Introduction

The Facts
Introduction

TYPO3 Version 10.3 – The Facts

- Release date: 25 February 2020
- Release type: Sprint Release
Introduction

Executive Summary

As the last sprint release of the v10 cycle, TYPO3 version 10.3 is the so-called "feature freeze" version. This means, no new features from now on, until the LTS release in April, and the core team and all contributors are focused on testing, polishing, and refining the release.

However, there are some exceptions for minor improvements to complete features that have been already added in previous v10 sprint releases.

If you are an extension developer, please publish v10 compatible versions of your extensions. This will make it easier for the TYPO3 community to adopt TYPO3 v10 as soon as the LTS release launches.

One last important thing: Don’t forget to join a release party or organize one yourself!
Introduction

System Requirements

- PHP version 7.2, 7.3 or 7.4
- 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:
  - MySQL
  - MariaDB
  - PostgreSQL
  - SQL Server
  - SQLite
Introduction

Development, Release, and Maintenance Timeline

**TYPO3 v10**

**Extended Support**
The **TYPO3 GmbH** offers further support options for TYPO3 v10 LTS even after 30 April 2023 for up to two additional years.
Introduction

TYPO3 v10 Roadmap

Release dates and their primary focus:

- **v10.0** 23/July/2019  Pave the way for exciting new concepts and APIs
- **v10.1** 01/Oct/2019  Routing Improvements and Site Handling v2
- **v10.2** 03/Dec/2019  Fluid/Rendering Engine Improvements
- **v10.3** 25/Feb/2020  Feature Freeze
- **v10.4** 21/Apr/2020  LTS Release (Long-term Support)

https://typo3.org/article/typo3-v10-roadmap/
https://typo3.org/article/typo3-v10-safe-and-sound/
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/10.3
  $ tar xzf typo3_src-10.3.0.tar.gz
  $ cd htdocs
  $ ln -s ../typo3_src-10.3.0 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
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 typo3v10 ^10.3

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

Dashboard (1)

A dashboard has been introduced that shows important system information to the currently logged-in backend user.
Backend User Interface

Dashboard (2)

Users can create their own dashboards and add, remove, and re-arrange "widgets". Developers can build custom widgets as extensions.
Chapter 2: Changes for Integrators
Changes for Integrators

Dashboard

- Dashboard presets can be configured for new users or for users who deleted all their dashboards.
- This can be used to show a "Getting Started" dashboard by default.
- Example TSconfig:

  ```plaintext
  options.dashboard.dashboardPresetsForNewUsers = default, dashboardPreset-myPreset
  ```

- Multiple dashboard presets can be defined in a comma separated list.
Changes for Integrators

Localization Management Platform

- The SaaS solution "Crowdin" is now used as the localization/translation management platform for TYPO3.
- We encourage everyone to participate and improve the localization.
- Crowdin can be used to translate language labels of the TYPO3 core as well as of TYPO3 extensions.
- Read more about this in the TYPO3 documentation.
Changes for Integrators

Fluid-based HTML Emails (1)

- TYP03 now supports sending template-based HTML and plain-text emails.
- Emails are built by using the Fluid templating engine.
- Email templates can be customized by overwriting the paths to the template files:

```php
$GLOBALS['TYPO3_CONF_VARS']['MAIL']['templateRootPaths'][700] = 'EXT:my_site_extension/Resources/Private/Templates/Email';
```

```php
$GLOBALS['TYPO3_CONF_VARS']['MAIL']['layoutRootPaths'][700] = 'EXT:my_site_extension/Resources/Private/Layouts';
```
Changes for Integrators

Fluid-based HTML Emails (2)

- Fluid-based templated emails are used for the following components for example:
  - Install Tool test email (see example on the next slide).
  - Workspace notification email on stage change.
  - Notification email on backend user login.
Changes for Integrators

Fluid-based HTML Emails (3)

Test email sent from the Install Tool:

Test TYPO3 CMS mail delivery from site "New TYPO3 site"

From TYPO3 CMS install tool

 Hey TYPO3 Administrator

Seems like your favorite TYPO3 installation can send out emails!

This email was sent by TYPO3 CMS v10.0 from URL: http://example.com. Please contact your site administrator if you did not receive this email by accident.

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Changes for Integrators

Workspaces and TypoScript

- A new expression language variable has been added: `workspace`.
- This variable can be used to match a given expression against common workspace parameters.
- Currently, the following parameters are supported: `workspaceId`, `isLive`, and `isOffline`.
- For example:

  ```markdown
  [workspace.workspaceId === 3]
  # Current workspace ID is 3
  [end]
  ```
Changes for Integrators

TypoScript

- The old PIDupinRootline condition has been re-implemented in TypoScript using the Symfony expression language.

- Old TypoScript condition syntax:

  [PIDupinRootline = 30]
  page.10.value = I’m on any subpage of page with UID 30.
  [END]

- New TypoScript condition syntax:

  [30 in tree.rootLineParentIds]
  page.10.value = I’m on any subpage of page with UID 30.
  [END]
Changes for Integrators

Lazy Loading for Images

- The HTML attribute `loading` can now be set for `<img>`-tags.
- Browsers which support this feature won’t load these images until they are in the viewport.
- The behavior can be modified by the following TypoScript constant:

  ```plaintext
  styles.content.image.lazyLoading = lazy
  ```

- Valid values are: lazy (default), eager, and auto.
- The Fluid `Image-ViewHelper` also supports lazy loading now:

  ```html
  <f:image src="{fileObject}" treatIdAsReference="true" loading="lazy" />
  ```
Changes for Integrators

Default values for `lockIP/lockIPv6`

- The default values for `lockIP` settings have been changed.
- The following four system variables are now **disabled** by default:
  - `[FE] ['lockIP']`
  - `[FE] ['lockIPv6']`
  - `[BE] ['lockIP']`
  - `[BE] ['lockIPv6']`
- The old default values ("4" for the backend and "2" for the frontend) caused problems for example for clients with IPv4 and IPv6 address support.
Changes for Integrators

Form: YAML Configuration

If the system extension EXT:form is installed, the parsed YAML configuration can be displayed under SYSTEM → Configuration.

This also requires administrators to activate EXT:lowlevel of course.
Changes for Integrators

**SEO: Sitemap.xsl**

- The default path to the file `Sitemap.xsl` of the system extension `EXT:seo` can be customized now:

  # Globally for all sitemaps:
  plugin.tx_seo.config.xslFile = EXT:myext/Resources/Public/CSS/mySite.xsl

  # For all sitemaps of a specific type:
  plugin.tx_seo.config.<sitemapType>.sitemaps.xslFile = EXT:myext/Resources/Public/CSS/mySite.xsl

  # For a specific sitemap:
  plugin.tx_seo.config.<sitemapType>.sitemaps.<sitemap>.config.xslFile = EXT:myext/Resources/Public/CSS/mySite.xsl

- The default path reads:

  `EXT:seo/Resources/Public/CSS/Sitemap.xsl`
Changes for Integrators

Reference Index

- Progress bars are shown for each database table during Reference Index update.

```
 typo3v10:~/.www$/bin/typo3 referenceindex:update -c

Reference Index being TESTED (nothing written, remove the "--check" argument)

Update index of table be_groups
-----------------------------
  1/1 [ ] 100%

Update index of table pages
-----------------------------
  1/1 [ ] 82%
```
Changes for Integrators

Info Module

- SEO and Social Media details have been added to the Info module:
  WEB → Info → Pagetree Overview.

Pagetree overview

<table>
<thead>
<tr>
<th>Pagetitle</th>
<th>Title for search engines</th>
<th>Description</th>
<th>Index this page</th>
<th>Follow this page</th>
<th>Canonical link</th>
<th>Change frequency</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>example.com</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td>Page 1</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td>Page 2</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td>Page 3</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>
Changes for Integrators

Scheduler

- Multiple tasks can be executed when using the option `--task`

```
typo3v10:~/www$ ./bin/typo3 scheduler:run --task 1 --task 2
```

- Verbose output can be enabled by `--v` and `--vv`

```
typo3v10:~/www$ ./bin/typo3 scheduler:run -vv
```
Changes for Integrators

Backend User Module

- A new detail view of backend user records shows all relevant data.
- Additional fields have been added to the function to compare users.
- This function also takes subgroups into account now.
- The user interface of the module will be adjusted and optimized further.
- These changes make it easier for integrators/administrators to check and compare user permissions without switching to the user.
Changes for Integrators

Extension Manager

System and 3rd-party extensions can now be listed separately in the Extension Manager.

Installed Extensions

<table>
<thead>
<tr>
<th>Extension</th>
<th>Key</th>
<th>Version</th>
<th>State</th>
<th>Type</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make BE user password really secure</td>
<td>be_secure_pw</td>
<td>9.1.0</td>
<td>stable</td>
<td>Local</td>
<td></td>
</tr>
<tr>
<td>Bootstrap Package</td>
<td>bootstrap_package</td>
<td>11.0.2</td>
<td>stable</td>
<td>Local</td>
<td></td>
</tr>
<tr>
<td>The official Introduction Package</td>
<td>introduction</td>
<td>4.2.0</td>
<td>stable</td>
<td>Local</td>
<td></td>
</tr>
<tr>
<td>Reverse Proxy - Cache Manager</td>
<td>proxy_caching_manager</td>
<td>3.0.1</td>
<td>stable</td>
<td>Local</td>
<td></td>
</tr>
<tr>
<td>TYPO3 CMS Backend Styleguide and Testing use cases</td>
<td>styleguide</td>
<td>10.0.0</td>
<td>stable</td>
<td>Local</td>
<td></td>
</tr>
</tbody>
</table>
Changes for Integrators

Environment Overview

The current application context is now shown in the Environment module: ADMIN TOOLS → Environment → Environment Overview.
Changes for Integrators

Feature Toggles

The visual appearance of feature toggles has been improved:

**TYPO3 < 10.3**

**TYPO3 >= 10.3**
Chapter 3:
Changes for Developers
Changes for Developers

Dashboard (1)

Developers can create custom widgets for the Dashboard by extending one of the following widget abstracts:

- **AbstractWidget**
  A basic abstract that can be used as the start of simple widgets.

- **AbstractRssWidget**
  An abstract to create a widget that shows a RSS feed.

- **AbstractListWidget**
  An abstract to create a widget that shows a list of items.

- **AbstractCtaButtonWidget**
  An abstract to create a widget that shows a "call-to-action" button.
Changes for Developers

Dashboard (2)

- Register your widgets in the following file of your extension:
  EXT:my_extension/Configuration/Services.yaml
- Option 1: widget identifier as attribute

  Vendor\MyExtension\Widgets\MyFirstWidget:
  tags:
    - name: dashboard.widget
      identifier: widget-identifier-1
      widgetGroups: 'general'

- Option 2: custom service name allows multiple widget identifier to share one class

  widget.identifier:
  class: Vendor\MyExtension\Widgets\MySecondWidget
  tags:
    - name: dashboard.widget
      identifier: widget-identifier-2
      widgetGroups: 'general, typo3'
Changes for Developers

Dashboard (3)

- Every widget is attached to one or more widget groups.
- Those groups are shown in the modal when adding a new widget to your dashboard.
- Developers can configure custom widget groups by creating a file
  
  \[ 
  \text{EXT:my_extension/Configuration/Backend/DashboardWidgetGroups.php} 
  \]

  ```php
  return ['widgetGroup-exampleGroup' => [
      'title' => 'LLL:EXT:my_extension/Resources/Private/Language/locallang.xlf:widget_group_name',
  ],
  ];
  ```
Changes for Developers

Extbase and Fluid

- The following PSR-14-based events have been introduced for Extbase-related signals:

  TYPO3\CMS\Extbase\Event\Mvc\AfterRequestDispatchedEvent
  TYPO3\CMS\Extbase\Event\Mvc\BeforeActionCallEvent
  TYPO3\CMS\Extbase\Event\Persistence\AfterObjectThawedEvent
  TYPO3\CMS\Extbase\Event\Persistence\ModifyQueryBeforeFetchingObjectDataEvent
  TYPO3\CMS\Extbase\Event\Persistence\ModifyResultAfterFetchingObjectDataEvent
  TYPO3\CMS\Extbase\Event\Persistence\EntityAddedToPersistenceEvent
  TYPO3\CMS\Extbase\Event\Persistence\EntityFinalizedAfterPersistenceEvent
  TYPO3\CMS\Extbase\Event\Persistence\EntityUpdatedInPersistenceEvent
  TYPO3\CMS\Extbase\Event\Persistence\EntityRemovedFromPersistenceEvent
  TYPO3\CMS\Extbase\Event\Persistence\EntityPersistedEvent

- Existing signals have been replaced and should not be used anymore.
Changes for Developers

**ViewHelper editRecord**

- An optional argument `fields` has been added to the `uri.editRecord` and `link.editRecord` ViewHelpers.
- If set, the FormEngine creates a form to only edit the given database field(s).
- The following example creates a link to edit the `tt_content.bodytext` field of record with the UID 42.

```xml
<be:link.editRecord uid="42" table="tt_content" fields="bodytext" returnUrl="foo/bar">
  Edit record
</be:link.editRecord>
```
Changes for Developers

AssetCollector

- The initial steps of integrating an AssetCollector have been implemented.
- The concept allows developers to add custom CSS/JS code (inline or external) multiple times, but TYPO3 outputs it only once.
- In this regards, two new Fluid ViewHelpers have been added:
  - `<f:asset.css>`
  - `<f:asset.script>`
- In the long run, the AssetCollector aims to replace the various existing TypoScript options that are rather confusing.
Changes for Developers

**Modify hreflang-tag**

- It is now possible to modify *hreflang* tags before they get rendered.
- Developers can achieve this by registering an event listener for the following event:
  
  `TYPO3\CMS\Frontend\Event\ModifyHrefLangTagsEvent`
Changes for Developers

Modify the CKEditor Configuration

- The following PSR-14-based events have been introduced which allow to modify the CKEditor configuration:

  TYPO3\CMS\RteCKEditor\Form\Element\Event\AfterGetExternalPluginsEvent
  TYPO3\CMS\RteCKEditor\Form\Element\Event\BeforeGetExternalPluginsEvent
  TYPO3\CMS\RteCKEditor\Form\Element\Event\AfterPrepareConfigurationForEditorEvent
  TYPO3\CMS\RteCKEditor\Form\Element\Event\BeforePrepareConfigurationForEditorEvent

- The change log for an example.
Changes for Developers

PSR-14 Events in Admin Panel

- The Admin Panel shows all PSR-14 events that have been dispatched in the current request.
Changes for Developers

API for AJAX Requests

- The **Fetch API** has been introduced to perform AJAX requests and to make TYPO3 less dependent on jQuery.
- The API provides a generic definition of Request and Response objects (and other things involved with network requests).
- Supported by all modern browsers, see [compatibility chart](#).
- The TYPO3 core uses the new API in the Install Tool, FormEngine, and context menus already.
- See the [change log](#) for some examples on how to use the Fetch API.
Changes for Developers

TCA Description Fields

- The description field in the TCA can now contain line breaks to make long texts more readable.
Changes for Developers

Classes BasicFileUtility and ExtendedFileUtility

- The following two legacy classes have been marked as **internal** and should not be used anymore:
  - TYPO3\CMS\Core\Utility\File\BasicFileUtility
  - TYPO3\CMS\Core\Utility\File\ExtendedFileUtility
- Extension developers should use the classes ResourceStorage and ResourceFactory for managing assets instead.
Changes for Developers

Console Commands: Symfony DI Support

- Command dependencies can now be injected via constructor or other injection techniques.
- Add the `console.command` tag to command classes.
- Use the tag attribute `command` to specify the command name.
- The optional tag attribute `schedulable` can be set to `false` to exclude the command from the TYPO3 scheduler.
- See change log for an example.
Changes for Developers

Action Buttons in Modals

- Modal popups now support action buttons.
- As an alternative to the existing trigger option, the new option action can be used.
- For example:

```javascript
Modal.confirm('Header', 'Some content', Severity.error, [
  {
    text: 'Based on trigger()',
    trigger: function () {
      console.log('Vintage!');
    }
  },
  {
    text: 'Based on action()',
    action: new DeferredAction(() => {
      return new AjaxRequest('/any/endpoint').post({});
    })
  }
]);
```
Changes for Developers

JavaScript Event API

- A new Event API enables JavaScript developers to have a stable event listening interface.
- The API takes care of common pitfalls like event delegation and clean event unbinding.
- Each event strategy offers two ways to bind a listener to an event.
- The Event API offers several strategies to handle event listeners.
- See change log for examples and further details.
Chapter 4: Deprecated/Removed Functions
Deprecated/Removed Functions

Switchable Controller Actions

- "Switchable Controller Actions" (SCA) have been marked as deprecated.
- SCA are used to override the allowed set of controllers and actions using TypoScript or Flexforms.
- Using the same plugin as an entry point for many different functionalities contradicts the idea of a plugin serving one specific purpose.
- Plugins that use SCA should be split into multiple different plugins.
Deprecated/Removed Functions

Global Constants

- The following two global constants have been marked as deprecated:
  - `TYPO3_version`
  - `TYPO3_branch`
- The following new PHP class should be used instead:
  `TYPO3\CMS\Core\Information\Typo3Version`
Deprecated/Removed Functions

**Extbase:** WebRequest/WebResponse

- The following two Extbase classes have been marked as **deprecated**:
  - TYPO3\CMS\Extbase\Mvc\Web\Request
  - TYPO3\CMS\Extbase\Mvc\Web\Response
Deprecated/Removed Functions

Simplified RTE Parser API

- The PHP class `RteHtmlParser` features a simplified API now.
- As a consequence, the following two methods have been marked as deprecated:
  - `TYPO3\CMS\Core\Html\RteHtmlParser->init()`
  - `TYPO3\CMS\Core\Html\RteHtmlParser->RTE_transform()`
Deprecated/Removed Functions

Console Commands Configuration

- As the console commands configuration has been migrated to Symfony service tags, the console command configuration file Configuration/Commands.php has been marked as **deprecated**.
- Use the dependency injection service tag `console.command` instead.
Deprecated/Removed Functions

**TCA: transOrigPointerField**

- Excluding the field pointed by the following TCA option led to inconsistent data stored in the database under certain circumstances: 
  
  `$GLOBALS['TCA'][$table][‘ctrl’][‘transOrigPointerField’]`

- Therefore, the targeted field can not be excluded anymore.

- A migration wizard removes the option from the TCA and adds a deprecation message to the deprecation log in case code needs to be updated.
Deprecated/Removed Functions

DocumentTemplate

- The following class has been marked as **deprecated**:  
  - `TYPO3\CMS\Backend\Template\DocumentTemplate`
- It was used as a basis to render backend modules or HTML-based output in TYPO3 backend.
- Since TYPO3 v7, the new API via ModuleTemplate should be used instead.

```php
use TYPO3\CMS\Backend\Template\ModuleTemplate;
...
$moduleTemplate = GeneralUtility::makeInstance(ModuleTemplate::class);
$content = $this->getHtmlContentFromMyModule();
$moduleTemplate->setTitle('My module');
$moduleTemplate->setContent($content);
return new HtmlResponse($moduleTemplate->renderContent());
```
Deprecated/Removed Functions

LinkValidator

- The following method has been marked as deprecated:

  ```php
  TYPO3\CMS\Linkvalidator\Repository\BrokenLinkRepository
  ->getNumberOfBrokenLinks()
  ```

- Use the following method in the same class instead:

  ```php
  BrokenLinkRepository::isLinkTargetBrokenLink()
  ```
Chapter 5:
Security and Privacy
Security and Privacy

Dashboard

- Widgets of Dashboards possibly contain sensitive information.
- Therefore, we recommend to define access permissions for widgets on a group basis.
- Backend users only have access to widgets that are available for them.
- Users with administrator permissions always have access to all widgets.
The DebugExceptionHandler possibly outputs sensitive data that could result in an information disclosure vulnerability.

A new status report has been introduced to warn administrators.

**WARNING**, if context is set to **development** and the error output is enabled:

<table>
<thead>
<tr>
<th>Exception Handler / Error Reporting</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Display Errors is set to 1 - errors will be displayed with the DebugExceptionHandler including stack traces.</td>
</tr>
</tbody>
</table>

**ERROR**, if context is set to **production** and the error output is enabled:

<table>
<thead>
<tr>
<th>Exception Handler / Error Reporting</th>
<th>Insecure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Debug Exception Handler enabled in Production Context - will show full error messages including stack traces.</td>
</tr>
</tbody>
</table>
To strengthen security and privacy, TYPO3 now supports the "SameSite"-option for cookies set by the TYPO3 core.

The attribute is supported by most modern browsers and allows websites to declare if cookies should be restricted.

According to OWASP, SameSite cookies "mitigate the risk of cross-origin information leakage", with "some protection against cross-site request forgery attacks".

Valid settings are "strict", "lax", or not set.
Security and Privacy

SameSite Cookies (2)

- TYPO3 sets the following options:
  - FE user sessions: "lax" by default
  - BE user sessions: "strict" by default
  - Install Tool sessions: "strict" (not configurable)
  - Last login provider (BE): "strict" (not configurable)

- The Install Tool offers a system configuration to adjust the SameSite cookies policies, if the default settings are too strict (e.g. with authentication providers such as OpenID/OAuth).

- Read more about SameSite cookies in RFC6265 (draft).
Security and Privacy

Password Hash Algorithms

- The hashing algorithm Argon2i ("i") was introduced with TYPO3 v9 LTS.
- Argon2id ("id") is now also available in TYPO3 if the PHP version supports it.
- Argon2id is a hybrid of Argon2i and Argon2d and is more resistant against side-channel attacks.
- Argon2id is typically available on systems with PHP version 7.3 or higher.
Chapter 6:
Sources and Authors
Sources and Authors

Sources

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

**Release Infos:**
- [https://get.typo3.org/release-notes/10.x/TYPO3_CMS_10.3.0](https://get.typo3.org/release-notes/10.x/TYPO3_CMS_10.3.0)
- **TYPO3 v10 Changelog**
- typo3/sysext/core/Documentation/Changelog/10.3/*

**TYPO3 Bug-/Issuetracker:**

**TYPO3 and Fluid Git Repositories:**
- [https://git.typo3.org/Packages/TYPO3.CMS.git](https://git.typo3.org/Packages/TYPO3.CMS.git)
- [https://github.com/TYPO3/Fluid](https://github.com/TYPO3/Fluid)
Sources and Authors

TYPO3 CMS What’s New Team:

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

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