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DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT
RELEASED
Signature
Date 11-23-15 3:40
Control Number
RECORDS SECTION

CIRCULAR No : 2015-08
Date : November 23, 2015

SUBJECT : POLICY ON THE DEVELOPMENT OF APPLICATION SYSTEMS AND DATA ADMINISTRATION

In adherence to *Joint Memorandum Circular No. 2015-01 "Guidelines for the Implementation of the Open Government Data General Provision in the 2015 General Appropriations Act"*, issued by the Open Government Data Philippines Task Force and *Memorandum Circular 2015-003 "Approval of the Philippine Electronic Government Interoperability Framework (PeGIF) Part 2, Otherwise known as the Information Interoperability Framework (IIF) for Implementation by Government Agencies"* issued by Information and Communication Technology Office, Department of Science and Technology (ICTO-DOST), the department is adopting the Open Data Policy and Interoperability for its data.

Openness means that datasets published by the Department, its operating units, bureaus and offices shall be made publicly available and accessible, published in open and machine-readable formats and with open licenses. Interoperability means the ability to exchange and reuse government data and information in a uniform and efficient manner across multiple ICT systems and across agencies. The department, being the authoritative source of data on Local Government, has to implement standard coding scheme and platform with regards to its data collection, organization, release and management.

Moreover, in order to achieve the principle of openness and interoperability of data, all bureaus, operating units and offices are hereby directed to abide the following guidelines, procedures and policies:

1. Adoption of the DILG Standard Coding System (Attachment A) on all databases/datasets related to Local Government Units.

   a. The DILG Standard Coding System, composed of Philippine Standard Geographic Codes (PSGC) and extension codes, must be part of all databases/datasets pertaining to Local Government Units (LGUs) and Barangays.

   b. The naming convention described on the DILG Standard Coding System (e.g. table name, field/column name, data type, etc.) must be strictly followed.

c. The Information Systems and Technology Management Service (ISTMS) shall be responsible for maintaining the DILG Standard Coding System following the updates on PSGC by the National Statistics and Coordination Board and other national policies.

2. Adoption of DILG Application System Development Standard (Attachment B) whether outsource or in-house development.

   a. For purposes of branding, uniformity and compliance to other national policies (e.g. Administrative Order 39, etc.), a standard web design template must be applied to all LGU-related application systems.

   b. The use of Open Source application development program and Database Management System (DBMS) must be strictly observed.

   c. All application system must have a RESTful web Application Program Interface (API) that returns publicly viewable/available information.

   d. For application systems that will be outsourced, the concerned bureau or OPR should consult the ISTMS during systems and database design and acceptance/deployment.

3. Data Storage, Backup and Recovery

   a. All bureaus/operating units, maintaining DILG databases/datasets, shall keep and provide an updated backup copy for the DILG Data Center and provide a direct connectivity to its databases, if applicable.

   b. The ISTMS shall make sure that all back-up copies are secured and capable of data recovery.

4. Sharing, Distribution and Publication of Data

   a. The DILG official website (www.dilg.gov.ph) shall be the primary source of all data related to LGUs and Barangays.

   b. All LGU and Barangay data for sharing, distribution and publication online should be machine-readable, in open formats and released with open licenses.

   c. The concerned bureaus or the OPR shall be responsible on the following:
      i. integrity of data collected, published and posted on the DILG website
      ii. management of data
      iii. mobilization of resources relative to the database build-up and monitoring

   d. The ISTMS shall provide technical assistance to OPR on the development of tools for data collection, organization, monitoring and management.

5. Domain Name Hosting

   a. All web application systems related to LGU and Barangays must be on a sub-domain of the DILG domain (dilg.gov.ph) for authenticity purposes and additional security against phishing scams and website frauds.

For strict compliance.

ATTY. EDWIN R. ENRILE
Undersecretary

ATTACHMENT A

DILG Standard Coding System

1. The Philippine Standard Geographic Code was already in place and already been used by other agencies to systematically classify and represent coding of the geographic areas of the Philippines. This shall likewise be adopted by the department to come up with a database design that will standardize and harmonize data on Local Government Units and barangays. The LGU and barangays which are the core data of the department will be integrated and organized using the DILG Standard Coding System, as described below.

Table Name:	region
Column Name	Description
region_c	2 digit code representing the region
region_m	region name
abbreviation	short name identifier for the region
region_sort	assigned number for sorting purposes in the report generation
Table Name:	province
Column Name	Description
region_c	2 digit code representing the region
province_c	2 digit code representing the province
province_m	province name
Table Name:	citymun
Column Name	Description
region_c	2 digit code representing the region
province_c	2 digit code representing the province
citymun_c	2 digit code representing the city or municipality
district_c	1 digit code representing the legislative district of the city / municipality For HUC / ICC 0 means Lone District Null or blank represents more than 1 district
citymun_m	City / Municipality Name
lgu_type	City / Municipality type : HUC - Highly Urbanized City CC - Component City ICC - Independent Component City M – Municipality
Table Name:	barangay
Column Name	Description
region_c	2 digit code representing the region
province_c	2 digit code representing the province

citymun_c	2 digit code representing the city / municipality
barangay_c	3 digit code representing the barangay
district_c	1 digit code representing the City Legislative District of the barangay
barangay_m	Barangay Name

2. The DILG SCS adopts the NSCB coding for LGU, except for the coding of the Barangays in the City of Manila. The City of Manila barangays uses a "00" code in its citymun_c and not the Code of NCR Districting to represent relation of its barangays to the entire City of Manila.

3. This DILG SCS contains the LGUs and Barangays as of June 2015 data of National Statistics Coordinating Board (NSCB).

Region	• 18 Regions including ARMM and the newly created Negros Island Region
Province	• 81 Provinces group according to Region
City and Municipality	• 144 Cities and 1,490 Municipalities grouped according to Province and Region
Barangay	• 42,029 barangays grouped according to City/Municipality, Province and Region

4. Defined extension code are the LGU district code and barangay district code included for the purpose of report generation requirements at the district level.

5. The DILG Standard Coding System must be followed on the assignment of codes for LGU and barangay data. The data can be downloaded from this url: http://www.dilg.gov.ph/reports-and-resources/resources-and-downloads/3/. A soft copy in CD may also be provided by the Information Systems and Technology Management Service (ISTMS) of this Department.

LGU Standard Naming Conventions

1. For the database design that will require the LGU core data of region, province, city, municipalities or barangay, the DILG Standard Coding System must be applied. The field name given for region, province, city, municipality and barangay must also be used for easy identification, which is also essential for data linking and integration.

   Example: Financial data

This table represents table of LGU financial data	
financial_id	bigint
region_c	varchar(2)
province_c	varchar(2)
citymun_c	varchar(2)
barangay_c	varchar(3)
income_class	varchar(1)
ira	double
supplementary_budget	double

ATTACHMENT B

DILG Application System Development Standard

A. General Standards

1. All applications to be developed must:
    a. Use Open Source Language/Framework and Open Source DBMS
    b. Use/adapt the design template provided, for branding and security purposes. The template can be downloaded from this url: http://www.dilg.gov.ph/reports-and-resources/resources-and-downloads/3/. A soft copy in CD may also be provided by the Information Systems and Technology Management Service (ISTMS) of this Department.

    c. Have the following standard features:
        i. Easy and intuitive to use for the target audience.
        ii. Function in a logical manner for the target audience
        iii. Use styles that are consistent throughout the application such as:
            - The use of capitalization (e.g., title case vs. sentence case).
            - The use of punctuation (e.g., use of colons on labels).
            - Error messages must appear in a consistent location and style.
            - The use of Web document notations (e.g., PDF, DOC, etc.).
            - Layout/spacing (e.g., the space between a field label and input control).
            - Descriptive metadata titles.
        iv. Form controls that are not available must be hidden.
    d. Adhere with the Open Data Policy
    e. Have a RESTful web Application Program Interface (API) that returns publicly viewable/available information depending on the request
    f. Be secured against the following security risks:
        i. SQL Injection;
        ii. Cross Site Scripting (XSS); and
        iii. Cross Site Request Foraging (CSRF)
    g. Be thoroughly tested for data security and susceptibility to web vulnerabilities before deployment.
        i. A report stating that the application is safe from any vulnerability is required to prevent sensitive information being leaked, website defacement or any other kind of malicious attacks.
    h. Have an Audit Trail to be able to log/record all actions performed by its users
    i. Comply with the Accessible Website Design Guidelines of the Philippines issued by National Council on Disability Affairs.
    j. Must have a Site Map for easy navigation.

2. System/Application Names should describe the purpose of the system. They should not include reference to previous applications or terms related to the development. The use of the terms in system titles, such as: Change; Update; Project; Redevelopment; Redesign; Replacement, is discouraged.

3. The application developers must provide the Office of Primary Responsibility (OPR)/Bureaus and ISTMS a package that contains ALL the details of the application including:
    a. Source Code
    b. User's Manual
    c. Developer's Manual
    d. Vulnerability Report
    e. Testing Report
    f. Compiled/Final Application
    g. Complete Project Documentation including but not limited to:
        i. System Requirements (Software and Hardware requirements)
        ii. Flow Chart
        iii. Entity Relationship Diagram
        iv. Data Flow Diagram
        v. Use Case Diagram
        vi. Development Methodology
        vii. Data Dictionary
        viii. Database Schema

4. Navigation
    - Every application must have one or more links or control buttons that allow a user to navigate back and forth within the application without having to use the back button or other browser navigation functionality.

5. Validation of Form Input Fields
    - Form fields must be validated to ensure required fields are completed, numeric fields have numeric data, and data input is properly formatted (e.g., e-mail address).
    - Appropriate and specific error message should be displayed.

B. Development Technology, Programming Language, and Web Server Software

1. Exception Handling in Server-side Code
    - Code exceptions must be handled in a user-friendly manner by displaying a custom error page that does not display information such as database object names or source code.

2. Interoperability and Integration
    - For interoperability and easier integration to the existing application systems of the department, the use of the following technologies is encouraged:
        i. PHP and MySQL
        ii. Yii2 PHP framework
        iii. Bootstrap Front-end Framework
        iv. JQuery

    - Use of other technologies should be in coordination with ISTMS.

3. HTML Code Validation
    - The HTML code in all web applications must be valid via a reputable validation technique, such as W3C or by using the HTML Validator.

4. JavaScript Usage
    - The use of JavaScript is allowed for client-side data validation and manipulation as long as the script is invoked as a result of a user action (i.e., button selection, dropdown selection, movement to another form field, etc.)

5. Data Validation
    - Web applications must validate all data for expected values
    - All user input data must be validated and checked for any malicious intent before saving in the database.
    - Web Applications must use server-side validation.
    - Client-side validation using JavaScript is allowed as long as there is already a Server-side validation in place.

6. AJAX
    - AJAX elements can be included as long as there is an equivalent non-AJAX alternative that produces the same results or provides the same functionality.

DEFINITION OF TERMS

1. API is a web service that enables other applications to communicate to your application and get necessary information. Given this situation, Application 1 needs data from Application 2 to create a report, instead of accessing directly the database of Application 2, Application 1 needs only to use Application 2's API to get the data needed.

2. A user's manual, is a technical communication document intended to give assistance to people using the application.

3. A developer's manual is a guidebook for the developers who would want to extend or enhance the existing system.

4. Asynchronous JavaScript and XML (AJAX) – AJAX allows web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes. This means that it is possible to update parts of a web page, without reloading the whole page.