg => the object that you want to copy

65.13   Optimizer object

```
saltos.optimize = obj
```

This function checks an object to see if only contains one children and in this case, returns directly the children instead of the original object, otherwise nothing to do and returns the original object

- @obj => the object to check and optimize