

SAS 2009 Forum Presentation November 2009

**CONVERTING SOCIAL SECURITY NUMBERS TO PSEUDO NUMBERS  
USING SAS CODE**

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***“ It is not only a moral nor ethical issue, but a legal responsibility to all the TIs, the Programming, the SQL, and the SAS communities to manage and handle Personal Identification Numbers with confidentiality, as sensitive data, and classified information to reduce and prevent frauds and identity theft crimes as well violations to The Health Information Privacy Act.”***

## **PERSONAL IDENTIFICATION NUMBERS**

***Social Security  
Credit Cards  
Checking Accounts  
Savings Accounts  
Life Insurance Policies  
Driving Licenses  
Passports  
Medical Records***

## **MAIN AFFECTED PLAYERS**

***All US Citizens  
Credit Cards Companies  
Financial Institutions  
Insurance Companies  
Hospitals  
Health Care Clinics  
Health Care Providers, Doctor, Dentist, Etc.  
National Security  
Defense Department  
US Immigration and Naturalization  
Social Security Administration  
Rest of Government Agencies***

## SOME STATISTICS

***10 Million Americans Identity Theft Last Year***  
***48 Billion Lost On Cost***  
***22% Victims Increase From Previous Year***  
***46,320 HIPAA Privacy Complaints Received Since 2003***

## SOME RECOMMENDATIONS

***Identify Personal Identification Data and Information***  
***Conduct an Analysis of Threats and Vulnerabilities***  
***Perform Risk Assessment***  
***(Risk = Probability of Events X Impact of Consequences of Events)***  
***Apply Appropriate Countermeasures such as, manage and handle***  
***Social Security Numbers with confidentiality, as sensitive data, and***  
***classified information***

### **SSNumbers**

562233454  
294059606  
238349505  
287579243  
983744381  
983784797  
409481284  
608409380

**DATA** D1;

**INFILE** 'C:\SAS\Forum\SSNumbers.txt' ;

**INPUT** @1 SSN \$9.  
          @1 SSN1 \$1.  
          @2 SSN2 \$4.  
          @6 SSN3 \$3.  
          @9 SSN4 \$1. ;

```
    IF SSN1 = '0' THEN SSN1 = 'B' ;  
ELSE IF SSN1 = '1' THEN SSN1 = 'D' ;  
ELSE IF SSN1 = '2' THEN SSN1 = 'F' ;  
ELSE IF SSN1 = '3' THEN SSN1 = 'H' ;  
ELSE IF SSN1 = '4' THEN SSN1 = 'K' ;  
ELSE IF SSN1 = '5' THEN SSN1 = 'J' ;  
ELSE IF SSN1 = '6' THEN SSN1 = 'G' ;  
ELSE IF SSN1 = '7' THEN SSN1 = 'E' ;  
ELSE IF SSN1 = '8' THEN SSN1 = 'C' ;  
ELSE IF SSN1 = '9' THEN SSN1 = 'A' ;  
ELSE  SSN1 = 'Z' ;
```

```
    IF SSN4 = '0' THEN SSN4 = 'R' ;  
ELSE IF SSN4 = '1' THEN SSN4 = 'T' ;  
ELSE IF SSN4 = '2' THEN SSN4 = 'V' ;  
ELSE IF SSN4 = '3' THEN SSN4 = 'X' ;  
ELSE IF SSN4 = '4' THEN SSN4 = 'P' ;  
ELSE IF SSN4 = '5' THEN SSN4 = 'Y' ;  
ELSE IF SSN4 = '6' THEN SSN4 = 'W' ;  
ELSE IF SSN4 = '7' THEN SSN4 = 'U' ;  
ELSE IF SSN4 = '8' THEN SSN4 = 'S' ;  
ELSE IF SSN4 = '9' THEN SSN4 = 'Q' ;  
ELSE  SSN4 = 'Z' ;
```

```
LENGTH PSSN $9;  
PSSN=SSN1||SSN3||SSN2||SSN4 ;
```

```
PROC print DATA = D1 ;  
RUN ;
```

## PSEUDOSSNumbers

J3456223P  
F9609405W  
F9503834Y  
F9248757X  
A4388374T  
A4798378U  
K1280948P  
G9380840R

**DATA** D2;

**INFILE** 'C:\SAS\Forum\PSEUDOSSNumbers.txt' ;

**INPUT** @1 PSSN \$9.  
          @1 PSSN1 \$1.  
          @2 PSSN2 \$3.  
          @5 PSSN3 \$4.  
          @9 PSSN4 \$1. ;

**IF** PSSN1 = 'B' **THEN** PSSN1 = '0' ;  
**ELSE IF** PSSN1 = 'D' **THEN** PSSN1 = '1' ;  
**ELSE IF** PSSN1 = 'F' **THEN** PSSN1 = '2' ;  
**ELSE IF** PSSN1 = 'H' **THEN** PSSN1 = '3' ;  
**ELSE IF** PSSN1 = 'K' **THEN** PSSN1 = '4' ;  
**ELSE IF** PSSN1 = 'J' **THEN** PSSN1 = '5' ;  
**ELSE IF** PSSN1 = 'G' **THEN** PSSN1 = '6' ;  
**ELSE IF** PSSN1 = 'E' **THEN** PSSN1 = '7' ;  
**ELSE IF** PSSN1 = 'C' **THEN** PSSN1 = '8' ;  
**ELSE IF** PSSN1 = 'A' **THEN** PSSN1 = '9' ;  
**ELSE** PSSN1 = 'Z' ;

```
IF PSSN4 = 'R' THEN PSSN4 = '0' ;  
ELSE IF PSSN4 = 'T' THEN PSSN4 = '1' ;  
ELSE IF PSSN4 = 'V' THEN PSSN4 = '2' ;  
ELSE IF PSSN4 = 'X' THEN PSSN4 = '3' ;  
ELSE IF PSSN4 = 'P' THEN PSSN4 = '4' ;  
ELSE IF PSSN4 = 'Y' THEN PSSN4 = '5' ;  
ELSE IF PSSN4 = 'W' THEN PSSN4 = '6' ;  
ELSE IF PSSN4 = 'U' THEN PSSN4 = '7' ;  
ELSE IF PSSN4 = 'S' THEN PSSN4 = '8' ;  
ELSE IF PSSN4 = 'Q' THEN PSSN4 = '9' ;  
ELSE PSSN4 = 'Z';
```

```
LENGTH SSN $9;  
SSN=PSSN1||PSSN3||PSSN2||PSSN4 ;
```

```
PROC PRINT DATA = D2 ;  
RUN ;
```

## CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

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