TYPO3 CMS 8.4 – What’s New
Summary of the new features, changes and improvements

Created by:
Patrick Lobacher and Michael Schams
Chapter Overview

Introduction

Backend User Interface

TSconfig & TypoScript

In-Depth Changes

Extbase & Fluid

Deprecated/Removed Functions

Sources and Authors
Introduction

The Facts
Introduction

TYPO3 CMS 8.4 – The Facts

- Release date: 18 October 2016
- Release type: Sprint Release
- Slogan: Fueling
Introduction

System Requirements

- **PHP:** version 7
- **MySQL:** version 5.5 to 5.7
- **Disk space:** min 200 MB
- **PHP settings:**
  - `memory_limit` >= 128M
  - `max_execution_time` >= 240s
  - `max_input_vars` >= 1500
  - Compilation option `--disable-ipv6` must not be used
- The backend requires Microsoft Internet Explorer 11 or later, Microsoft Edge, Google Chrome, Firefox, Safari or any other modern, compatible browser
Introduction

TYPO3 CMS Roadmap

Release dates and their primary focus:

- v8.0 22/Mar/2016  Adding last minute things
- v8.1 03/May/2016  Cloud Integration
- v8.2 05/Jul/2016  Doctrine Prerequisites
- v8.3 30/Aug/2016  Rich Text Editor
- v8.4 18/Oct/2016  Doctrine Migration + Upgrades
- v8.5 20/Dec/2016  New RTE + Integrator Support
- v8.6 14/Feb/2017  to be determined
- v8.7 04/Apr/2017  LTS Preparation

https://typo3.org/typo3-cms/roadmap/
https://typo3.org/news/article/kicking-off-typo3-v8-development/
Introduction

Installation

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

  ```bash
  $ cd /var/www/site
  $ wget --content-disposition get.typo3.org/8.4
  $ tar xzf typo3_src-8.4.1.tar.gz
  $ cd htdocs
  $ ln -s ../typo3_src-8.4.1 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
Introduction

Upgrade to TYPO3 CMS 8.x

- Upgrades only possible from TYPO3 CMS 7.6 LTS
- TYPO3 CMS < 7.6 LTS should be updated to TYPO3 CMS 7.6 LTS first

- Upgrade instructions:
  - http://wiki.typo3.org/Upgrade#Upgrading_to_8.4
- Official TYPO3 guide "TYPO3 Installation and Upgrading":
  - http://docs.typo3.org/typo3cms/InstallationGuide

- General approach:
  - Check minimum system requirements (PHP, MySQL, etc.)
  - Review `deprecation_*.*` in old TYPO3 instance
  - Update all extensions to the latest version
  - Deploy new sources and run Install Tool -> Upgrade Wizard
  - Review startup module for backend users (optionally)
Introduction

PHP Version 7

- PHP 7.0 is the minimum requirement for TYPO3 CMS 8.x
- TYPO3 will support subsequent PHP 7 releases as they come out
- This version raise gives a significant performance boost to the overall system
- Not only backend editors will notice a more fluent interface, but the new all-time record for a full cached page call in the frontend is below 7 milliseconds now, which is approximately 40% faster compared to running the very same website with PHP version 5.5
- We also started using new features from this PHP version, for instance the cryptographically secure pseudo-random generators are in active use already
Chapter 1:

Backend User Interface
Backend User Interface

Mobile Responsive TYPO3 Backend

The TYPO3 Backend is fully mobile responsive now.
Backend User Interface

Install Tool: Upgrade Analysis

TYPO3 version upgrades made easy with the new **Upgrade Analysis** tool in the Install Tool (find/filter documented changes between versions).

![Upgrade Analysis](image)

**Upgrade Analysis**

- LocalConfiguration
- ext: indexed_search
- Fluid
- Database
- TCA
- JavaScript
- CLI
- ext: fluid_styled_content
- ext: backend
- ext: dbal
- ext: adodb
- ext: lowlevel

<table>
<thead>
<tr>
<th>8.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feature: #1835 - Recover pages recursively to top of rootline</td>
</tr>
<tr>
<td>2. Feature: #19157 - Add option to exclude all hidden records in EXT:impexp</td>
</tr>
<tr>
<td>3. Feature: #28230 - Add support for PBKDF2 to saltedpasswords</td>
</tr>
<tr>
<td>4. Feature: #54887 - Post-processing of the previewUrl</td>
</tr>
<tr>
<td>5. Feature: #69994 - EXT:form - Directly load form wizard as inline wizard</td>
</tr>
<tr>
<td>6. Feature: #71876 - Make new content element wizard tab sort order configurable</td>
</tr>
<tr>
<td>7. Feature: #72045 - HTMLparser.stripEmptyTags.keepTags</td>
</tr>
</tbody>
</table>
Backend User Interface

Install Tool: Dump Autoload Information

In order to re-generate class loading information, a new action has been added to the Install Tool to dump autoload information.

![Install Tool Interface](image)

**Dump Autoload Information**

This (re-)dumps autoload information for all active third party extensions.

- Create autoload information for extensions

**Check for broken extensions**

Checks whether the local extensions' ext_tables and ext_config files can be included without errors, meaning they can be loaded without breaking the system.

- Check extensions

**TCA Migrations**

Checks whether the current TCA needs migrations and displays applied migrations.

- Check TCA migrations

**Core update**

The install tool can automatically update the TYPO3 CMS core to its latest minor release if certain criteria are met.

- Check for core updates
Backend User Interface

Install Tool: TCA Migration Messages

TCA migration message(s) can be checked/listed in the Install Tool now.
**Backend User Interface**

**sys_language Records**

To improve usability, *sys_language* records are sortable now.
The TCA configuration option disable_controls of type "group" has a new setting allowedTables now, which hides the hint about allowed tables to be referenced in the group field.
Chapter 2:

TSconfig & TypoScript
TCA Option `showIfRTE`

- TCA setting `showIfRTE` for `type=check` has been removed from the TCA on all fields

- Availability of the Element Browser is configurable on a user-basis now

  To disable the button using TCA settings:
  ```
  [table_name][‘columns’][field_name][‘config’][‘appearance’][‘elementBrowserEnabled’] = false;
  ```

  To disable the button using pageTs settings:
  ```
  TCEFORM.table_name.field_name.config.appearance.elementBrowserEnabled = 0
  ```

  To disable the button using userTs settings:
  ```
  page.TCEFORM.table_name.field_name.config.appearance.elementBrowserEnabled = 0
  ```
It is now possible to access properties of a FlexForm field:

```typoScript
lib.flexformContent = CONTENT
lib.flexformContent {
    table = tt_content
    select {
        pidInList = this
    }
}

renderObj = COA
renderObj {
    10 = TEXT
    10 {
        data = flexform: pi_flexform:settings.categories
    }
}
```
Chapter 3:
In-Depth Changes
In-Depth Changes

ExtJS Removal

- ExtJS component TYPO3.Viewport has been removed
- Ext.layout and Ext.Viewport are no longer used in the backend viewport
- Functionality has been re-implemented with a native JavaScript, jQuery, CSS solution
- ExtJS notifications components TYPO3.Window and TYPO3.Dialog have been removed

Remaining parts/tasks of the complete ExtJS removal:

- page tree
- form extension drag’n drop functionality
- ExtDirect functionality
In-Depth Changes

Doctrine DBAL

- Further progress has been made in migrating all database calls of the TYPO3 core to Doctrine DBAL
- Extbase’s persistence is now also built completely on Doctrine DBAL’s QueryBuilder
- EXT:dbal and EXT:adodb have been removed from the TYPO3 core
  If third party extensions use the old TYPO3_DB API to query non-MySQL database tables, these two extension can be installed from TER.
- TYPO3_DB shorthand functionality has been removed for most of the TYPO3 core PHP classes
  (using $GLOBALS[TYP03_DB] is still possible but discouraged)
In-Depth Changes

TypeScript Support (1)

- **TypeScript** has been introduced to the TYPO3 core for the internal JavaScript handling
- TypeScript is a free and open source programming language developed and maintained by Microsoft
- It is a strict superset of JavaScript, which can compile JavaScript
- More details at: https://www.typescriptlang.org
- A grunt task compiles each TypeScript file (.ts) to a JavaScript file (.js) and produces an AMD module

Note: all AMD modules currently in TYPO3 CMS must be ported to TypeScript to ensure a future proof concept of JavaScript handling. The goal is to migrate all AMD modules to TypeScript before CMS 8 LTS is released.
In-Depth Changes

TypeScript Support (2)

- The most important rules for TypeScript are defined in rulesets which are checked by the TypeScript Linter:
  - Always define types and return types, even if TypeScript provides a default type
  - Variable scoping: prefer `let` instead of `var`
  - Optional properties in interfaces are not allowed for the core
  - An interface will never extend a class
  - Iterables: `ise for (i of list)` instead of `for (i in list)`
  - Use keyword `implements`, even if TypeScript does not require it
  - Any class or interface must be declared with "export" to ensure re-use or export an instance of the object for existing code which can’t be updated now.

(not all rules can be checked by the Linter yet)
In-Depth Changes

URL Parameters in Shortcuts

- Shortcuts take all URL parameters into account now.
- Example:
  - Page UID 2 is a shortcut to page UID 1
  - TypoScript configuration set: `config.linkVars = L`
- **Old** behaviour:
  - `http://example.com?id=2&L=1&customparam=X`
  - redirects to:
  - `http://example.com?id=1&L=1`
- **New** behaviour:
  - `http://example.com?id=2&L=1&customparam=X`
  - redirects to:
  - `http://example.com?id=1&L=1&customparam=X`
In-Depth Changes

Fluidification

- HTML code has been migrated from PHP code to a Fluid template
- Affected methods:

  TypoScriptTemplateInformationModuleFunctionController
  ->tableRow()
  TypoScriptTemplateConstantEditorModuleFunctionController
  ->displayExample()

- Calling these methods results in a fatal error now
In-Depth Changes

PageRenderer and Compressor

PageRenderer and ResourceCompressor PHP classes now support the 
*EXT:* syntax for referencing JS and CSS files inside extension 
directories.

**Previously:**

```php
$this->pageRenderer->addJsFile(
    ExtensionManagementUtility::extRelPath('myextension') .
    'Resources/Public/JavaScript/example.js'
);
```

**Now possible:**

```php
$this->pageRenderer->addJsFile(
    'EXT:myextension/Resources/Public/JavaScript/example.js'
);
```
In-Depth Changes

Miscellaneous (1)

- EXT:indexed_search_mysql merged into EXT:indexed_search
- Feature "subsearch" has been removed from EXT:indexed_search_mysql (TypoScript option plugin.tx_indexedsearch.clearSearchBox removed, too)
- Return type of ContentObjectRenderer::exec_Query() changed (return value is always \Doctrine\DBAL\Driver\Statement now)
- To make it clear that autoload information is not a cache, the files have been moved from typo3temp/ to typo3conf/

Note: TYP03 deployments, which do not take advantage of composer, possibly need some adjustments to take the new location into account.
Chapter 4:

Extbase & Fluid
Extbase & Fluid

Doctrine DBAL

- Extbase’s persistence uses Doctrine DBAL’s QueryBuilder now
- This allows for **prepared statements** for all Extbase queries
- Backwards compatibility is still maintained
Extbase & Fluid

ObjectAccess Cleanup (1)

- Various improvements of the `ObjectAccess` class, which results in a performance boost
- The following changes have been implemented:
  - More native PHP methods used where reasonable
  - Fewer method calls used where reasonable
  - Got rid of variables passed by reference
  - More cases return `null` rather than throw Exceptions
  - Fastest decisions and access methods come first
  - ...
The following changes have been implemented (continued):

- Reflection-based access isolated to edge cases and access with the "force direct access" flag enabled
- Sacrifices ability to read objects of types other than persisted objects contained in an ObjectStorage or subclass of ObjectStorage
- Changes verdict from false to true when determining if a dynamically added property exists on an object
Extbase & Fluid

RecordCollectionRepository::findByUid()

- Behaviour of RecordCollectionRepository::findByUid() has changed
- When TYPO3 is in FE mode, the method will now respect the configured enable fields
- Instead of returning an object that is supposed to be disabled, method returns null now
Chapter 5:

Deprecated/Removed Functions
 Deprecated/Removed Functions

Wizard Icons Removed

- The following icons have been removed from the FormFieldWizard:
  - wizard_add.gif
  - wizard_edit.gif
  - wizard_link.gif
  - wizard_list.gif
  - wizard_rte.gif
  - wizard_table.gif
Deprecated/Removed Functions

Icons from EXT:t3skin

- Icons from EXT:t3skin have been removed or moved
- Removed:
  - typo3/sysext/t3skin/icons/gfx/error.png
  - typo3/sysext/t3skin/icons/gfx/i/_icon_ftp.gif
  - typo3/sysext/t3skin/icons/gfx/information.png
  - typo3/sysext/t3skin/icons/gfx/notice.png
  - typo3/sysext/t3skin/icons/gfx/warning.png
- Moved:
  - typo3/sysext/t3skin/icons/gfx/icon_fatalerror.gif
  - typo3/sysext/t3skin/images/icons/status/status-edit-read-only.png
  - typo3/sysext/t3skin/images/icons/status/warning-in-use.png
  - typo3/sysext/t3skin/images/icons/status/warning-lock.png
  - typo3/sysext/t3skin/images/icons/status/status-reference-hard.png
  - typo3/sysext/t3skin/images/icons/status/status-reference-soft.png
 Deprecated/Removed Functions

 Page tree and click menu settings

■ Obsolete page tree and click menu settings have been removed

■ Properties:
  ■ FileSystemNavigationFrameController->doHighlight
  ■ ClickMenu->leftIcons

■ TypoScript settings:
  ■ options.pageTree.disableTitleHighlight
  ■ options.contextMenu.options.leftIcons
Deprecated/Removed Functions

**ExtensionManagementUtility::extRelPath()**

- Method `ExtensionManagementUtility::extRelPath()` has been marked as deprecated.
- This method was used to resolve paths relative to the current script.
- Alternatives methods are available:
  - `ExtensionManagementUtility::extPath()` (to resolve the full path of an extension)
  - `ExtensionManagementUtility::siteRelPath()` (to resolve the location of an extension relative to `PATH_site`)
  - `GeneralUtility::getFileAbsFileName()` (to resolve a file/path prefixed with `EXT:myextension`)
  - `PathUtility::getAbsoluteWebPath()` (to output a file location that is absolutely prefixed for the web folder)
Deprecated/Removed Functions

Miscellaneous (1)

- Method `FormResultCompiler->JStop()` has been renamed to `addCssFiles()`. The old method name is still present as a deprecated alias, which will be removed in TYPO3 v9.

- Method `ClickMenu::DB_editPageProperties()` has been marked as deprecated.

- The following arguments of method `RecyclerUtility::getRecordPath()` have been marked as deprecated:
  - `$clause`
  - `$titleLimit`
  - `$fullTitleLimit`
Deprecated/Removed Functions

Miscellaneous (2)

- The following unused ExtJS JavaScript libraries have been removed:
  - app.SearchField
  - grid.RowExpander
  - ux.FitToParent

- RTEHtmlArea eID (rtehtmlarea_spellchecker) for using dynamic spellchecking has been removed and entry point for HTTP Requests SpellCheckingController->main marked as deprecated

- Format DateTime::ISO8601 is incompatible with ISO-8601, but is left for backward compatibility reasons. The constant DateTime::ATOM or DATE_ATOM is used instead.
Deprecated/Removed Functions

Miscellaneous (3)

- AMD module TYPO3/CMS/Core/QueryGenerator has been moved to EXT:lowlevel (and renamed to TYPO3/CMS/Lowlevel/QueryGenerator)

- Method PageLayoutView::getResult() has been marked as deprecated with the usage of mysqli_result objects as first parameter

- If TYPO3 is in non-composer mode, it used to automatically dump extension class loading information late during the bootstrap. This behavior is deprecated now.
Sources and Authors

Sources

**TYPO3 News:**
- [http://typo3.org/news](http://typo3.org/news)

**Release Infos:**
- [http://wiki.typo3.org/TYPO3_CMS_8.4.0](http://wiki.typo3.org/TYPO3_CMS_8.4.0)
- INSTALL.md and ChangeLog
- typo3/sysext/core/Documentation/Changelog/8.4/*

**TYPO3 Bug-/Issuetracker:**

**TYPO3 and Fluid Git Repositories:**
- [https://git.typo3.org/Packages/TYP03.CMS.git](https://git.typo3.org/Packages/TYP03.CMS.git)
- [https://github.com/TYPO3Fluid/Fluid](https://github.com/TYPO3Fluid/Fluid)
TYPO3 CMS What’s New Team:

Pierrick Caillon, Sergio Catala, Richard Haeser, Jigal van Hemert, Patrick Lobacher, Michel Mix, Sinisa Mitrovic, Nena Jelena Radovic, Michael Schams and Roberto Torresani

http://typo3.org/download/release-notes/whats-new

Licensed under Creative Commons BY-NC-SA 3.0