

# **TYP03 Version 9.4 – What's New**

Summary of the new features, changes and improvements

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# TYPO3 Version 9.4 – What's New

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Introduction

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## Introduction

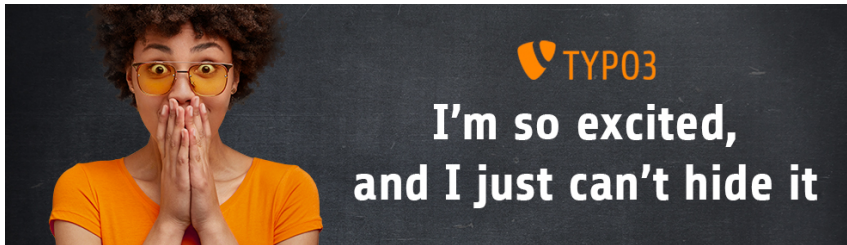
## The Facts

# Introduction

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## TYPO3 Version 9.4 – The Facts

- Release date: 04 September 2018
- Release type: Sprint Release



# Introduction

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## System Requirements

- PHP version 7.2 or higher
- PHP settings:
  - `memory_limit`  $\geq$  256M
  - `max_execution_time`  $\geq$  240s
  - `max_input_vars`  $\geq$  1500
  - compilation option `--disable-ipv6` must not be used
- Most database servers supported by **Doctrine DBAL** also work with TYPO3. Tested DB engines are for example:

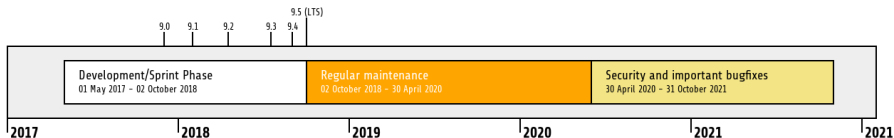


# Introduction

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## Development, Release and Maintenance Timeline

### TYPO3 v9



### Extended Support

The [TYPO3 GmbH](#) offers further support options for TYPO3 v9 LTS even after 31 October 2021 for up to two additional years.

# Introduction

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## TYPO3 v9 Roadmap

Release dates and their primary focus:

- v9.0 12/Dec/2017 Install Tool and Page Tree Refactoring, Unified Page Translations
- v9.1 30/Jan/2018 Redirect Handling
- v9.2 10/Apr/2018 Site Handling
- v9.3 12/Jun/2018 SEO and URL Routing Preparations
- v9.4 04/Sep/2018 URL Routing for Pages
- v9.5 02/Oct/2018 LTS Release

<https://typo3.org/article/typo3-v9-roadmap/>

<https://typo3.org/cms/roadmap/>

# Introduction

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## Installation

- Official *classic* installation procedure under Linux/Mac OS X (DocumentRoot for example `/var/www/site/htdocs`):

```
$ cd /var/www/site
$ wget --content-disposition get.typo3.org/9.4
$ tar xzf typo3_src-9.4.0.tar.gz
$ cd htdocs
$ ln -s ../typo3_src-9.4.0 typo3_src
$ ln -s typo3_src/index.php
$ ln -s typo3_src/typo3
$ touch FIRST_INSTALL
```

- Symbolic links under Microsoft Windows:
  - Use junction under Windows XP/2000
  - Use `mklink` under Windows Vista and Windows 7 and higher



# Introduction

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## Installation Using `composer`

- Installation using `composer` under Linux, Mac OS X and Windows 10:

```
$ cd /var/www/site/  
$ composer create-project typo3/cms-base-distribution CmsBaseDistribution  
  ^9
```

- Alternatively, create your custom `composer.json` file and run:

```
$ composer install
```

Further details and examples for `composer.json` files are available at:

<https://composer.typo3.org>

## Chapter 1: Backend User Interface

# Backend User Interface

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## Admin Panel (1)

The Admin Panel received a complete overhaul regarding its design as well as the underlying code and architecture.

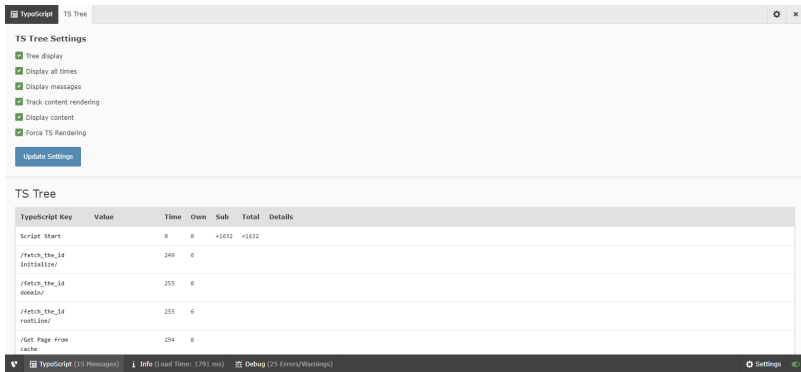
The Admin Panel is displayed at the bottom of a page in the frontend of TYPO3. The toggle button at the right allows integrators and editors to enable and disable the Admin Panel. The current state shows the *enabled* state.



# Backend User Interface

## Admin Panel (2)

Example screenshot below shows TypoScript options.



The screenshot displays the TypoScript Admin Panel interface. It features a 'TS Tree Settings' section with several checked options: 'Tree display', 'Display all times', 'Display messages', 'Track content rendering', 'Display content', and 'Force TS Rendering'. Below the settings is an 'Update Settings' button. The main section is titled 'TS Tree' and contains a table with performance data.

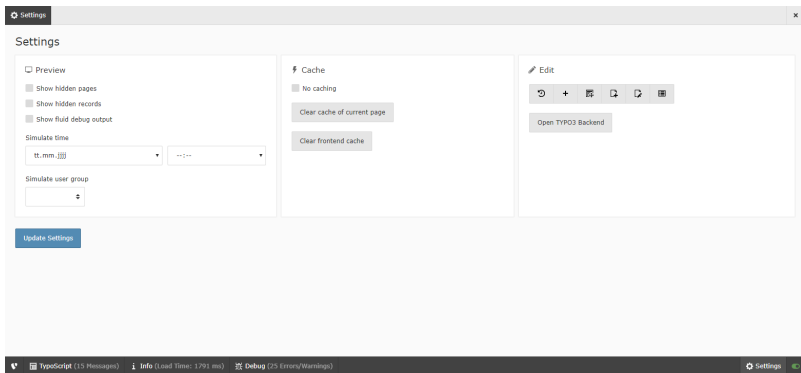
TypoScript Key	Value	Time	Own	Sub	Total	Details
Script Start		0	0	+1632	+1632	
/fetch_the_id initialize/		249	6			
/fetch_the_id domain/		255	0			
/fetch_the_id rootLine/		255	6			
/Get Page from cache		294	0			

The interface also includes a status bar at the bottom with information such as 'TypoScript (15 Messages)', 'Info (Load Time: 1.791 ms)', 'Debug (25 Errors/Warnings)', and 'Settings'.

# Backend User Interface

## Admin Panel (3)

Example screenshot below shows configuration options ("Settings").



The screenshot displays the 'Settings' configuration page in the TYPO3 Backend User Interface. The page is titled 'Settings' and features a top navigation bar with a 'Settings' tab and a close button. The main content area is divided into three columns:

- Preview:** Contains three checkboxes for 'Show hidden pages', 'Show hidden records', and 'Show fluid debug output'. Below these are two dropdown menus for 'Simulate time' (set to 'tt.mm.yyyy') and 'Simulate user group'.
- Cache:** Features a 'No caching' checkbox and two buttons: 'Clear cache of current page' and 'Clear frontend cache'.
- Edit:** Includes an 'Edit' icon, a toolbar with icons for undo, redo, and refresh, and a button labeled 'Open TYPO3 Backend'.

A blue 'Update Settings' button is located at the bottom left of the main content area. The bottom status bar shows 'TypoScript (15 Messages)', 'Info (Load Time: 1.791 ms)', 'Debug (25 Errors/Warnings)', and the active 'Settings' tab.

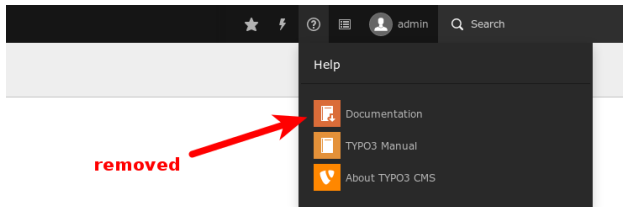
# Backend User Interface

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## Extension "Documentation" Removed

"Documentation" module has been removed from the TYPO3 backend. The module had technical and conceptual flaws and acceptance within the community was not very high.

All documentation remain available at [docs.typo3.org](https://docs.typo3.org).

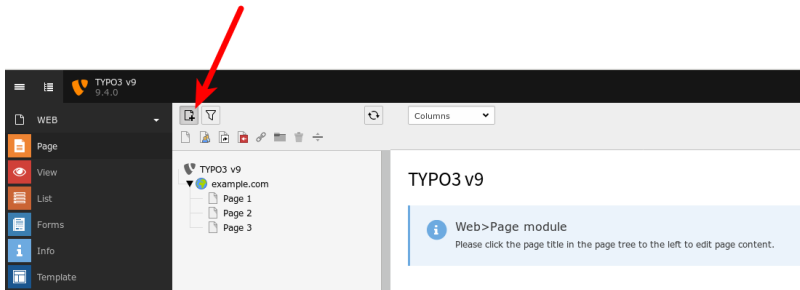


# Backend User Interface

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## Page Tree toolbar

First element of the page tree toolbar is automatically selected on load now.



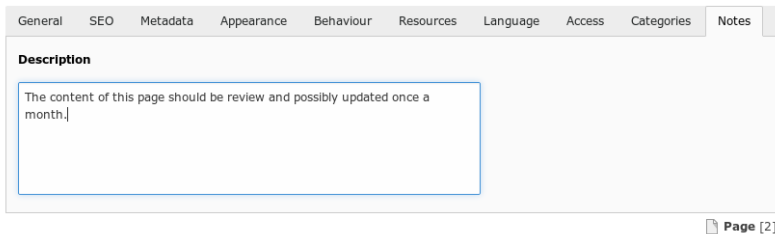
# Backend User Interface

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## Notes for Pages

Pages feature a "description" field (under tab "Notes") now, which allows users to add notes. Other backend users can see/edit these.

### Edit Page "Page 1"



The screenshot displays the TYPO3 backend interface for editing a page. At the top, there is a horizontal menu with tabs: General, SEO, Metadata, Appearance, Behaviour, Resources, Language, Access, Categories, and Notes. The 'Notes' tab is currently selected. Below the tabs, the 'Description' field is visible, containing the text: "The content of this page should be review and possibly updated once a month." In the bottom right corner of the interface, there is a small icon of a document with the text "Page [2]" next to it.



# Backend User Interface

## Defined Languages Only

Website languages in the backend are now restricted to the languages defined under "Site Management → Site Configuration → Languages". Each language can be enabled/disabled.



# Backend User Interface

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## Page Path in Record Info

Details about the reference of records now include the path in the pagetree.

Page Content

☰ **Headline 1**

<b>Uid</b>	1
<b>Created At</b>	01-09-18 10:39
<b>Created By</b>	 admin
<b>Last Modified</b>	01-09-18 10:50
<b>Type</b>	Text
<b>Header</b>	Headline 1
<b>Text</b>	Lorum ipsum...
	⋮
<b>Categories</b>	N/A

References to this item

Title	Table	Uid	Path	Field	Flexpointer	Softref Key	Sorting		
 [No title]	Page Content	2	/example.com/Page 1/	Items			0		



# Backend User Interface

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## Page-based URL Handling

TYPO3 supports page-based URL handling out-of-the-box now.

Title

**Page Title**

**URL Segment**

Congrats, this page will look like <https://example.com/page-1/>

## Chapter 2: Changes for Integrators

# Changes for Integrators

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## Install TYPO3 on SQLite (1)

- TYPO3 now supports [SQLite](#), a self-contained, lightweight open source SQL database engine
- SQLite can be selected during the web-based installation process, if PHP module "pdo\_sqlite" is installed and enabled:

Installing TYPO3 CMS 9.4.0

2 / 5 - 40% Complete

Select database

You will need to create a database user with the appropriate privileges to access your database.

**Connection**

Manually configured SQLite connection	▼
Manually configured MySQL TCP/IP connection	
Manually configured MySQL socket connection	
Manually configured SQLite connection	▶

# Changes for Integrators

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## Install TYPO3 on SQLite (2)








































































- Database is stored in a single file, which means, TYPO3 instances can now run natively in PHP, including the data storage
- Using SQLite makes sense for relatively small TYPO3 sites or for test and development instances for example
- System administrators should take appropriate actions to protect the `*.sqlite` file from unauthorized access, if the file is stored inside the web container (depends on type of setup)

# Changes for Integrators

## Page-based URL Handling

- All links generated in the backend and frontend use this field, if set
- Page-based URL Handling requires a Site Configuration

Page (9) <

  Pagetitle	[Localization]	Localize to	 URL Segment
 Audio	    ...	    ...	Default /content-examples/media/audio
 Gallery	    ...	    ...	Default /content-examples/media/gallery
 Icon Group	    ...	    ...	Default /content-examples/media/icon-group
 Text and Images	    ...	    ...	Default /content-examples/media/text-and-images
 Text and Media	    ...	    ...	Default /content-examples/media/text-and-media
 File downloads	    ...	    ...	Default /content-examples/media/file-downloads
 Images	    ...	    ...	Default /content-examples/media/images
 Media	    ...	    ...	Default /content-examples/media/media
 External Media	    ...	    ...	Default /content-examples/media/external-media

# Changes for Integrators

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## Page-based URL Handling

- New TCA field type slug has been added
- Define parts of a URL path to generate and resolve URLs

```
'type' => 'slug',
'config' => [
    'generatorOptions' => [
        'fields' => ['title', 'nav_title'],
        'fieldSeparator' => '/',
        'prefixParentPageSlug' => true
    ]
    'fallbackCharacter' => '-',
    'eval' => 'uniqueInSite'
]
```



# Changes for Integrators

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## Scheduler

- Presets have been added to the Scheduler:
  - 0 9,15 \* \* 1-5 (Mon to Fri at 9:00 and 15:00)
  - 0 \*/2 \* \* \* (every 2 hours)
  - \*/20 \* \* \* \* (every 20 minutes)
  - 0 7 \* \* 2 (every Tuesday at 7:00)

Frequency (seconds or cron command)

Allow Parallel Execution

- Every day-of-week from Monday through Friday. at 09:00 and 15:00 (0 9,15 \* \* 1-5)
- Every 2 hours (0 \*/2 \* \* \*)
- Every 20 minutes (\* /20 \* \* \* \*)
- Every Tuesday at 07:00 (0 7 \* \* 2)

# Changes for Integrators

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## TypoScript Changes/Improvements (1)

- Attribute `async` is now assigned to the script tag of concatenated JS files, if all files have attribute `async` enabled in TypoScript:

```
config.concatenateJs = 1
page = PAGE
page.includeJSFooter {
    test = path/to/file.js
    test.async = 1
}
```

- It is now possible to read environment variables in TypoScript:

```
# Define default value
myConstant = defaultValue
# Enable overriding by environment variable
myConstant := getEnv(MYCONSTANT)
```

# Changes for Integrators

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## TypoScript Changes/Improvements (2)

- The new Context API (see section "Changes for Developers") allows integrators to also use this in TypoScript
- For example:  

```
10 = TEXT  
10.data = context:workspace:id
```
- Syntax is: `context:[aspectName]:[propertyName]`
- Arrays are converted to comma-separated lists automatically (ideal for reading details on user groups for example)

# Changes for Integrators

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## TypoScript Changes/Improvements (3)

- With new site-based handling, the de-facto standard GET parameter "L" became obsolete
- New parameter `typolink.language` has been introduced

```
page.10 = TEXT
```

```
page.10.value = Link to the page with the ID in the current  
language
```

```
page.10.typolink.parameter = 23
```

```
page.20 = TEXT
```

```
page.20.value = Link to the page with the ID in the language 3
```

```
page.20.typolink.parameter = 23
```

```
page.20.typolink.language = 3
```

# Changes for Integrators

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## Simulate User under BE User Settings

- Administrator users had the option to switch to a different backend user ("User Settings → Simulate backend user")
- This function has been removed now

### User Settings

Simulate backend user



brad.pitt

Personal data

Password

... and Advanced functions

Your name

Your email address

# Changes for Integrators

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## Conditional Variants in `EXT:form` (1)

- New feature for extension "Forms": *conditional variants*
- Variants can contain conditions and allow changing properties of a form element
- This way, it becomes possible to manipulate form element values, validator and finisher options, etc. based on conditions

# Changes for Integrators

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## Conditional Variants in `EXT:form` (2)

- Some typical use cases are for example:
  - Translate form element values depending on the current frontend language
  - Set and remove validators depending on the value of another form element
  - Set finisher values depending on the value of a form element.
  - Hide a form element in certain finishers and on the summary page.
  - Hide entire pages in the workflow depending on the value of a form element.
  - etc.
- [Official documentation](#) contains further details and examples

# Changes for Integrators

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## HTML5 validation in Backend Fields

- HTML5 specific field types and attributes are now rendered by the FormEngine in the TYPO3 backend
- This includes email and numbers, incl. range config, for example
- HTML tag attributes are based on the `eval` TCA configuration
- This feature will possibly make custom JavaScript-based processing obsolete in the long term



# Changes for Integrators

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## Workspace CLI Commands

- TYPO3 now supports two new symfony-based CLI commands to trigger regular tasks:
  - `workspace:autopublish`  
Checks for workspaces with auto-publishing configured and does a publishing/swapping process.
  - `cleanup:previewlinks`  
Removes expired previewlinks stored within `sys_preview` from the database.
- Command line execution, for example:  

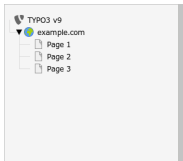
```
$ typo3/sysext/core/bin/typo3 workspace:autopublish
```

# Changes for Integrators

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## TypoScript Module Information

- Overview of TypoScript templates on root page reworked
- HTML output uses Fluid templates now
- Information shown include page name, template name (with direct link to edit the TypoScript record), state (by icon), is root or extension template



### Template tools

This is an overview of the pages in the database containing one or more template records. Click a page title to go to the page.

Page name	Templates	Is Root?	Is Ext?
 example.com	 NEW SITE	✓	
 Page 2	 Template 1		✓
	 Template 2		✓

# Changes for Integrators

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## Extension Manager

- Extensions, older than 10 November 2015 (TYPO3 v7 LTS) are excluded from the extension list import
- This reduces the database table size by approx. 75%

## Chapter 3: Changes for Developers

# Changes for Developers

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## Context API

- A new Context API has been introduced in TYPO3 version 9.4
- The main goal of this concept is to centralize global variables
- The API aims to replace globally available objects (e.g. TSFE, sys\_page, BE\_USER, etc.) and to make them available in a common, structured and logical way
- Instead of exposing a full object (e.g. the BE\_USER object), "aspects" contain properties, which are relevant and required only
- Extension developers can add aspects to the current context
- See [documentation](#) for further details and examples how to use the API

# Changes for Developers

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## Customizing CSV Files

- When exporting database records as CSV, the output can be manipulated before the download starts
- The following two new hooks allow developers to achieve this:
  - `customizeCsvHeader` - to customize the header
  - `customizeCsvRow` - to customize a single row
- Usage example:

```
use \TYPO3\CMS\Recordlist\RecordList\DatabaseRecordList;  
  
$hookName = DatabaseRecordList::class;  
$GLOBALS['TYPO3_CONF_VARS']['SC_OPTIONS'][$hookName]['customizeCsvRow'][] =  
    \Vendor\ExtName\Hooks\CsvTest::class . ' ->customizeCsvRow';  
$GLOBALS['TYPO3_CONF_VARS']['SC_OPTIONS'][$hookName]['customizeCsvHeader'][] =  
    \Vendor\ExtName\Hooks\CsvTest::class . ' ->customizeCsvHeader';
```

# Changes for Developers

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## Symfony Expression Language

- The [Symfony Expression Language](#) has been moved from EXT:form into the TYPO3 core
- By moving it into the core, the expression language is now also available in other scopes
- The TYPO3 core features class `DefaultProvider`, which can be used directly (see example below) and custom implementations can extend class `AbstractProvider`

```
use \TYPO3\CMS\Core\ExpressionLanguage\DefaultProvider;  
use \TYPO3\CMS\Core\ExpressionLanguage\Resolver;  
  
$provider = GeneralUtility::makeInstance(DefaultProvider::class);  
$conditionResolver = GeneralUtility::makeInstance(Resolver::class, $provider);  
$conditionResolver->evaluate('1 < 2'); // result is true
```

# Changes for Developers

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## "Currency" ViewHelper

- A dash can be used instead of decimal 00 in the Currency ViewHelper
- Option useDash="1" enables this feature
- The following example outputs 123.-

```
<f:format.currency useDash="1">123.00</f:format.currency>
```



# Changes for Developers

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## Changes in PageRepository Class

- The following methods have been marked *internal*:
  - `TYPO3\CMS\Frontend\Page\PageRepository::getMovePlaceholder()`
  - `TYPO3\CMS\Frontend\Page\PageRepository::movePlhOL()`
- The following class has been moved from the TYPO3 core to the system extension `lowlevel`:
  - `TYPO3\CMS\Core\Integrity\DatabaseIntegrityCheck`

# Changes for Developers

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## Method `GeneralUtility::explodeUrl2Array()`

- Second argument of method

`TYPO3\CMS\Core\Utility\GeneralUtility::explodeUrl2Array()`  
should not be used anymore (marked deprecated)

- If set, the string of the 1st argument was parsed into a multi-dimensional array if square brackets are used in variable names
- This can be simplified by using PHP's native `parse_str()` method:

```
$result = [];  
parse_str($queryParametersAsString, $result);
```

# Changes for Developers

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## Unit Tests

- TYPO3 core unit tests do not trigger an E\_NOTICE anymore
- As a consequence, flag `$suppressNotices = true` has been removed and the testing-framework raised to version 4.4.0

## Chapter 4: Deprecated/Removed Functions

# Deprecated/Removed Functions

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## Deprecated Options and Functions (1)

- The following two TYPOScript options have been marked deprecated:
  - `config.enableConcatenateFiles`
  - `config.concatenateJsAndCss`

The latter has been replaced by `concatenateCss` and `concatenateJs` respectively

- The following methods/classes have been marked deprecated:
  - `TYPO3\CMS\Backend\Utility\BackendUtility::shortcutExists()`
  - `TYPO3\CMS\Core\Utility\GeneralUtility::clientInfo()`
  - `TYPO3\CMS\Core\Utility\GeneralUtility::getHostName()`
  - `TYPO3\CMS\Core\Utility\GeneralUtility::unQuoteFileNames()`
  - `TYPO3\CMS\Frontend\Page\PageRepository::getRecordsByField()`
  - `TYPO3\CMS\Frontend\Page\PageRepository::getFileReferences()`
  - `TYPO3\CMS\Core\Database\PdoHelper`

# Deprecated/Removed Functions

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## Deprecated Options and Functions (2)

- The following methods/classes have been marked deprecated:
  - `TYPO3\CMS\Backend\Template\ModuleTemplate::icons()`
  - `TYPO3\CMS\Backend\Template\ModuleTemplate::loadJavascriptLib()`
- The functionality of the following class has been replaced by a request to `index.php?loginRefresh=1` directly (and the class marked deprecated):
  - `TYPO3\CMS\Backend\Controller\LoginFramesetController`

# Deprecated/Removed Functions

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## Deprecated Constants (1)

- The following constants have been deprecated (1/2) and should not be used anymore:
  - `TYPO3_URL_MAILINGLISTS`
  - `TYPO3_URL_DOCUMENTATION`
  - `TYPO3_URL_DOCUMENTATION_TSREF`
  - `TYPO3_URL_DOCUMENTATION_TSCONFIG`
  - `TYPO3_URL_CONSULTANCY`
  - `TYPO3_URL_CONTRIBUTE`
  - `TYPO3_URL_SECURITY`
  - `TYPO3_URL_DOWNLOAD`
  - `TYPO3_URL_SYSTEMREQUIREMENTS`

# Deprecated/Removed Functions

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## Deprecated Constants (2)

- The following constants have been deprecated (2/2) and should not be used anymore:
  - NUL (use `"\0"` instead)
  - TAB (use `"\t"` instead)
  - SUB (use `chr(26)` instead)
  - `PATH_thisScript` (use `Environment::getCurrentScript()` instead)
  - `PATH_site` (use `Environment::getPublicPath().'/'` instead)



# Deprecated/Removed Functions

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## Class `EidUtility` and Methods within TSFE

- The following class has been marked deprecated:

`TYPO3\CMS\Frontend\Utility\EidUtility`

- The following methods have been marked deprecated:

`TYPO3\CMS\Frontend\Controller\TypoScriptFrontendController`

- `TypoScriptFrontendController::initFEuser()`
- `TypoScriptFrontendController::storeSessionData()`
- `TypoScriptFrontendController::previewInfo()`
- `TypoScriptFrontendController::hook_eofe()`
- `TypoScriptFrontendController::addTempContentHttpHeaders()`
- `TypoScriptFrontendController::sendCacheHeaders()`

- The following hook has been marked deprecated:

`$GLOBALS['TYPO3_CONF_VARS']['SC_OPTIONS']['tslib/class.tslib_fe.php']['hook_previewInfo']`

# Deprecated/Removed Functions

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## Class ReflectionService

- The following methods have been marked deprecated:

TYPO3\CMS\Extbase\Reflection\ReflectionService

- ReflectionService::getClassTagsValues()
- ReflectionService::getClassTagValues()
- ReflectionService::getClassPropertyNames()
- ReflectionService::hasMethod()
- ReflectionService::getMethodTagsValues()
- ReflectionService::getMethodParameters()
- ReflectionService::getPropertyTagsValues()
- ReflectionService::getPropertyTagValues()
- ReflectionService::isClassTaggedWith()
- ReflectionService::isPropertyTaggedWith()

# Deprecated/Removed Functions

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More functions  
have been removed or marked deprecated  
in TYPO3 version 9.4.

Please see the [TYPO3 documentation](#) for further details.

## Chapter 5: Miscellaneous

# Miscellaneous

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## System Extension "Salted Passwords"

- System extension `EXT:saltedpasswords` is a mandatory requirement since TYPO3 version 6.2
- It has been refactored and merged into the TYPO3 core now
- This involved several tasks:
  - Password bulk update task removed from Scheduler
  - Salted passwords configuration options removed
  - Hook in "felogin" removed when user resets password
  - `authUserBE/authUserFE` moved to default authentication service
  - Password hash configuration in Install Tool reworked
  - Related methods marked deprecated

## Chapter 6: Sources and Authors

# Sources and Authors

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## Sources

### TYPO3 News:

- <https://typo3.org/project/news/>

### Release Infos:

- [https://get.typo3.org/release-notes/9.x/TYPO3\CMS\\_9.4.0](https://get.typo3.org/release-notes/9.x/TYPO3\CMS_9.4.0)
- [INSTALL.md](#) and [Changelog](#)
- `typo3/sysexst/core/Documentation/Changelog/9.4/*`

### TYPO3 Bug-/Issuetracker:

- <https://forge.typo3.org/projects/typo3cms-core>

### TYPO3 and Fluid Git Repositories:

- <https://git.typo3.org/Packages/TYPO3.CMS.git>
- <https://github.com/TYPO3/Fluid>

# Sources and Authors

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## TYPO3 CMS What's New Team:

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<https://typo3.org/help/documentation/whats-new/>

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