

**Twenty-fifth session  
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**Item 12 of the provisional agenda**

**Activities relating to the Working Group on Romanization Systems**

**Toponymic Database  
Romanization Application (software)\***

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# TOPONYMIC DATABASE

## Romanization application (software)

### *Introduction*

*In the frame of updating its geospatial data, the CNT is setting up a topographic database built upon recent high resolution satellite images. A toponymic database is one subset of the topographic one. Geographic names are written in Arabic and Romanized according to Beirut Romanization system. A free software has been developed to perform automatically the transliteration from Arabic to Latin.*

### **I – Toponymic Database**

**The following tables are defined based on the Beirut Romanization system**

- **Arabic letters table:** contains all Arabic characters including specific ones based on the Tunisian dialect.

Example:    **غ** (*ga*)

- **Corresponding letters table:** Each Arabic character has a corresponding Latin character

Example:    **أ**    *j*

**N.B:** In this table only syntactic rules are defined

- **Layers table:** contains all toponymic layers.

Example:

- ZH040: Layer of toponyms related to locations
- BH170: Layer of toponyms related to Hydrography

- **Area of coverage and projection system table:** In this table are defined the coverage area and the projection system for one-time identification of each toponym and each toponymic layer.

- **Geographic names table:** In this table are defined the main characteristics of geographical names (Identifier, Layer, X and Y coordinates, French transcription toponym, Arabic transcription toponym, the Beirut transcription toponym. (The last field will be filled following the compilation).

- **Saving table (Data security aspect):** This table is implemented in order to save toponyms already processed and which may be restored when needed and also to keep track of processed databases.

- **Toponymic Database Implementation**

## II – Developing an automated application which transliterates Arabic letters to Latin according to Beirut system

- **Definition of piles:** Two piles are stated for the processing: push and pull
  - First Pile FIFO: First In First Out: for Arabic characters
  - Second Pile FIFO: First In First Out: for Latin characters
- **Implementation of semantic rules:** For transliterating geographic names, functions are programmed to treat exceptions. Those functions are inserted in the compiler main code.



### Example:

- الشمسية	Al Ash-shamsiyya	A
- القمرية	Al Al qamariyya	Al
- ضمة طويلة	ou	ū
- ...		

### ➤ **Development of a compiler :**

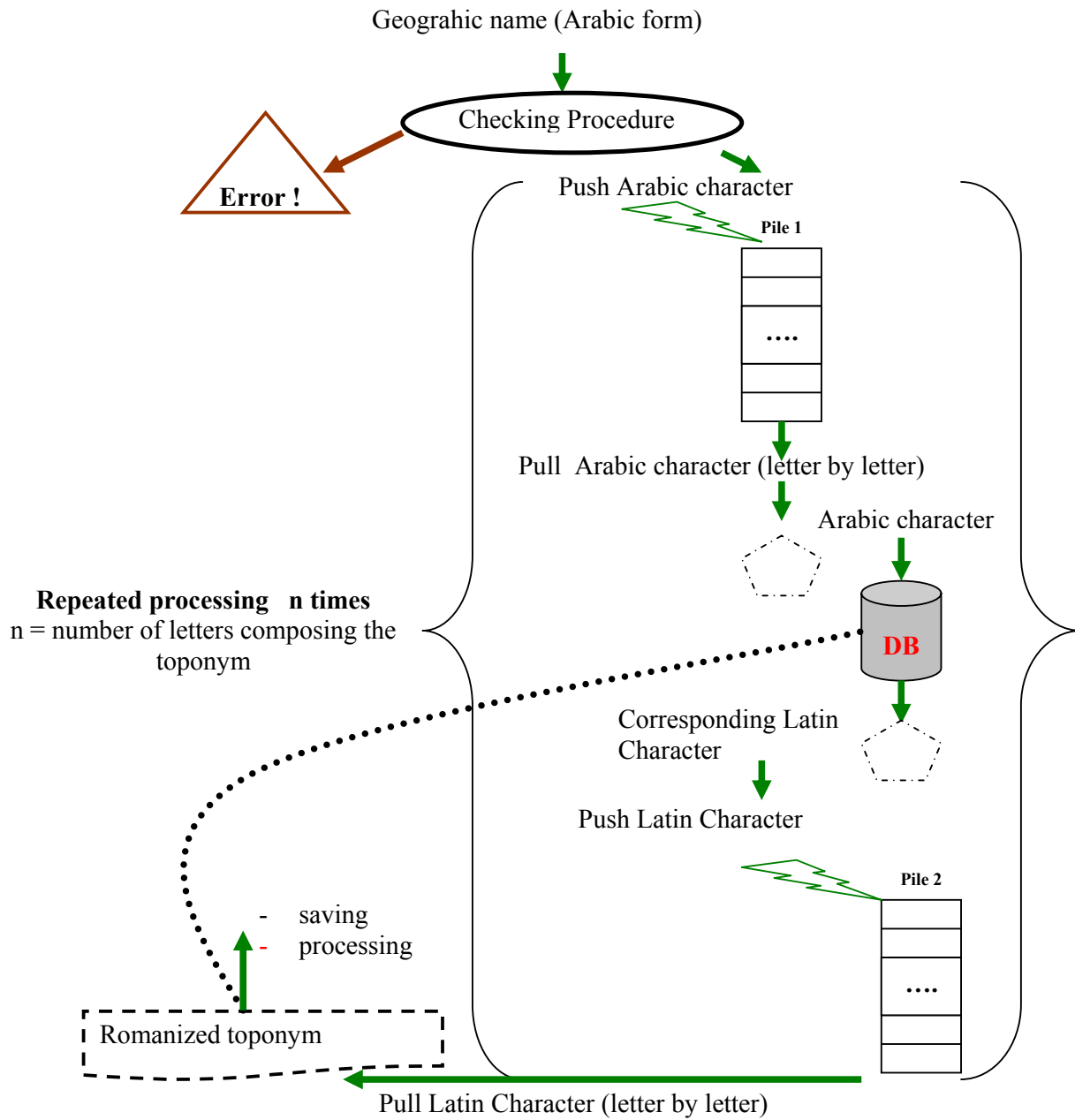
- Setting up a verification procedure: This procedure checks Arabic letters and allows their transliteration in case of availability.
- Creation of an Arabic keyboard



In this keyboard are defined all Arabic characters including diacritics and specific characters resulting from Tunisian dialect like the **ش** (ga).

- **Compiler:** Schema showing how the compiler functions





### Compiler functionality

#### Problems

1. Difficulties in exploiting Unicode Characters during the display
2. More than one Font management
3. Arabic Language treatment (specific characters), especially for the Tunisian dialect.

#### Prospects/Future axes

1. Creating a font including Arabic and special Latin characters to resolve the display problems
2. Securing a link between the software and the initial DataBase:  
Developing an integrated module (VBA Language) to ensure the interoperability between the cartographic DataBase and the Toponymic Database
3. Software exploitation via Web.

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