

```
1 package net.wiredclub.translation;
2
3 import com.fasterxml.jackson.databind.JsonNode;
4 import com.fasterxml.jackson.databind.node.ArrayNode;
5 import com.flipkart.zjsonpatch.JsonDiff;
6 import com.flipkart.zjsonpatch.JsonPatch;
7 import org.slf4j.Logger;
8 import org.slf4j.LoggerFactory;
9
10 import java.io.IOException;
11 import java.util.Iterator;
12
13 import static net.wiredclub.translation.DeepLHelper.DeepLUsage;
14 import static net.wiredclub.translation.TranslationStatusCode.STATUS_BAD_AS_HELL;
15 import static net.wiredclub.translation.TranslationStatusCode.STATUS_FILE_NOT_FOUND;
16 import static net.wiredclub.translation.TranslationStatusCode.STATUS_JSON_INVALID;
17 import static net.wiredclub.translation.TranslationStatusCode.STATUS_OK;
18 import static net.wiredclub.translation.TranslationStatusCode.STATUS_TRANSLATION_FILE_INVALID;
19
20 /**
21  * Translate all modified keys from source language into target language.
22  * The previous version with translations is taken from previous commit.
23  */
24 public class TranslationTool {
25
26     private static final Logger LOG = LoggerFactory.getLogger(TranslationTool.class);
27
28     private final JsonHelper jsonHelper;
29     private final DeepLHelper deepLHelper;
30     private final FileHelper fileHelper;
31     private final CommandLineHelper commandLineHelper;
32
33     private TranslationConfig cfg;
34
35     /**
36      * Without using CDI we instantiate all required classes here. For mocking
37      * of some classes the second constructor is used.
```

```
38     */
39     TranslationTool() {
40         this.jsonHelper = new JsonHelper();
41         this.deepLHelper = new DeepLHelper(jsonHelper);
42         this.fileHelper = new FileHelper();
43         this.commandLineHelper = new CommandLineHelper(deepLHelper, fileHelper);
44     }
45
46     /**
47      * Constructor for tests.
48      *
49      * @param jsonHelper either real or mock class
50      * @param deepLHelper either real or mock class
51      * @param fileHelper either real or mock class
52      * @param commandLineHelper either real or mock class
53     */
54     TranslationTool(JsonHelper jsonHelper, DeepLHelper deepLHelper, FileHelper fileHelper,
55                     CommandLineHelper commandLineHelper) {
56         this.jsonHelper = jsonHelper;
57         this.deepLHelper = deepLHelper;
58         this.fileHelper = fileHelper;
59         this.commandLineHelper = commandLineHelper;
60     }
61
62     public static void main(String[] args) {
63         System.exit(new TranslationTool().run(args).exitCode());
64     }
65
66     TranslationStatusCode run(String[] args) {
67         try {
68             cfg = commandLineHelper.getTranslationConfig(args);
69             processTranslation();
70         } catch (TranslationException e) {
71             String message = e.getMessage();
72             if (message != null && !message.isBlank()) {
73                 LOG.warn(message);
74             }
75         }
76     }
```

```

75         return e.statusCode();
76     } catch (Throwable e) {
77         LOG.error(e.getMessage(), e);
78         return STATUS_BAD_AS_HELL;
79     }
80     return STATUS_OK;
81 }
82
83 /**
84  * <ol>
85  *     <li>Read source file and find differences to the previous version</li>
86  *     <li>For every target language</li>
87  *     <ol>
88  *         <li>Read target file and find differences to source file</li>
89  *         <li>Translate text and create patch operation changes between target to source</li>
90  *         <li>Translate remaining source text changes and create patch operation for source</li>
91  *         <li>Write output file</li>
92  *     </ol>
93  * </ol>
94  *
95  * Look at the activity diagram in documentation folder for a graphical overview.
96  *
97  * @throws TranslationException throws exception if translation is not possible
98  * @throws IOException throws exception if an error during file IO occurs
99  */
100 private void processTranslation() throws TranslationException, IOException {
101     // run information for devs
102     if (LOG.isDebugEnabled()) {
103         LOG.info("Translation tool started.");
104         LOG.info("Source language: {}", cfg.sourceLanguage());
105         LOG.info("Target language(s): {}", cfg.targetLanguages());
106         LOG.info("Translations directory: {}", cfg.translationsDirectory());
107         DeepLUsage usage = deepLHelper.usage();
108         LOG.info("DeepL translations possible: {}/{})", usage.characterCount(), usage.characterLimit());
109     }
110
111     // read actual main.json

```

```
112     JsonNode sourceJson = getTranslationFile(cfg.sourceFileName());
113
114     // find all changes from previous version of main.json to actual main.json
115     JsonNode sourceDiffPatch = findChangesInSource(sourceJson);
116
117     for (String targetLanguage : cfg.targetLanguages()) {
118         boolean translationsFileChanged = false;
119
120         JsonNode targetJson = getTranslationFile(cfg.targetFileName(targetLanguage));
121
122         // This call is a bit weird, because we use target json as first parameter (source) and source as
123         // second (target). This is because the names are used in a different context. We want to know which keys
124         // need to be added to or removed from target json in comparison to source json. The target json will be
125         // transformed into the same structure as source json.
126         JsonNode targetDiffPatch = JsonDiff.asJson(targetJson, sourceJson);
127         // LOG.debug("target to source diff patch: {}", targetKeyDiffPatch.toPrettyString());
128
129         if (!targetDiffPatch.isEmpty()) {
130             // create patch with add or remove fields (field values will be translated).
131             JsonNode translationPatch = translateTargetDiffPatch(targetDiffPatch, targetLanguage);
132             if (!translationPatch.isEmpty()) {
133                 translationsFileChanged = true;
134                 LOG.info("Created patch (KEYS DIFF) with {} operation(s)/translation(s) for '{}'.",
135                     translationPatch.size(), cfg.targetFileName(targetLanguage));
136                 // LOG.debug("{} ", translationPatch.toPrettyString());
137
138                 // add or remove keys in target json
139                 JsonPatch.applyInPlace(translationPatch, targetJson);
140             }
141         }
142
143         if (!sourceDiffPatch.isEmpty()) {
144             // create patch with replace operations
145             JsonNode translationPatch = translateSourceDiffPatch(sourceDiffPatch, targetLanguage);
146             if (!translationPatch.isEmpty()) {
147                 translationsFileChanged = true;
148                 LOG.info("Created patch (VALUE DIFF) with {} translation(s) for '{}'.",
```

```

149         translationPatch.size(), cfg.targetFileName(targetLanguage));
150         // LOG.debug("{} ", translationPatch.toPrettyString());
151
152         // replace keys in target json
153         JsonPatch.applyInPlace(translationPatch, targetJson);
154     }
155 }
156
157 // write result into target directory and overwrite existing translation file.
158 if (translationsFileChanged) {
159     writeTargetTranslationFile(targetJson, targetLanguage);
160 }
161 }
162 LOG.info("Translation process finished but files were not committed and pushed. "
163         + "Please verify translation files and commit and push them.");
164 }
165
166 private JsonNode getTranslationFile(String filename) throws TranslationException {
167     try {
168         String source = fileHelper.readFile(cfg.repositoryDirectory() + "/" + filename);
169         return jsonHelper.convertStringToJson(source);
170         // LOG.debug("source json: {}", sourceJson.toPrettyString());
171     } catch (TranslationJsonProcessingException e) {
172         throw new TranslationException(
173             "Error: Invalid Json. Please verify that the file '" + filename + "' is valid json. "
174             + "Cause: " + e.getMessage(),
175             STATUS_JSON_INVALID);
176     } catch (TranslationFileNotFoundException e) {
177         throw new TranslationException("Error: '" + filename + "' not found. "
178             + "Please verify that the file exists.", STATUS_FILE_NOT_FOUND);
179     }
180 }
181
182 private JsonNode findChangesInSource(JsonNode sourceJson) throws IOException, TranslationException {
183     String sourceFileName = cfg.sourceFileName();
184     try {
185         return createDiffPatch(cfg.repositoryDirectory(), sourceFileName, sourceJson);

```

```

186         // LOG.debug("diff json patch: {}", diffPatch.toPrettyString());
187     } catch (TranslationFileNotFoundException e) {
188         throw new TranslationException("Error: '" + sourceFileName + "' not found. "
189             + "Please verify that the previous version of file exists in git.", STATUS_FILE_NOT_FOUND);
190     } catch (TranslationJsonProcessingException e) {
191         throw new TranslationException(
192             "Error: Invalid Json. Please verify that the file '" + sourceFileName + "' is valid json.",
193             STATUS_JSON_INVALID);
194     }
195 }
196
197 JsonNode createDiffPatch(String repositoryDirectory, String previousTranslationsFileName,
198     JsonNode actualTranslationsJson)
199     throws TranslationFileNotFoundException, TranslationJsonProcessingException, IOException {
200     String previousTranslations =
201         fileHelper.readPreviousFileFromHistory(repositoryDirectory, previousTranslationsFileName, 1);
202
203     JsonNode previousTranslationsJson = jsonHelper.convertStringToJson(previousTranslations);
204     return JsonDiff.asJson(previousTranslationsJson, actualTranslationsJson);
205 }
206
207 /**
208  * Translates target diff patch. Only add and remove operations are handled here.
209  * Replace operation will be handled by translate source diff patch.
210  * All other operations are not needed.
211  *
212  * @param diffPatch changes of source file
213  * @param targetLanguage the target language
214  *
215  * @return a translation patch
216  *
217  * @throws TranslationException thrown if the translation patch is an invalid json
218  * @throws IOException thrown if an error occurs during file access
219  */
220 private JsonNode translateTargetDiffPatch(JsonNode diffPatch, String targetLanguage)
221     throws TranslationException, IOException {
222     ArrayNode translationPatch = jsonHelper.createNewTranslationPatch();

```

```
223
224     if (diffPatch.isArray()) {
225         for (int i = 0; i < diffPatch.size(); i++) {
226             JsonNode command = diffPatch.get(i);
227             // LOG.debug("command: {}", command);
228
229             String op = command.get("op").asText();
230             String path = command.get("path").asText();
231             switch (op) {
232                 case "add":
233                     JsonNode value = command.get("value");
234                     translationPatch.add(jsonHelper.createPatchOperationAdd(path, value));
235                     traverse(translationPatch, targetLanguage, path, value);
236                     break;
237                 case "remove":
238                     translationPatch.add(jsonHelper.createPatchOperationRemove(path));
239                     break;
240                 default:
241                     // replace would do an unnecessary translation.
242                     // translations for operation move and copy is also not needed.
243             }
244         }
245     }
246
247     return translationPatch;
248 }
249
250 /**
251  * Translates source diff patch. Only the replace operation is handled here.
252  * All other operations are already handled or not needed.
253  *
254  * @param diffPatch changes of source file
255  * @param targetLanguage the target language
256  *
257  * @return a translation patch
258  *
259  * @throws TranslationException thrown if the translation patch is an invalid json
```

```

260     * @throws IOException thrown if an error occurs during file access
261     */
262     private JsonNode translateSourceDiffPatch(JsonNode diffPatch, String targetLanguage)
263         throws TranslationException, IOException {
264         ArrayNode translationPatch = jsonHelper.createNewTranslationPatch();
265
266         if (diffPatch.isArray()) {
267             for (int i = 0; i < diffPatch.size(); i++) {
268                 JsonNode command = diffPatch.get(i);
269                 // LOG.debug("command: {}", command);
270
271                 String op = command.get("op").asText();
272                 // for operations add, remove, move, and copy translation is not needed
273                 if ("replace".equals(op)) {
274                     traverse(translationPatch, targetLanguage, command.get("path").asText(), command.get("value"));
275                 }
276             }
277         }
278
279         return translationPatch;
280     }
281
282     /**
283     * Recursive approach to iterate through json tree.
284     *
285     * @param patch operations how to change the target json will be added to the patch
286     * @param targetLanguage the target language
287     * @param path the path is a unique identifier. it is build from all successor field names and the actual field name.
288     * @param jsonNode the json node to be evaluated
289     *
290     * @throws TranslationException thrown if an array is defined in json, or translation has an invalid json
291     * @throws IOException thrown if an error occurs during file access
292     */
293     private void traverse(ArrayNode patch, String targetLanguage, String path, JsonNode jsonNode)
294         throws TranslationException, IOException {
295         if (jsonNode.isObject()) {
296             Iterator<String> fieldNames = jsonNode.fieldNames();

```



```

297         while (fieldNames.hasNext()) {
298             String fieldName = fieldNames.next();
299             JsonNode fieldValue = jsonNode.get(fieldName);
300             traverse(patch, targetLanguage, path + "/" + fieldName, fieldValue);
301         }
302     } else if (jsonNode.isArray()) {
303         throw new TranslationException("Error: Arrays are not allowed in translation file 'main.json'.",
304             STATUS_TRANSLATION_FILE_INVALID);
305     } else {
306         String textToTranslate = jsonNode.asText();
307         String translation = deepLHelper.translate(textToTranslate, cfg.sourceLanguage(), targetLanguage);
308         JsonNode command = jsonHelper.createPatchOperationReplace(path, translation);
309         patch.add(command);
310     }
311 }
312
313 /**
314  * @param appliedTranslationPatch a json that holds all values which should be written to an output file
315  * @param targetLanguage the desired target language
316  *
317  * @throws TranslationException thrown if the translation patch is an invalid json
318  * @throws IOException thrown if an error occurs during file access
319  */
320 private void writeTargetTranslationFile(JsonNode appliedTranslationPatch, String targetLanguage)
321     throws TranslationException, IOException {
322     try {
323         String target = jsonHelper.convertJsonToString(appliedTranslationPatch);
324         String targetFileName = cfg.repositoryDirectory() + "/" + cfg.targetFileName(targetLanguage);
325         fileHelper.writeFile(targetFileName, target);
326         LOG.info("File written to '{}'.", targetFileName);
327     } catch (TranslationJsonProcessingException e) {
328         throw new TranslationException(
329             "Error: Could not create a valid json file. Something has gone wrong. Please check.",
330             STATUS_JSON_INVALID);
331     }
332 }
333 }

```