TYPO3 Version 9.4 – What’s New
Summary of the new features, changes and improvements

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Introduction

TYPO3 Version 9.4 – The Facts

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

I’m so excited, and I just can’t hide it
System Requirements

- PHP version 7.2 or higher
- PHP settings:
  - `memory_limit >= 256M`
  - `max_execution_time >= 240s`
  - `max_input_vars >= 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

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

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

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

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

- 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

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.
Backend User Interface

Admin Panel (3)

Example screenshot below shows configuration options ("Settings").
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.
Backend User Interface

Page Tree toolbar

First element of the page tree toolbar is automatically selected on load now.
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 content of this page should be review and possibly updated once a month. [ ]
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

Page Path in Record Info

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

Page Content

- Headline 1

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uid</td>
<td>1</td>
</tr>
<tr>
<td>Created At</td>
<td>01-09-18 10:39</td>
</tr>
<tr>
<td>Created By</td>
<td>admin</td>
</tr>
<tr>
<td>Last Modified</td>
<td>01-09-18 10:50</td>
</tr>
<tr>
<td>Type</td>
<td>Text</td>
</tr>
<tr>
<td>Header</td>
<td>Headline 1</td>
</tr>
<tr>
<td>Text</td>
<td>Lorem ipsum...</td>
</tr>
<tr>
<td>Categories</td>
<td>N/A</td>
</tr>
</tbody>
</table>

References to this item

<table>
<thead>
<tr>
<th>Title</th>
<th>Table</th>
<th>Uid</th>
<th>Path</th>
<th>Field</th>
<th>Flexpointer</th>
<th>Softref Key</th>
<th>Sorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>[No title]</td>
<td>Page Content</td>
<td>2</td>
<td>/example.com/Page 1/ Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TYPO3 Version 9.4 - What's New
Backend User Interface

Page-based URL Handling

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

Title

Page Title

Page 1

URL Segment

https://example.com /page-1/

Congrats, this page will look like https://example.com/page-1/
Chapter 2: Changes for Integrators
Changes for Integrators

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

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

<table>
<thead>
<tr>
<th>Page (9)</th>
<th>Pagetitle</th>
<th>[Localization]</th>
<th>Localize to</th>
<th>URL Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/audio</td>
</tr>
<tr>
<td>Gallery</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/gallery</td>
</tr>
<tr>
<td>Icon Group</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/icon-group</td>
</tr>
<tr>
<td>Text and Images</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/text-and-images</td>
</tr>
<tr>
<td>Text and Media</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/text-and-media</td>
</tr>
<tr>
<td>File downloads</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/file-downloads</td>
</tr>
<tr>
<td>Images</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/images</td>
</tr>
<tr>
<td>Media</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/media</td>
</tr>
<tr>
<td>External Media</td>
<td></td>
<td></td>
<td>Default</td>
<td>/content-examples/media/external-media</td>
</tr>
</tbody>
</table>
Changes for Integrators

Page-based URL Handling

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

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

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)
Changes for Integrators

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:

  ```typo3config```
  ```
  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:

  ```typo3config```
  ```
  # Define default value
  myConstant = defaultValue
  # Enable overriding by environment variable
  myConstant := getEnv(MYCONSTANT)
  ```
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

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

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
Changes for Integrators

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

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

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

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

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.

<table>
<thead>
<tr>
<th>Page name</th>
<th>Templates</th>
<th>Is Root?</th>
<th>Is Ext?</th>
</tr>
</thead>
<tbody>
<tr>
<td>example.com</td>
<td>NEW SITE</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Page 2</td>
<td>Template 1</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>Template 2</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Changes for Integrators

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

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

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:**

```php
use \TYPO3\CMS\Recordlist\RecordList\DatabaseRecordList;

$hookName = DatabaseRecordList::class;

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

```php
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

"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.–

```html
<f:format.currency useDash="1">123.00</f:format.currency>
```
Changes for Developers

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

Method GeneralUtility::explodeUrl2Array()

- Second argument of method
  TYP03\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

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
Deprecated/Removed Functions

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`
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

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

 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

Class EidUtility and Methods within TSFE

- The following class has been marked deprecated:
  TYP03\CMS\Frontend\Utility\EidUtility

- The following methods have been marked deprecated:
  TYP03\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

Class ReflectionService

The following methods have been marked deprecated:

- ReflectionService::getClassTagsValues()
- ReflectionService::getClassTagValues()
- ReflectionService::getClassPropertyNames()
- ReflectionService::hasMethod()
- ReflectionService::getMethodTagsValues()
- ReflectionService::getMethodParameters()
- ReflectionService::getPropertyTagsValues()
- ReflectionService::getPropertyTagValues()
- ReflectionService::isClassTaggedWith()
- ReflectionService::isPropertyTaggedWith()
More functions have been removed or marked deprecated in TYPO3 version 9.4.

Please see the TYPO3 documentation for further details.
Chapter 5: Miscellaneous
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

Sources

**TYPO3 News:**
- https://typo3.org/project/news/

**Release Infos:**
- https://get.typo3.org/release-notes/9.x/TYPO3_CMS_9.4.0
- INSTALL.md and ChangeLog
- typo3/sysext/core/Documentation/Changelog/9.4/*

**TYPO3 Bug-/Issuetracker:**

**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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https://typo3.org/help/documentation/whats-new/

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