

Using the Code Validator

Table of Contents

Overview.....	2
Telephone Number Area Codes.....	2
Test Data Used.....	3
Running the program	3
Getting Started	4
Command Line System.....	4
Example Code Validator Report.....	5

Using the Code Validator

Overview

Code Validator is an open source, free, software package which can be useful for cross checking telephone number area codes against zip codes and state codes to ensure accuracy of the data. Both the source code and executable versions of the program are included, and I have contributed them to the public domain.

All of the code is written in standard C++ (I use the Watcom free compiler). There are three modules provided:

cACZCVal.cpp – this is a class which does the code validation and includes the following components (methods)

Name	Description
IsValidAC	Check if valid area code
IsValidZC	Check if valid zip code
IsValidSC	Check if valid State code
IsValidZCSC	Check if zip code/state code pair matches, i.e. zip code is in that state
IsValidACZC	Check if area code/zip code pair matches, i.e. area code is in that state
IsValidACSC	Check if area code/state code pair matches, i.e. area code is in that state

cRdr.cpp – this is a class which parses records with fields stored in tab separated value format, a support routine

testcACZCCal.cpp – this is the driver routine, a console routine which accepts the following command line parameters:

Parameter	Description
IN=InputTSVFile	Name of input file to be analyzed
SC=StateCode	Variable name which contains State Code
AC=AreaCode	Variable name which contains the area code (or full telephone number)
ZC=Zipcode	Variable name which contains the zipcode

Telephone Number Area Codes

Using the Code Validator

There are 800 possible area codes, which range from 200 to 999. Not all are assigned or used. The North American Numbering Plan Administration (NANPA) maintains a database of all the area codes, along with information relevant to each. That data can be downloaded from their site.

Test Data Used

In order to illustrate how to use the program, we took Congressional contact information, which includes State and telephone number, and then added a column for zip codes (all zip code data was made up). For some of the telephone numbers, area codes and state codes, we deliberately changed them, so that they contained an error, in order to verify that the Code Validator routine would identify the errors. This test data is available as both Congressdb.xls (Excel format) and Congressdb.txt (tab separated value format).

Running the program

The command line to run the program against the test data is included as a command file and is as follows:

```
rem
rem  run state code, zip code, area code routine in batch
rem ACZCVal.cmd
rem
rem
rem \test\watcom\cACZCVal.exe in=\test\ccode\cACZCVal\Congressdb.txt
rem sc=state zc=ZipCode ac=District_Voice >result.txt
rem
```

Cross Checking Area Codes, Zip Codes and State Codes

Getting Started

The first step is to obtain the software and install it. The software may be downloaded from www.ezrstats.com in the form of a “setup” file named EZSCVSetup.exe. Download this file into a temporary location, then double click to install. The installation consists of copying source code and executables, documentation and the padfile.

Command Line System

The Code Validator system is used as a command line program from within DOS, using the data file to be analyzed as a command line option. For example:

```
\test\watcom\cACZCVal.exe in=\test\ccode\cACZCVal\Congressdb.txt  
sc=state zc=ZipCode ac=District_Voice >result.txt
```

Parameter	Description
IN=InputTSVFile	Name of input file to be analyzed
SC=StateCode	Variable name which contains State Code
AC=AreaCode	Variable name which contains the area code (or full telephone number)
ZC=Zipcode	Variable name which contains the zipcode

Cross Checking Area Codes, Zip Codes and State Codes

Example Code Validator Report

```
number of args is 5
arg[0] is C:\test\watcom\cACZCVal.exe
arg[1] is in=\test\ccode\cACZCVal\Congressdb.txt
arg[2] is sc=state
arg[3] is zc=ZipCode
arg[4] is ac=District_Voice
Parameters to process...
Infile is \test\ccode\cACZCVal\Congressdb.txt
Outfile is
scCol is state
acCol is District_Voice
zcCol is ZipCode
pFlag set to 7
begin load of zip code data
loaded the zip code table which contains 42741 rows
loaded zip code data got rc 0
loaded the area code table which contains 800 rows
did load area code data...
zip code 27539 is invalid
Area code 481 is invalid, inactive or not US
Area code 481 is invalid, inactive or non-US
Area code 482 is invalid, inactive or not US
Area code 482 is invalid, inactive or non-US
zip code 64730 is state MO, doesn't match state MS
zip code 27856 is state NC, doesn't match state SC
zip code 62211 is invalid
Area code 211 is invalid, inactive or not US
Area code 211 is invalid, inactive or non-US
zip code 29418 is state SC, doesn't match state SD
Area code 105 is invalid, inactive or not US
Area code 105 is invalid, inactive or non-US
processed the input file which contains 540 records, located 13 errors
end of processing...
```