



Stage Card Number Generator

Application Name: PS_STGCRDNBR
Application Description: Stage Card Numbers
Application: 15644

DNAapp ID 3f0a586b-f9fe-4aba-8701-eb8aa97c934f

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Overview:

This “Stage Card Numbers” application prevents duplicate card numbers from being created. It also enables card numbers to be generated randomly, instead of sequentially.

Processing:

The “Stage Card Numbers” (PS_STGCRDNBR) custom batch application reads the current value of the appropriate card sequence used to generate card numbers for card agreements and creates a parameter defined number of future card numbers for use with the parameter defined agreement type.

Each new card number that is staged by this batch application is checked to ensure no duplicate card numbers will exist within the same prefix across all agreement type. The new card numbers can be created semi-sequentially (skipping any numbers that might already be used within the sequence) or randomly. The random numbers can appear anywhere within the valid range for the agreement type, which is defined partially by the total PAN length and the length of the PAN prefix (minus 1 place value for a check digit).

When DNAapp creates a new card agreement, a trigger on the card agreement table calls the custom Oracle package delivered with this application. This package uses the agreement type code to look up the next matching record in the custom table where the staged card numbers are stored. If a staged card number is found, it is passed back to the trigger to be used as the card number in place of the original card number based on the sequence. If no staged card number is found, the application returns the original card number.

All card numbers, other than the original sequence number used for sorting, are stored encrypted.

Check digits are fully supported by this process.

When a new card number is requested, this process automatically removes the staged card number table.

Note: The random numbers are chosen using the min and max values from the corresponding CARDNBR Oracle sequence. If you are using check digits, it is extremely important to ensure that the number of digits in the pan prefix plus the number of digits in the max value of the sequence is one less than the full pan length. For example, if the pan length is 16, and the pan prefix is 123456 (6 digits long), the max value from the sequence must be no more than 9 digits long (16 minus 6 is 10, 10 minus 1 is 9), for example 999999999 to account for the check digit.

Please note that each agreement type in DNA can be configured with a minimum and maximum BIN. When generating card numbers, this application will ensure that the BIN is generated within the range specified by the card agreement type’s sequence.

Parameters:

Parameter	Code	Description (how used)	Required	Default
Agreement Type	ATYP	A single agreement type code used to identify the agreement type to process.	Yes	<Blank>
Size of Cache	8SOC	The total number of stages card numbers to store for the specified agreement type. This number should be set significantly higher than the number of card issues expected between runs of this application. The application will review the current number of staged card numbers after performing maintenance and will only stage enough card numbers to reach the specified size of the cache.	Yes	<Blank>
Randomize	8RNG	If set to "Y", staged card numbers will be created using Oracle's random number generator instead of using the next available number from the sequence. If set to "N", the next sequence available sequence number will be used.	Yes	<Blank>
Reset	8RST	<p>If set to "Y", all staged card numbers for the specified agreement type will be deleted. This can be useful when switching between sequential and randomized to allow the change to happen immediately. It is also useful when reducing the size of the cache, if you choose to do so. Please note, if this is set to "Y", and the "Size of Cache" is set to 0, you will be disabling the staging of card numbers, which may lead to duplicates.</p> <p>If set to "N", only staged card numbers that have an original card sequence number below the current sequence number will be removed.</p> <p>You MUST run this application with this parameter set to "Y" immediately after any Prefix is modified.</p> <p>After upgrading to a new release this parameter must be set to "Y".</p>	Yes	<Blank>

Scheduling and re-run information:

This application can be run at any time, but it is recommended to run it during periods of light load on the card agreement tables.

If the batch application fails, it can be rerun again. It will always catch up.

When this application is upgraded, it is imperative that it is run with the "Reset" (8RST) parameter set to "Y" on the initial run for each agreement type.

Report:

The report contains a count of how many card numbers have been staged and deleted.

```

Bank:      Systems Test Credit Union          Stage Card Number Generator          Run Date: 09-09-2021
Report:    PS_STGCRDNBR                      Post Date: 08-19-2020

Queue Number      : 6007                      Run Time: 23:09:40
Application Number: 521004                    Cash Box:
Queue Sub Number  : 2

                                SCHEMA
                                OSIBANK

                                DATABASE NAME
                                LMCUDB1.WORLD

                                RELEASE
                                DNA 4.6.2.0

                                09-09-2021 07:58:16 PM 316318 G:\OSI\BANK\SQT\4620\BAT_EXE\EXTINS\

                                REPORT PARAMETERS

                                Agreement Type: ORCC
                                Size of Cache: 25000
                                Randomize: Y
                                Reset: N

↑
Bank:      Systems Test Credit Union          Stage Card Number Generator          Run Date: 09-09-2021
Report:    PS_STGCRDNBR                      Post Date: 08-19-2020
                                                Page: 1 of 1

25,000 new card numbers have been staged.
No previously staged card numbers have been deleted.
0 percent of the current card number ranged is assigned to cards.
Completed in 22.63 seconds.

```

IMPORTANT:

The “Get Next PAN” (15861) custom API transaction is not compatible with PS_STGCRDNBR. Instead of using 15861, use the “Card Agreement Maintenance” (7894) core API transaction with a blank PAN to create the next card, then use the “Instant Card Issue Inquiry” custom API transaction (7816) to read the newly created PAN using the agreement number returned from 7894.

Additional Requirements:

Financial Institutions using DNA Release levels earlier than 4.5.1.0 need to have HotFix DNA-4.4.1.1403 installed for this process to work properly.

The “New Deposit Account Wizard” (NDAW) is supported as of DNA 4.6.2. Using the NDAW prior to this release will cause duplicate card numbers to be produced.

Configuration Checklist:

Item	Test Environment	Production Environment
Parameters		
Agreement Type Sequence Ranges		

Installation:

Install the application through DNAapp Management Console (formerly known as DNA Configuration Toolkit). The instructions on how use the DNAapp Management Console should be delivered along with the DNAapp Management Console. Please contact Client Care if you need assistance using the DNAapp Management Console.

Revisions:

Date	App Version #	Change
12/2023	1.0.0.7	Addressed autonomous block DB failures.
12/2023	1.0.0.6	Addressed issue where blank card numbers are returned from the card number staging table in environments with Encryption enabled.
12/2023	1.0.0.5	Additional Encryption changes. Added verbiage stipulating that application must be run with the Reset option set to "Y" the first time it is run after an upgrade. Added step to install process to drop obsolete version of the staging table in the OSIBANK schema.
07/2023	1.0.0.4	Modified for Encryption Phase 3.
12/2022	1.0.0.3	Improved percent remaining calculation.
07/2022	1.0.0.2	Updated Encryption. Added number of available cards not issued. Updated percent calculation.
03/2022	1.0.0.1	Modified for Encryption Phase 2.
11/2021	1.0.0.0	Updated API transaction details.
09/2021	1.0.0.0	Modified application as per AppMarket standards.
09/2020	1.0.0.0	Improved method used for identifying existing card numbers to prevent duplicates from a Prefix change.
08/2020	1.0.0.0	Changed label to Fiserv Confidential
02/2020	1.0.0.0	Changed the method used to calculate the card number range to prevent situations where the card number generated is out of the assigned range.
11/2019	1.0.0.0	Changed method used for card number assignments to eliminate any possible chance for duplication.
08/2019	1.0.0.0	Updated document to clarify requirements and configuration options.
05/2019	1.0.0.0	Improved check digit handling to eliminate a rare chance of producing a duplicate card number.

Date	App Version #	Change
08/2018	1.0.0.0	Added support for multiple Card Agreement Types using the same Prefix.
04/2018	1.0.0.0	Application Created