How to translate your Angular 11 app with ngx-translate

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What you are going to learn in this tutorial

Here's a small outline of the tutorial:

- How to set up ngx-translate
- How to update your translation files with ngx-translate-extract
- How to edit and maintain multiple JSON files

This tutorial is for **Angular 8 - 11** together with the corresponding ngx-translate versions.

Older versions are available from here:

- How to translate your Angular 7 app with ngx-translate
- How to translate your Angular 6 app with ngx-translate

How to set up ngx-translate

Optional: Create an Angular demo project

For this tutorial you'll start with a simple demo application. I assume that you already have basic knowledge of Angular and AngularCLI is already installed on your system. You can of course skip this step and use your own project.

```
npm install -g @angular/cli
```

Enter the following if you don't want to share usage data with the creators of Angular:

```
ng analytics off
```

Create an empty new project:

```
ng new translation-demo
```

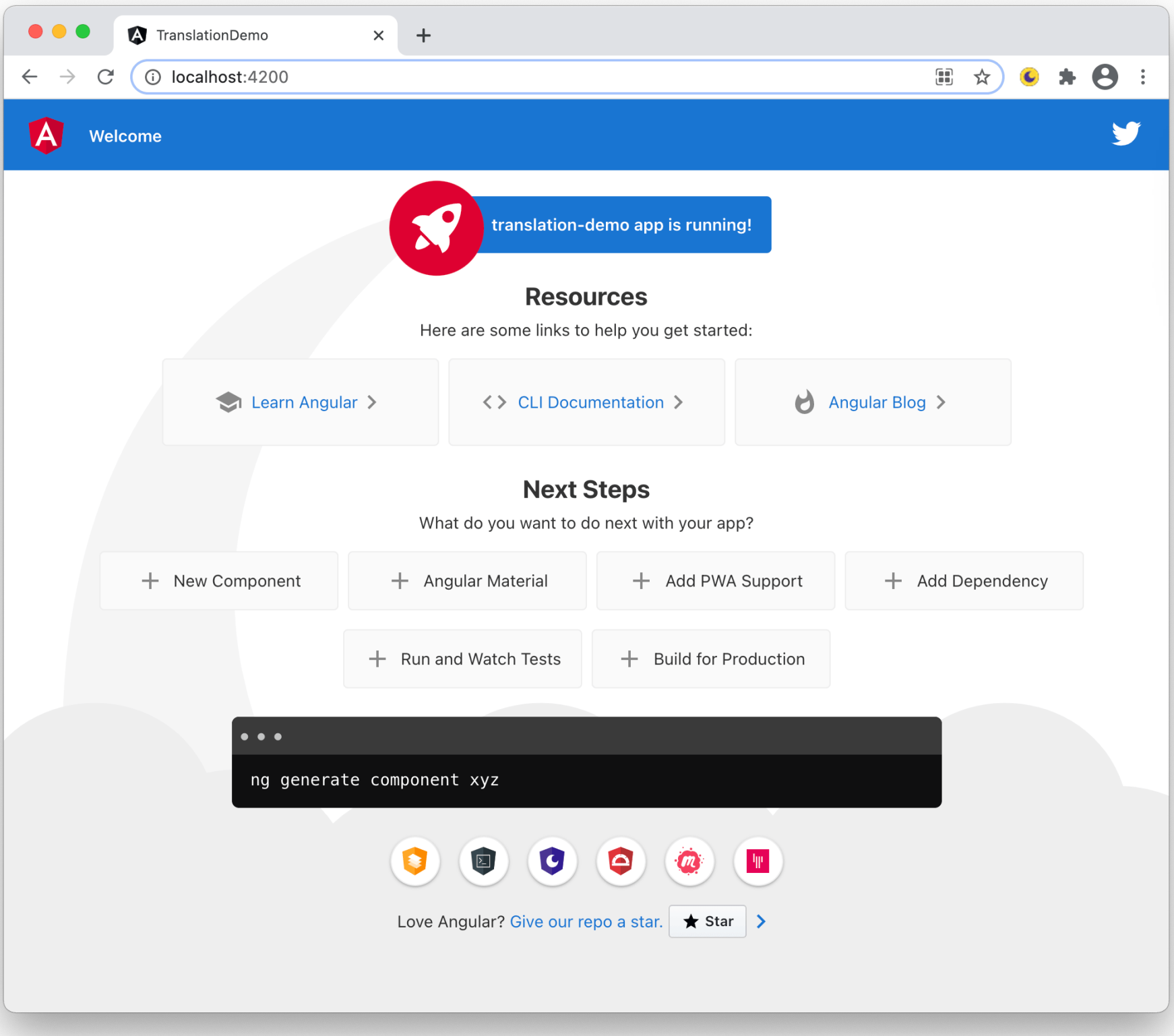
The ng client now asks you if you want to add a router and which CSS style / to use. It does not matter which one you choose.

```
? Would you like to add Angular routing? No
? Which stylesheet format would you like to use? CSS
```

Finally start the new project:

```
cd translation-demo
ng serve
```

The demo project should now be available in your web browser under the following url: http://localhost:4200. You should see something similar to this screen:



How to add ngx-translate your Angular application

Abort the server with CTRL-C and enter the following line in the terminal:

```
npm install @ngx-translate/core @ngx-translate/http-loader rxjs --save
```

The `@ngx-translate/core` contains the core routines for the translation: The `TranslateService` and some pipes.

The `@ngx-translate/http-loader` loads the translation files from your webserver.

Now you have to init the translation TranslateModule in your `app.module.ts`:

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';

import { AppComponent } from './app.component';


// import ngx-translate and the http loader
import {TranslateLoader, TranslateModule} from '@ngx-translate/core';
import {TranslateHttpLoader} from '@ngx-translate/http-loader';
import {HttpClient, HttpClientModule} from '@angular/common/http';

@NgModule({
    declarations: [
        AppComponent
    ],
    imports: [
        BrowserModule,

        // ngx-translate and the loader module
        HttpClientModule,
        TranslateModule.forRoot({
            loader: {
                provide: TranslateLoader,
                useFactory: HttpLoaderFactory,
                deps: [HttpClient]
            }
        })
    ],
    providers: [],
    bootstrap: [AppComponent]
})
export class AppModule { }


// required for AOT compilation
export function HttpLoaderFactory(http: HttpClient): TranslateHttpLoader {
    return new TranslateHttpLoader(http);
}
```

The `HttpLoaderFactory` is required for AOT (ahead of time) compilation in your project.

Now switch to `app.component.ts`:

```
import {Component} from '@angular/core';
import {TranslateService} from '@ngx-translate/core';

@Component({
    selector: 'app-root',
    templateUrl: './app.component.html',
    styleUrls: ['./app.component.css']
})
export class AppComponent {
    constructor(private translate: TranslateService) {
        translate.setDefaultLang('en');
    }
}
```

First, you have to inject `TranslateService` in the constructor.

The next step is to set the default language of your application using `translate.setDefaultLang('en')`. In a real app you can of course load language from the user's settings.

And finally replace the content of the `app.component.html` with this:

```
<div>
    <h1>Translation demo</h1>
    <p>This is a simple demonstration app for ngx-translate</p>
</div>
```

Reloading the app now shows an error in the browser console:

Failed to load resource: the server responded with a status of 404 (Not Found) http://localhost:4200/assets/i18n/en.json

This is because of the http loader which now tries to load the default language (en) from the server.

How to translate your application

The JSON translation file

Each language is stored in a separate .json file. Let's create the JSON file for the English translation: `assets/i18n/en.json`. Use the texts from the `app.components.html`.

ngx-translate can read 2 JSON formats:

```
{
  "demo.title": "Translation demo",
  "demo.text": "This is a simple demonstration app for ngx-translate"
}
```

or

```
{
    "demo": {
        "title": "Translation demo",
        "text": "This is a simple demonstration app for ngx-translate"
    }
}
```

This is just a matter of personal taste. The second one (so called namespaced-json format) is more structured and gives a better overview over the translations. It's the format I prefer. It's not important which one you choose — it's easy to convert one into the other later. Please use the second format for this tutorial.

Using translations

`title` and `text` are identifiers ngx-translate uses to find the translation strings. Now edit the `app.component.html` and replace the static texts with references to the messages in the `en.json` file.

You have 3 choices when it comes to adding translations:

- translation pipe — `{{'id' | translate}}`
- translation directive — id as attribute value`<element [translate]="'id'"></element>`
- translation directive — id as a child `<element translate>id</element>`

All options lead to the same result — it's just a matter of personal taste which one you want to use.

```
<div>
    <h1>{{ 'demo.title' | translate }}</h1>

    <!-- translation: translation pipe -->
    <p>{{ 'demo.text' | translate }}</p>

    <!-- translation: directive (key as attribute)-->
    <p [translate]="'demo.text'"></p>

    <!-- translation: directive (key as content of element) -->
    <p translate>demo.text</p>
</div>
```

Translations with parameters

ngx-translate also supports parameters in translations. They are passed as an object, the keys can be used in the translation strings.

```
<!-- translation with parameters: translation pipe -->
<p>{{ 'demo.greeting' | translate:{'name':'Andreas'} }}</p>

<!-- translation: directive (key as attribute) -->
<p [translate]="'demo.greeting'" [translateParams]="{name: 'Andreas'}"></p>

<!-- translation: directive (key as content of element)-->
<p translate [translateParams]="{name: 'Andreas'}">demo.greeting</p>
```

And the extended translations file:

```
{
  "demo": {
    …
    "greeting": "Hello {{name}}!"
  }
}
```

Switching languages at runtime

To switch language you'll first have to add a new JSON file for that language. Let's create a German translation for the demo: `assets/i18n/de.json`

```
{
    "demo": {
        "title": "Übersetzungs-Demo",
        "text": "Dies ist eine einfache Applikation um die Funktionen von ngx-transalte zu demonstrieren.",
        "greeting": "Hallo {{name}}!"
    }
}
```

Reloading the app will not show any differences — this is because you've set the default language to `en` in `app.component.ts`.

Make the following changes to the `app.component.html` to add a simple language switcher:

```
<button (click)="useLanguage('en')">en</button>
<button (click)="useLanguage('de')">de</button>
```

Add the following method to the `app.component.ts`

```
useLanguage(language: string): void {
    this.translate.use(language);
}
```

Working with JSON translation files: A pain in the *****

You are a programmer and you are right — editing a single JSON file is easy. We all do it all day long: package.json, composer.json — all fine. I sometimes forget to add or remove a comma but this is not an issue.

JSON translation files are a completely different story. Why?

1. You have to keep multiple files in sync

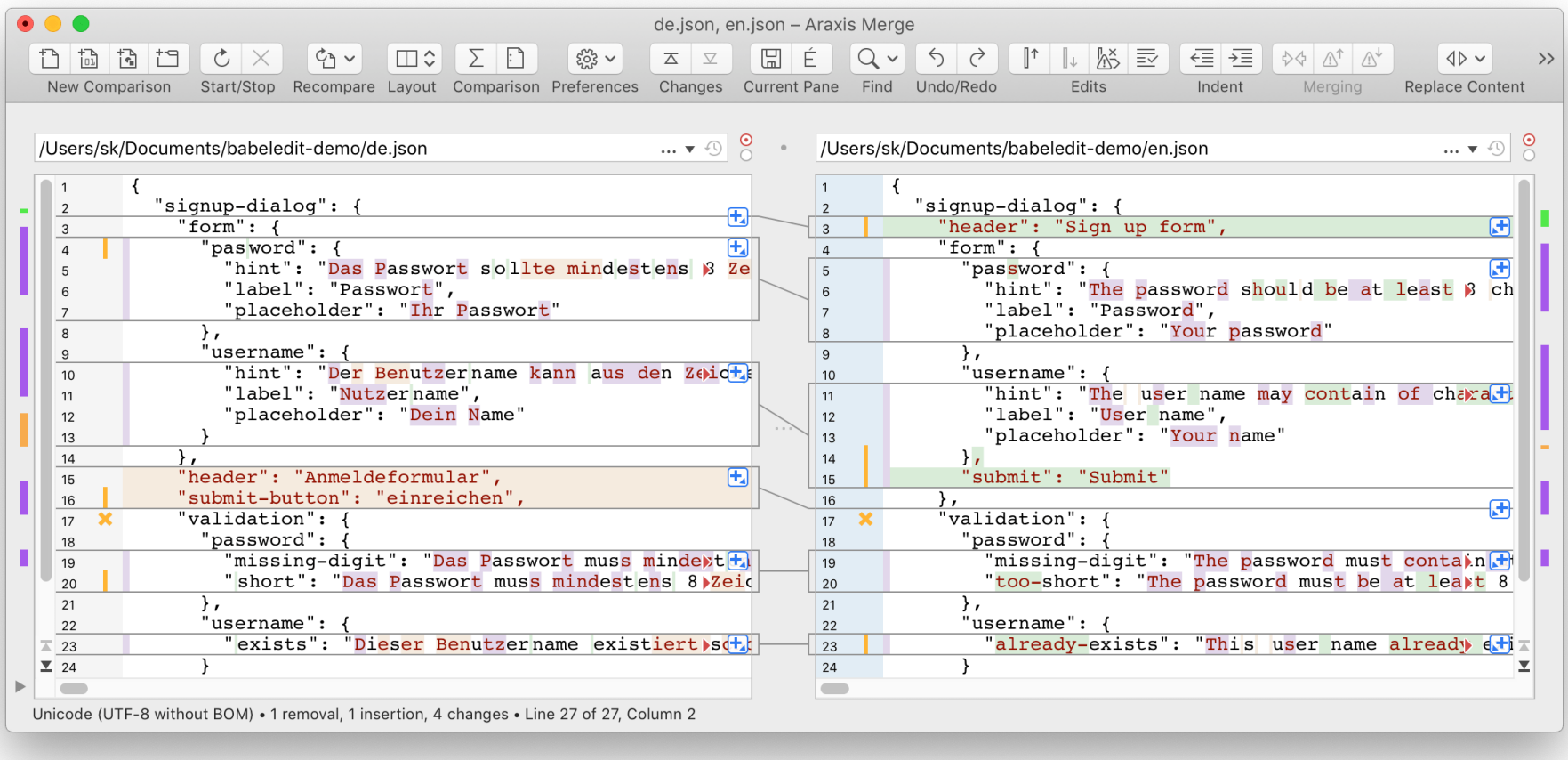
Each change that you make to a translation ID — like adding, removing or renaming — has to be done on all language files. Yes: en.json, it.json, fr.json, de.json,... all need the same treatment.

2. You end up with differences

Sooner or later you'll end up with differences in the language files — no matter how disciplined you are. Just one small edit here... and you forget about updating fr.json and de.json...

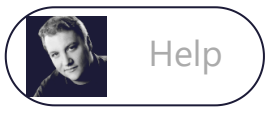
3. You try to fix it with a diff / compare tool

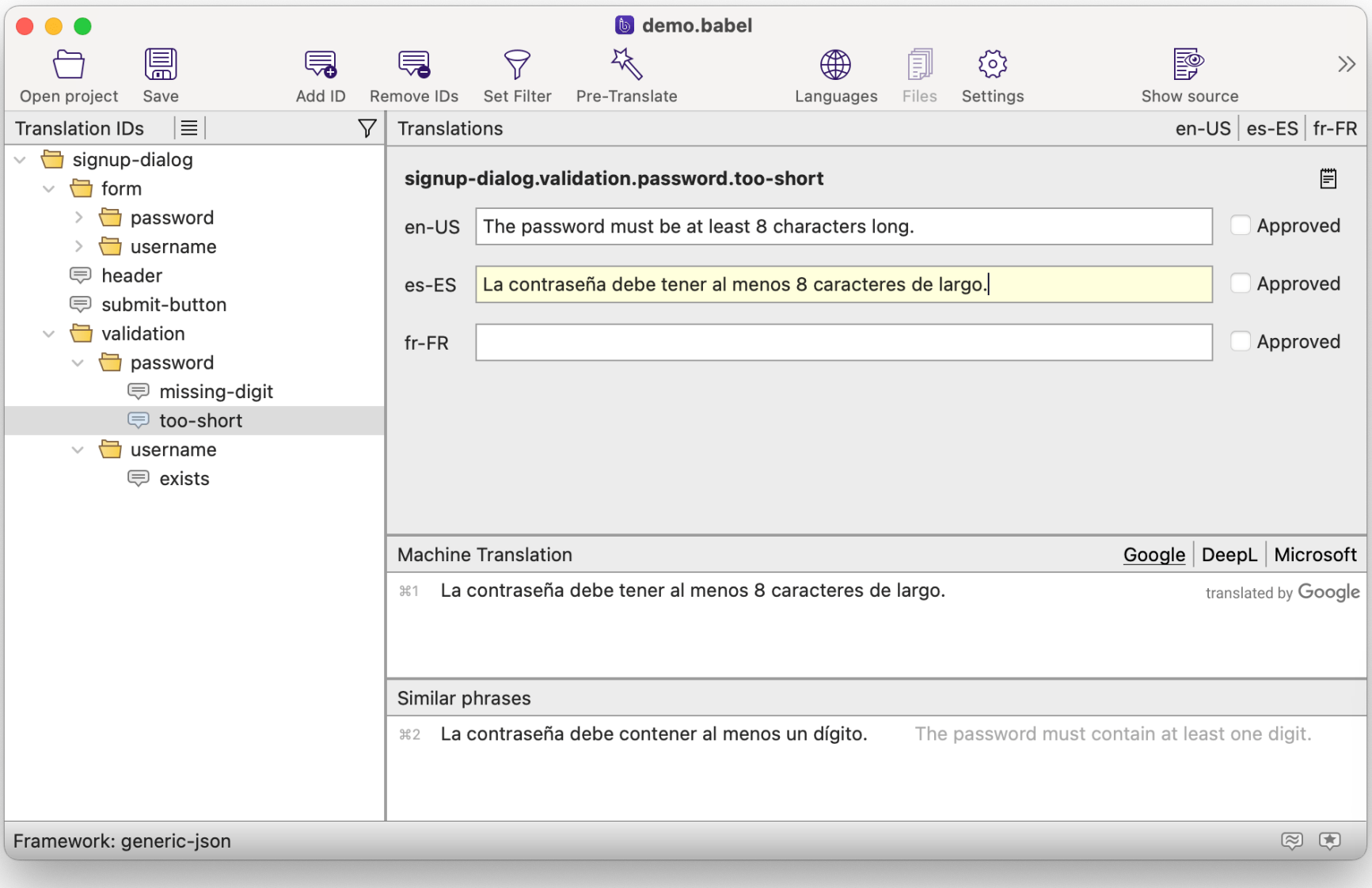
Now you try to use some diff tool to find out what the differences are: Which IDs are in which file? What is missing? And guess what: You diff tools shows tons of changes...



Above is a diff of 2 JSON files in AraxisMerge — which is a really good diff / merge tool. But it's simply the wrong tool for the job...

The way better solution is using a specialized editor for translation files:





cheat sheet

Editing JSON files with BabelEdit

Things are easy as long as you are only working with a single translation file. But as soon as you add a second language it becomes quite hard work to maintain both files. Not to speak of 5 or more languages.

To get started with BabelEdit download it from here:

Download BabelEdit
for Windows (64-bit)

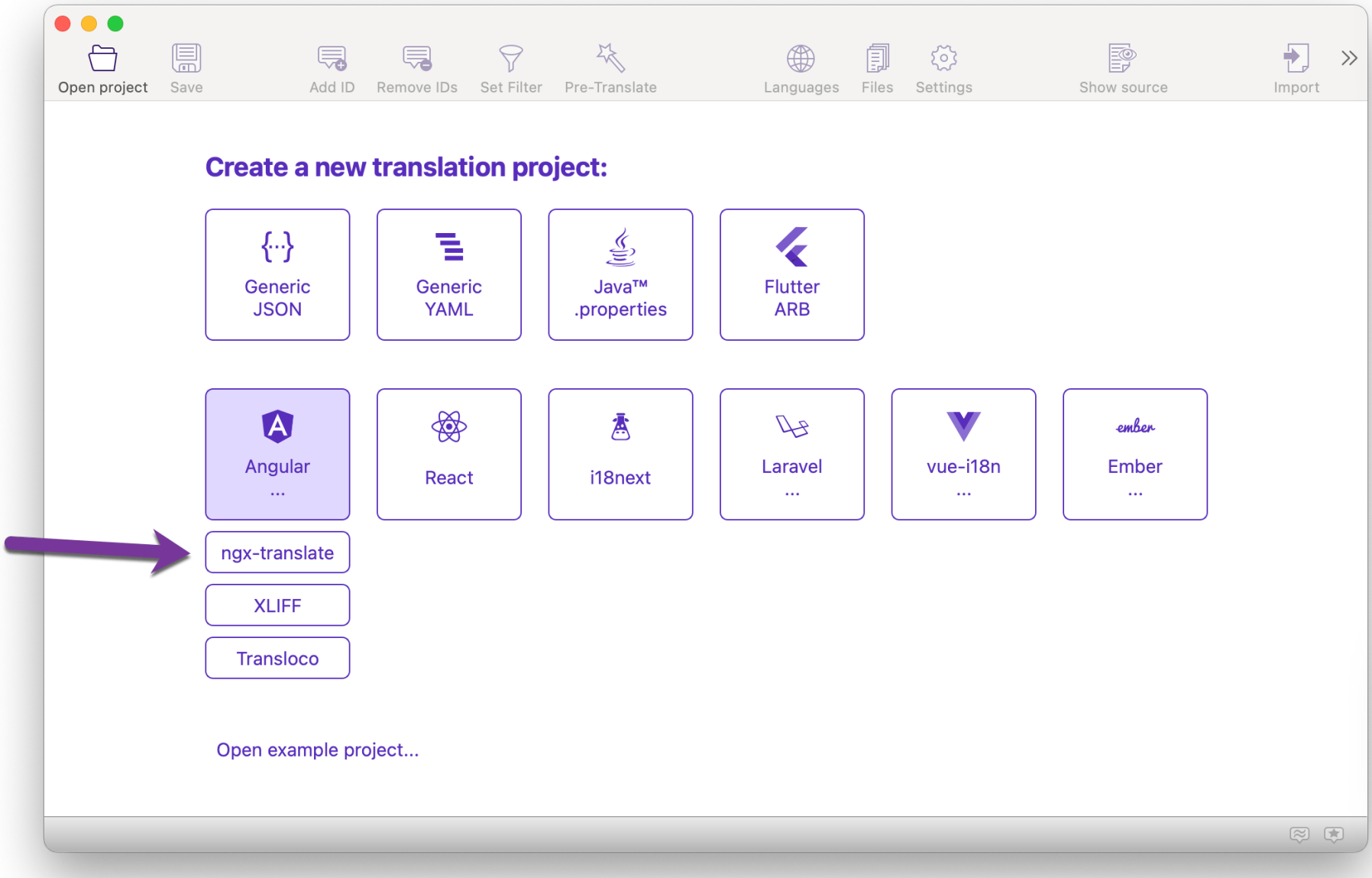
Also available for macOS and Linux

BabelEdit is a professional translation editor that works with the common web development frameworks including Angular and ngx-translate. It comes with a lot of nice features that make your daily work much easier:

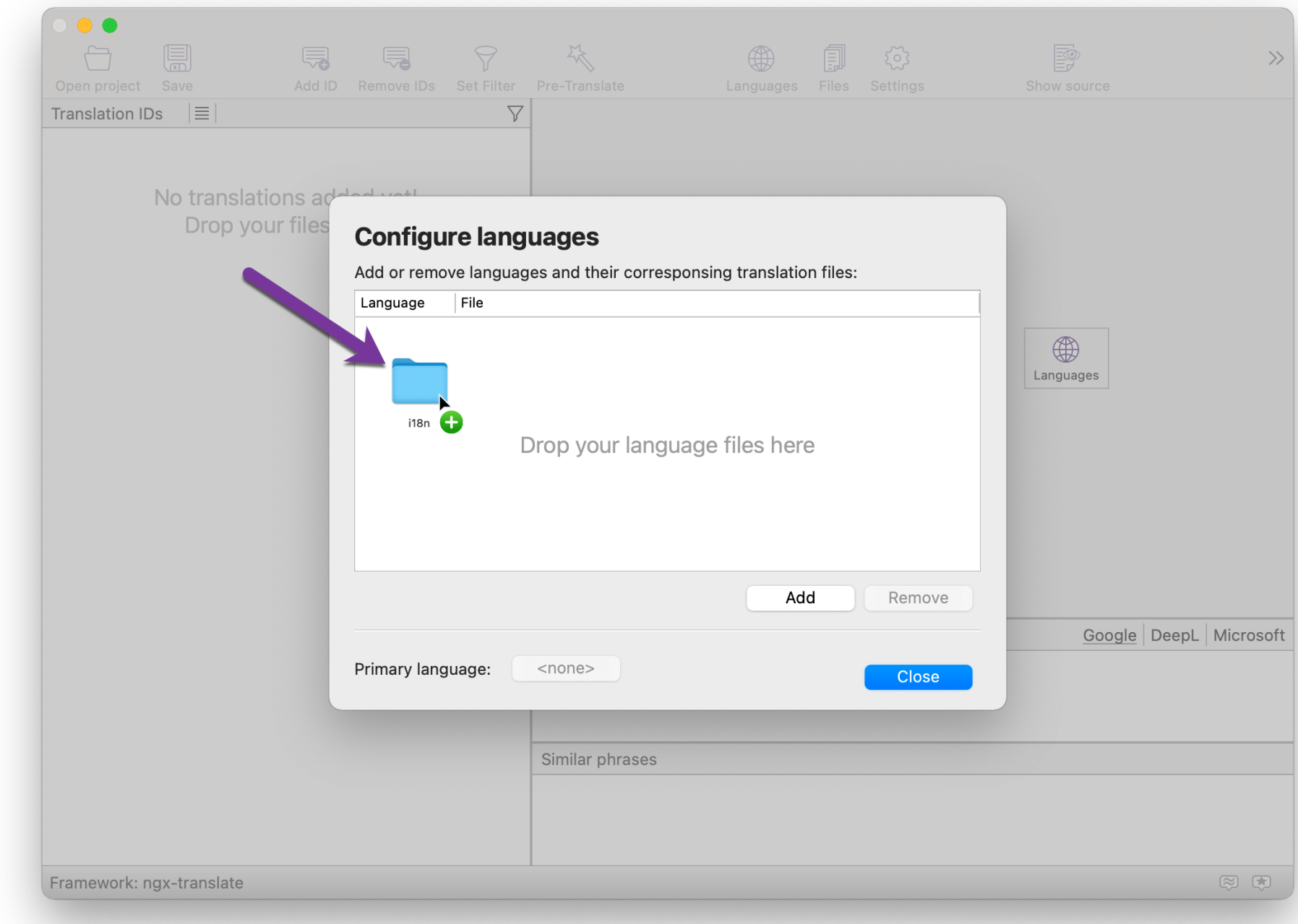
- See all translations in parallel — stop switching between json files all the time
- Spell checking for each language
- Auto fill translations from google translate
- Import / Export to and from Excel / CSV / Google Spread Sheets for easy exchange with your translators

Start by selecting the ngx-translate project template:

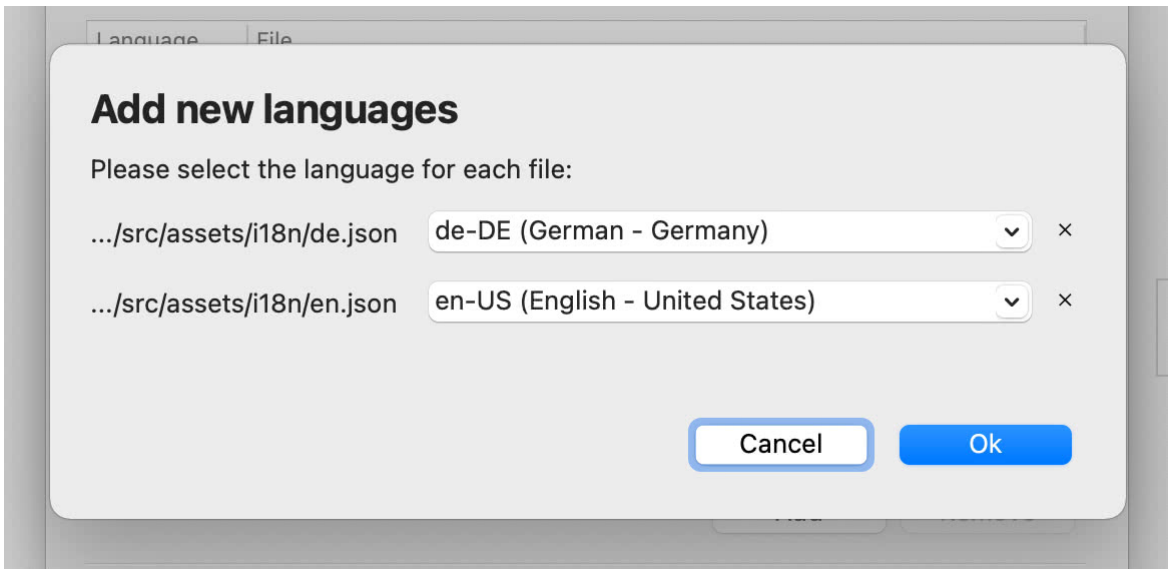
Help



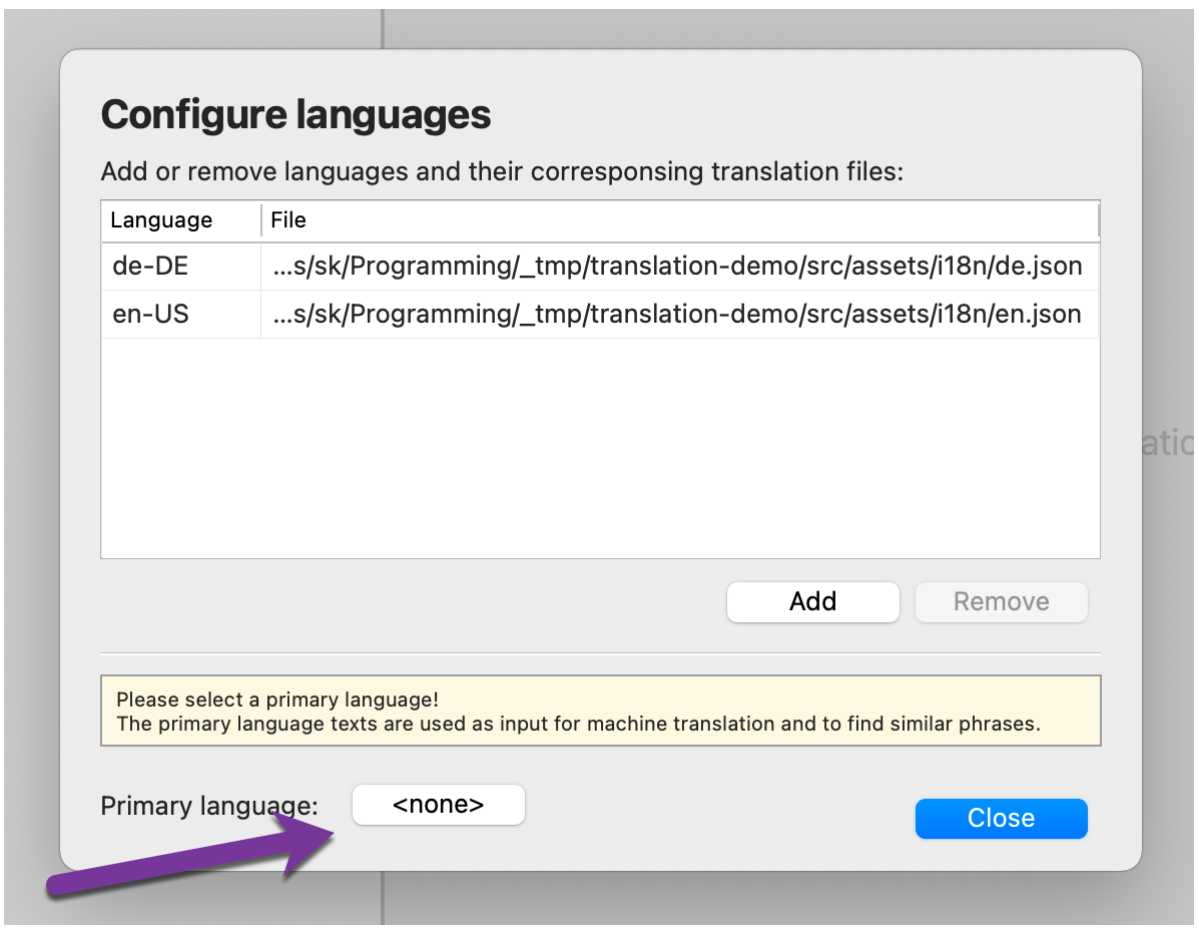
Now drag & drop your `assets/i18n`-folder onto the main window.



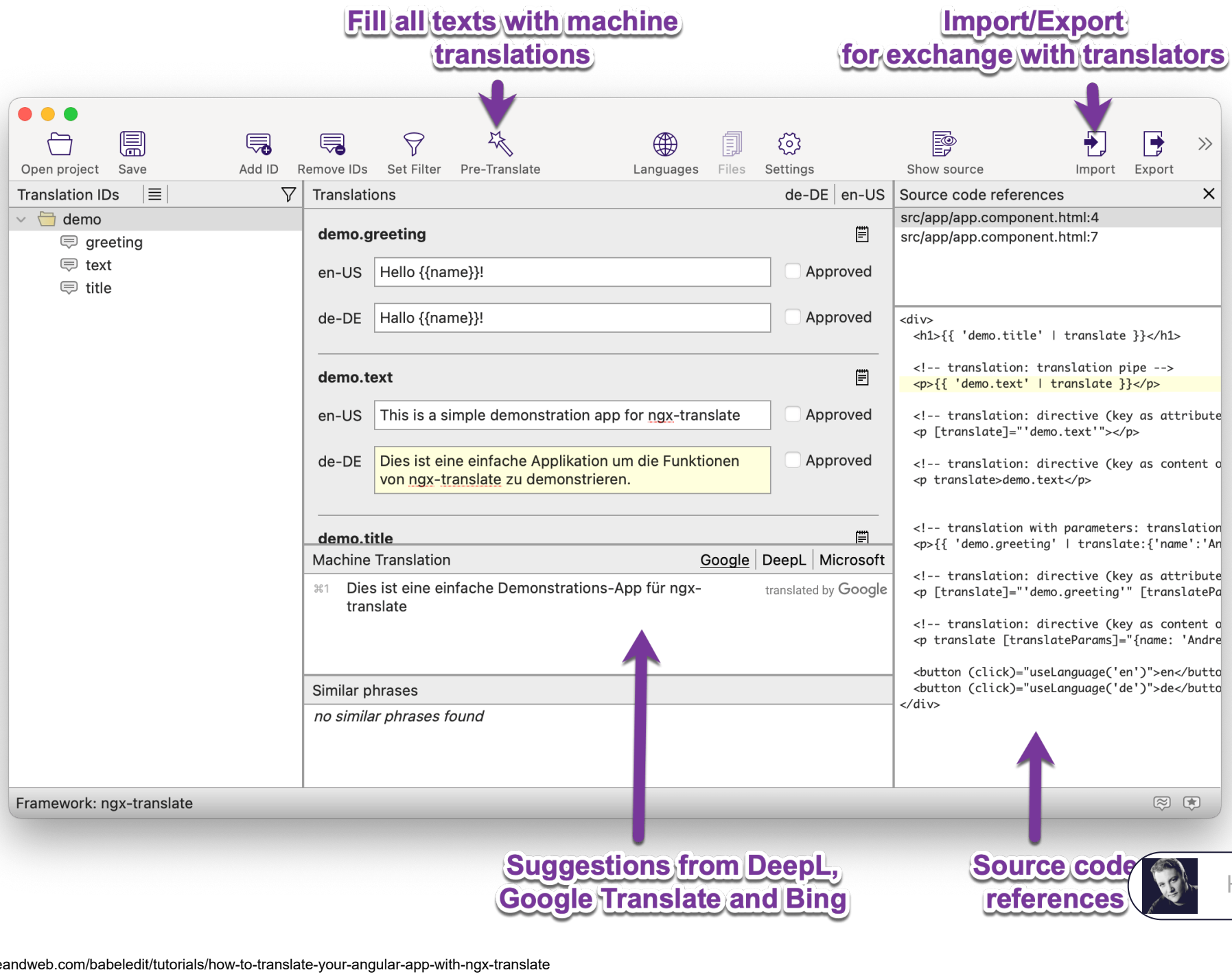
BabelEdit now asks you for the languages contained in the files — making guesses from the file name.



Set the primary language to en-US — it's required for the automatic translation feature of BabelEdit:



After confirming the languages start working in BabelEdit:

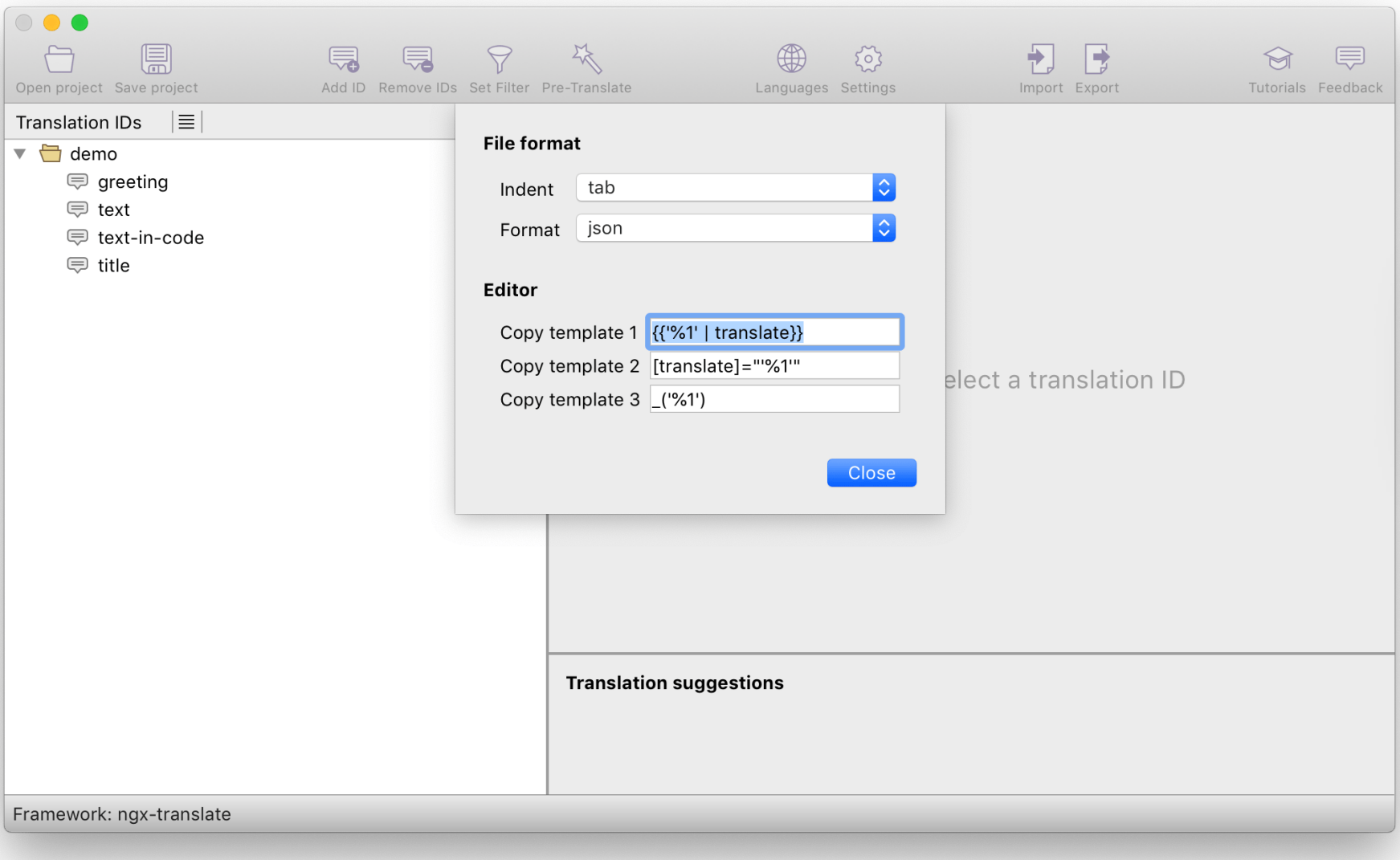


This is why we've created BabelEdit. It's a translation editor that can open multiple JSON files at once to work on them at the same time. Editing both translations from our example looks like this:

The left side contains a tree view with your translation ids, the right side the translations. The ***Approved*** checkbox allows you to mark translations as final. This additional information is stored in a BabelEdit project file (extension .babel).

The editor automatically reloads the files after they have been updated — e.g. from a new run of ngx-translate-extract.

BabelEdit currently used the flat JSON file format as default (because it's default in ngx-translate extract). If you use the `namespaced-json` format from our setup you have to change the format in the settings:



You can also specify copy templates. Use these to copy a translation id from the left panel in a format that you can directly insert into your source code.

Update JSON files with ngx-translate-extract

Keeping the JSON files and your app in sync might become a challenge for more complex applications.

The good thing: Kim Biesbjerg created a tool called ngx-translate-extract. It scans your Angular app for the use of translations and adds new translations to your JSON files.

Start by adding it to your project:

```
npm install @biesbjerg/ngx-translate-extract --save-dev
```

You can add the following lines to your `package.json` to make using the tool more convenient:

```
"scripts": {
    "extract-translations": "ngx-translate-extract --input ./src --output ./src/assets/i18n/*.json --clean --
sort --format namespaced-json --marker _"
}
```

Let's take a look at the parameters:

`--input ./src`

Sets the source directory in which to look for translations. The default is to scan all `html` and `ts` files. You can use an additional `--patterns` parameter to specify other file extensions.

`--output ./src/assets/i18n/*.json`
This specifies which files to update. The example here updates all existing language files in your `./src/assets/i18n` folder that end with `json`. To add new languages simply add a new (empty) file to the translation folder. You can also list individual files if you prefer being more precise about what to update.

`--clean`
This option removes all translations that are not found in the source files. Usually it's a good idea to enable this to keep files consistent.

`--sort`
Sorts the JSON files.

`--format namespaced-json`
Creates the JSON files with the nested object structure as you used in this tutorial.

`--marker _`
ngx-translate-extract can search your TypeScript files for strings to translate. You have to surround the strings with a marker function e.g. `_('app.title')`. See below.

A simple command now updates your JSON files:

```
npm run extract-translations
```

Using translatable strings in your TypeScript files

Sometimes you have to add translatable strings to your TypeScript code. ngx-translate-extract needs a way to distinguish between these strings and all the other strings in your application.

This is where the marker function comes into play. The function itself does nothing — it only passes the string as a result.

```
import {_} from '@biesbjerg/ngx-translate-extract/dist/utils/utils';

{
    …
    var messageBoxContent = _('messagebox.warning.text');
    …
}
```

How to fix error TS2688: Cannot find type definition file for 'yargs'

You might see the following error:

```
ERROR in node_modules/@biesbjerg/ngx-translate-extract/dist/cli/cli.d.ts(1,23): error TS2688: Cannot
find type definition file for 'yargs'.
```

This is because your IDE might have inserted `@biesbjerg/ngx-translate-extract` instead of `@biesbjerg/ngx-translate-extract/dist/utils/utils`. Simply fix the import statement to get rid of the error.

You can now use the pipe or directive to display the translated string:

```
<div>{{ messageBoxContent | translate }}</div>
```

How to use a different marker function instead of _()

In some cases using `_()` as a marker function might lead to conflicts with other modules. The solution is to create your own function — e.g. `TRANSLATE()`. The function's only job is to return the string that's passed to it as parameter:

```
export function TRANSLATE(str: string) {
    return str;
}
```

This is how you use the new translate marker:

```
var messageBoxContent = TRANSLATE('messagebox.warning.text');
```

Also update your `extract-translations` command in `package.json` with `--match TRANSLATE`.

How to work with pluralization in Angular and ngx-translate

Sometimes it's not enough to simply add a value to your translations. There are cases where parts or event the whole sentence has to change.

Think about the following situation: You want to display the number of images a user has uploaded.

- No image uploaded yet.
- One image uploaded.
- 123 images uploaded.

Or you want to display a dynamic value:

- My favorite color is green.
- My favorite color is red.
- My favorite color is blue.

The ngx-translate-messageformat-compiler is what you need now! It parses messages using the ICU syntax.

Install the plugin using the following commands:

```
npm install ngx-translate-messageformat-compiler messageformat@2.0.2 --save
```

Next you have to tell ngx-translate to use the message format compiler for rendering the translated messages in `app.module.ts`:

```
import {BrowserModule} from '@angular/platform-browser';
import {NgModule} from '@angular/core';
import {AppRoutingModule} from './app-routing.module';
import {AppComponent} from './app.component';

// import ngx-translate and the http loader
import {TranslateCompiler, TranslateLoader, TranslateModule} from '@ngx-translate/core';
import {TranslateHttpLoader} from '@ngx-translate/http-loader';
import {HttpClient, HttpClientModule} from '@angular/common/http';

// import ngx-translate-messageformat-compiler
import {TranslateMessageFormatCompiler} from 'ngx-translate-messageformat-compiler';

@NgModule({
    declarations: [
        AppComponent
    ],
    imports: [
        BrowserModule,
        AppRoutingModule,
        // configure the imports
        HttpClientModule,
        TranslateModule.forRoot({
            loader: {
                provide: TranslateLoader,
                useFactory: HttpLoaderFactory,
                deps: [HttpClient]
            },

            // compiler configuration
            compiler: {
                provide: TranslateCompiler,
                useClass: TranslateMessageFormatCompiler
            }
        })
    ],
    providers: [],
    bootstrap: [AppComponent]
})

export class AppModule {
}

// required for AOT compilation
export function HttpLoaderFactory(http: HttpClient) {
    return new TranslateHttpLoader(http);
}
```

Update `app.component.html` to render the new demo messages:

```
<h2>ngx-translate-messageformat-compiler demo</h2>

<ul>
    <li translate [translateParams]="{ count: 0 }">pluralization.things</li>
    <li translate [translateParams]="{ count: 1 }">pluralization.things</li>
    <li>{{'pluralization.things' | translate:"{ count: 2 }"}}</li>
</ul>
<ul>
    <li translate [translateParams]="{ gender: 'female', name: 'Sarah' }">pluralization.people</li>
    <li translate [translateParams]="{ gender: 'male', name: 'Peter' }">pluralization.people</li>
    <li>{{'pluralization.people' | translate:"{ name: 'Sarah + Peter' }"}}</li>
</ul>

<button class="btn btn-primary" (click)="useLanguage('en')">en</button>
<button class="btn btn-primary" (click)="useLanguage('de')">de</button>
```

Finally update the .json files with the new ICU syntax:

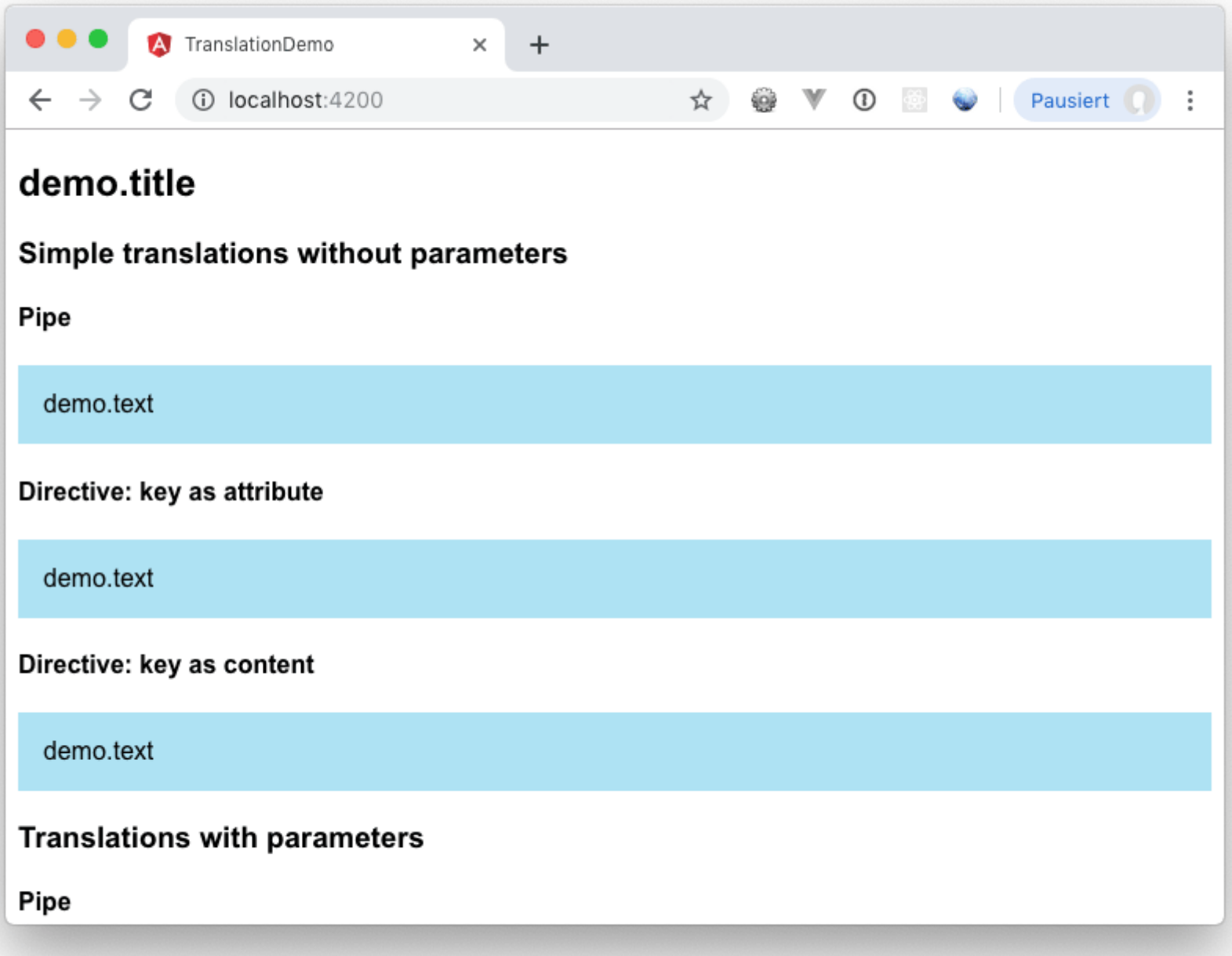
```
{
    "pluralization": {
        "things": "There {count, plural, =0{is} one{is} other{are}} {count, plural, =0{} one{a}
 other{several}} {count, plural, =0{nothing} one{thing} other{things}}",
        "people": "{gender, select, male{His name is} female{Her name is} other{Their names are }} {name}"
    }
}
```

Please note that the ICU templates used by the message parser use single braces `{}` to enclose parameters — in contrast to the template format of ngx-translate.

You can read more about the ICU syntax here: ICO User Guide.

How to fix glitches when using TranslateLoader

The translation files are loaded after the application is initialized, this is why you can see the translation message IDs for a short time.



The easiest way to avoid this is to add your main language as static data to your application. You'll still see a small glitch when you start the application with another language — but this time it's your main language that is displayed and not the translation IDs.

If this is also not acceptable you can either bundle your application with all languages or build separate bundles for each language.

First enable loading of JSON files in your `tsconfig.app.json`

```
"compilerOptions": {
    ...
    "resolveJsonModule": true,
    "esModuleInterop": true
    ...
},
```

Open your `app.component.ts` and load your default language at the top:

```
import defaultLanguage from "./../assets/i18n/en.json";
```

Change the constructor to set the translations from the file:

```
constructor(private translate: TranslateService) {
    translate.setTranslation('en', defaultLanguage);
    translate.setDefaultLang('en');
}
```

Conclusion

With ngx-translate it's easy to create a multilingual version of your Angular app.

Use ngx-translate-extract to keep your translation files up-to-date.

Finally BabelEdit helps you to mange and edit your translations.

Did you like the tutorial? Please share!

Source code available for download

The source code is available on GitHub. Clone it using `git`:

```
git clone https://github.com/CodeAndWeb/ngx-translate-demo.git
```

or download one of the archives:

ngx-translate-demo.zip | ngx-translate-demo.tar.gz

cheat sheet