“Uniform” dialing in the US

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July 2016

Background

- Telco regulations require “toll alerting”: carrier has to “alert” that a dialed number should be a long distance (LD) call
- Some toll alerting areas require 7D (or 10D) local dialing within NPA and 1+10D LD calling within the same NPA
- HNPA = Home NPA (dialing within the same NPA)
- FNPA = Foreign NPA (dialing between NPAs)
- In some NPAs (yeah!) everything (HNPA/FNPA local/toll) can be dialed as 1+10D and the carrier figures out how this needs to be billed
- … but, this seems to be the exception

Required dialing

- Required dialing documented on NANPA web site (NPA lookup) http://www.nationalnanpa.com/index.html

NPA Code Search Information	
Below are the search results for NPA: **816**	
General Information	
Type of Code:	**General Purpose Code**
Is this code assignable:	**Yes**
If not, why:	
Geographic(G) or non-geographic(N):	**G**
If non-geographic, usage:	
Is this code reserved for future use:	**No**
Is this code assigned:	**Yes**
Is this code in use:	**Y**
NPA Relief Status:	**Suspended**
In service date:	**01/01/1947**
Planning Letter(s):	**304 280 262**

Geographic Code information		
Location:	**MO**	
Country:	**US**	
For a map of this NPA, please consult this planning letter:		
Time Zone:	**C**	
Parent NPA:		
Is this an overlay code:	**Yes**	
Overlay Complex:	**816/975**	
Jeopardy:	**No**	
~~Relief Planning in Progress:~~	~~Yes~~	
Dialing Plan for this NPA	Standard	Permissive
Home NPA Local Calls:	**7D**	**NA**
Foreign NPA Local Calls:	**10D**	**NA**
Home NPA Toll Calls:	**1+10D**	**NA**
Foreign NPA Toll Calls:	**1+10D**	

Required Dialing

- A summary of required dialing habits for all US NPAs can be found in the “NPA Dialing Plans” report available here: http://www.nanpa.com/reports/reports_npa.html
- Analysis shows that only 74 NPAs exist (out of 298) that don’t require different formats for HNPA local/toll or FNPA local/toll.
- For all other NPAs NPA/NXX specific called party transformations are required to send the correct called party number format based on a globalised called party number sent to the GW
- Equivalent information for Canada can be found in the “Canadian Dialling Plan by NPA” available here: http://www.cnac.ca/canadian_dial_plan/canadian_dial_plan.htm

UNIFORM DIALING PLANS **PAGE 1 of 8**
October 19, 2012

LOCATION	NPA	STANDARD PROCEDURES					PERMISSIBLE		
		HNPA LOCAL	HNPA TOLL	FNPA LOCAL	FNPA TOLL	OPER. ASSIS.	HNPA LOCAL	HNPA TOLL	FNPA LOCAL
AK	907	7D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
AL	205	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AL	251	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AL	256	10D	1+10D	10D	1+10D	0+10D	10D	NA	NA
AL	334	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AL	938	10D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AR	479	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AR	501	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AR	870	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AS	684	7D	NA	NA	1+10D	0+10D	NA	NA	NA
AZ	480	7D	1+10D	10D	1+10D	0+10D	10D	NA	NA
AZ	520	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
AZ	602	7D	1+10D	10D	1+10D	0+10D	10D	NA	NA
AZ	623	7D	1+10D	10D	1+10D	0+10D	10D	NA	NA
AZ	928	7D	1+10D	10D	1+10D	0+10D	NA	NA	NA
CA	209	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	213	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	310	1+10D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
CA	323	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	408	1+10D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
CA	415	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	424	1+10D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
CA	442	1+10D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
CA	510	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	530	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	559	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	562	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	619	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	626	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	650	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA
CA	657	1+10D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
CA	669	1+10D	1+10D	1+10D	1+10D	0+10D	NA	NA	NA
CA	661	7D	7D	1+10D	1+10D	0+10D	1+10D	1+10D	NA

Worst Case

- HNPA LOCAL: 7D
- HNPA TOLL: 1+10D
- FNPA LOCAL: 10D
- FNPA TOLL: 1+10D
- … and no common alternate dialing habit for HNPA LOCAL and FNPA LOCAL
- Problem statement: How do you know which NPA/NXXes must be dialed as HNPA LOCAL and which NPA-NXXes must be dialed as FNPA LOCAL?

Which NPA-NXXes are local?

- Depends on source NPA-NXX
- http://www.localcallingguide.com/ provides some (but not authoritative nor complete) information
  - Search for NPA-NXX, click on source NPA-NXX to get a CSV of all NPA-NXX considered to be local
  - Either HNPA local or FNPA local
- List of local NPA-NXXes potentially pretty long
- Optimization required: minimize number of required CdPTx
- Information can be used to create list of required CdPTx to match on all local NPA-NXXes (see Excel sheet)

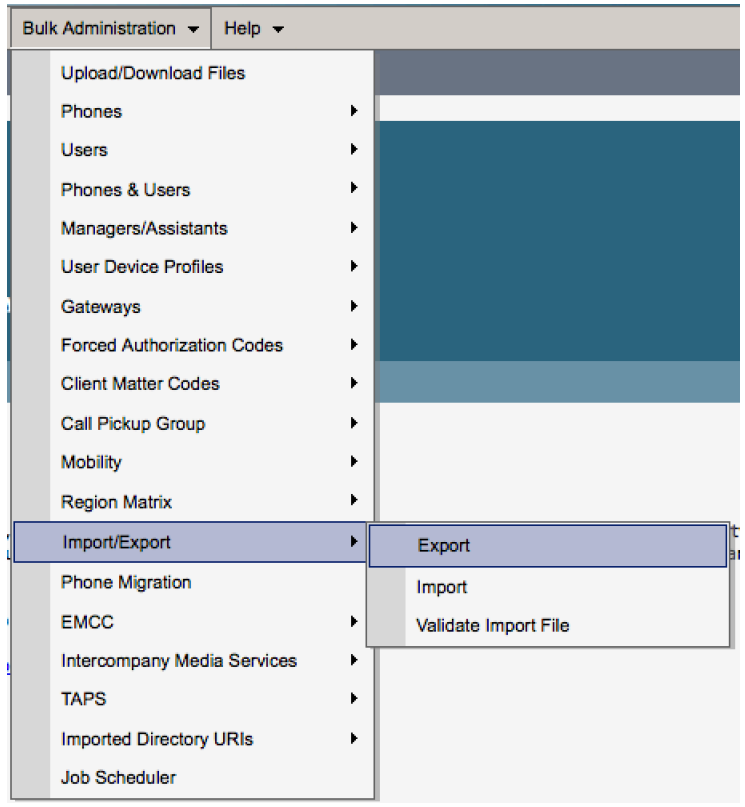
Patterns

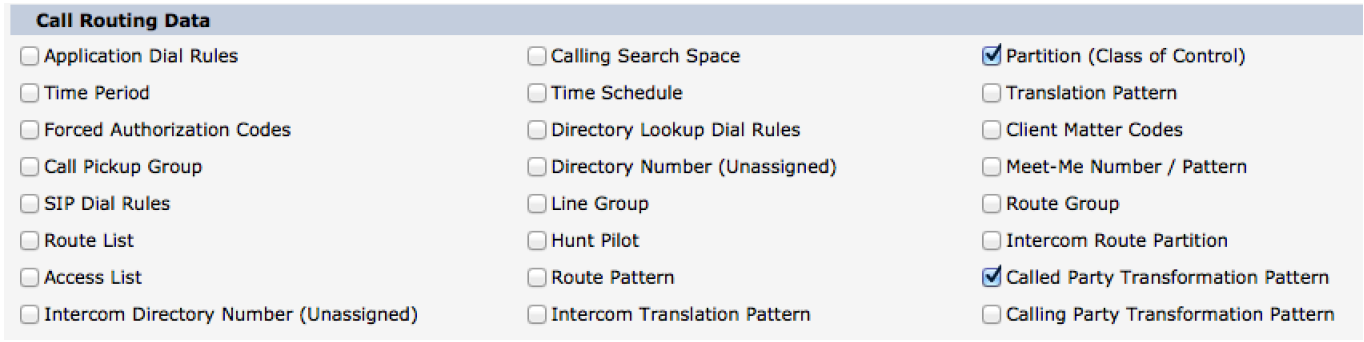
- Assumption using CdPTx matching on the left 6 digits of all local NPA-NXXes with a wildcard for the 6th digit
- Example pattern: : \+1816.20[012346]!
- CdPTx
  - For each HNPA LOCAL NXX: \+1816.20[012346]!, strip pre-dot → result is 7D
  - For each FNPA LOCAL NPA-NXX: \+1.913[1389]! , strip pre-dot → result is 10D
  - Default (HNPA/FNPA TOLL): \+.1!, strip pre-dot → result is 1+10D
  - Default (international): \+.!, strip pre-dot, prefix 011 → result is 011+E.164
- NPA-NXX specific CdPTx in partition uniform<NPA>-<NXX> (like uniform816-200)
- Default CdPTx (reuseable for all NPA-NXX) in partition uniformToll
- Use egress CdPTx CSS uniform<NPA>-<NXX> := {uniform<NPA>-<NXX>; uniformToll} on GW or GW's device pool
  - Example uniform816-200 := {uniform816-200; uniformToll}

How to get the CdPTx defined in CUCM

- Config export of Called Party Transformations from Communications Manager
- Untar the resulting archive
  to get template for adding Called Party Transformations
- Modify exported data
  Add required called party transformation patterns into CSV and recreate TAR for import
- Config import into CUCM

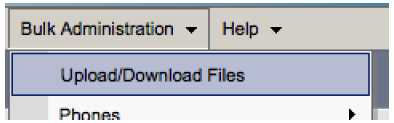
Export Config from CUCM

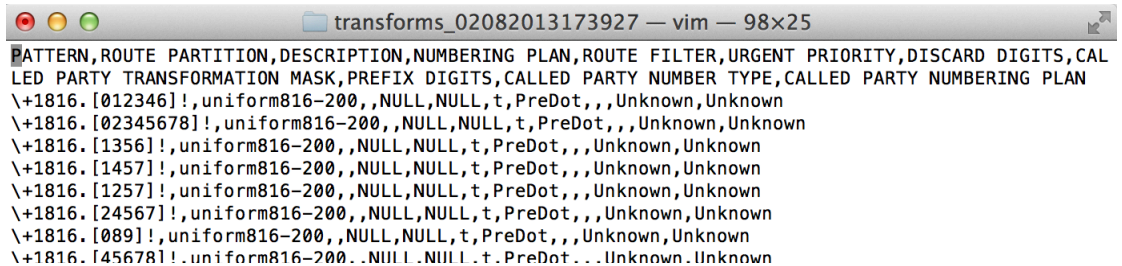




Patch exported data (1)

- Download
- Extract TAR file

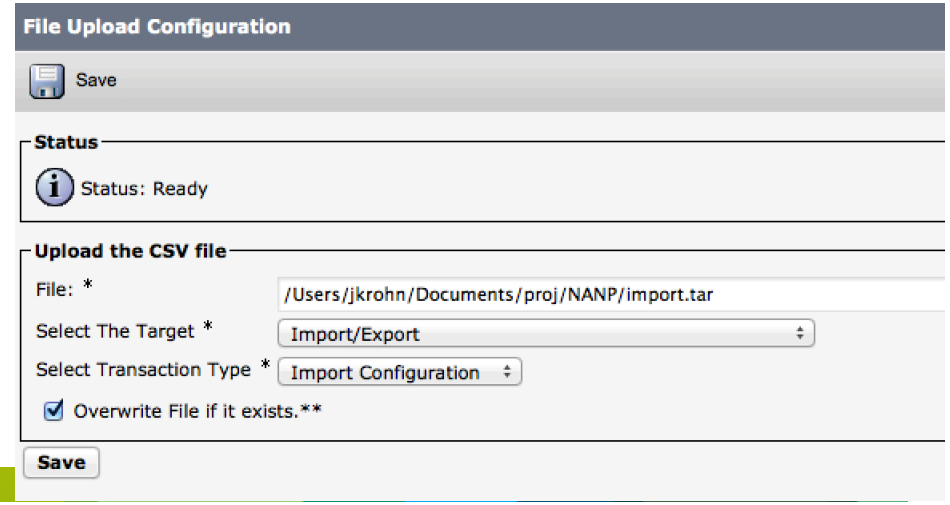




- Insert required patterns into “calledpartytranspattern.csv” (copy/paste from Excel)
  - Make sure to add the columns as seen in the template
- Create TAR file for import:

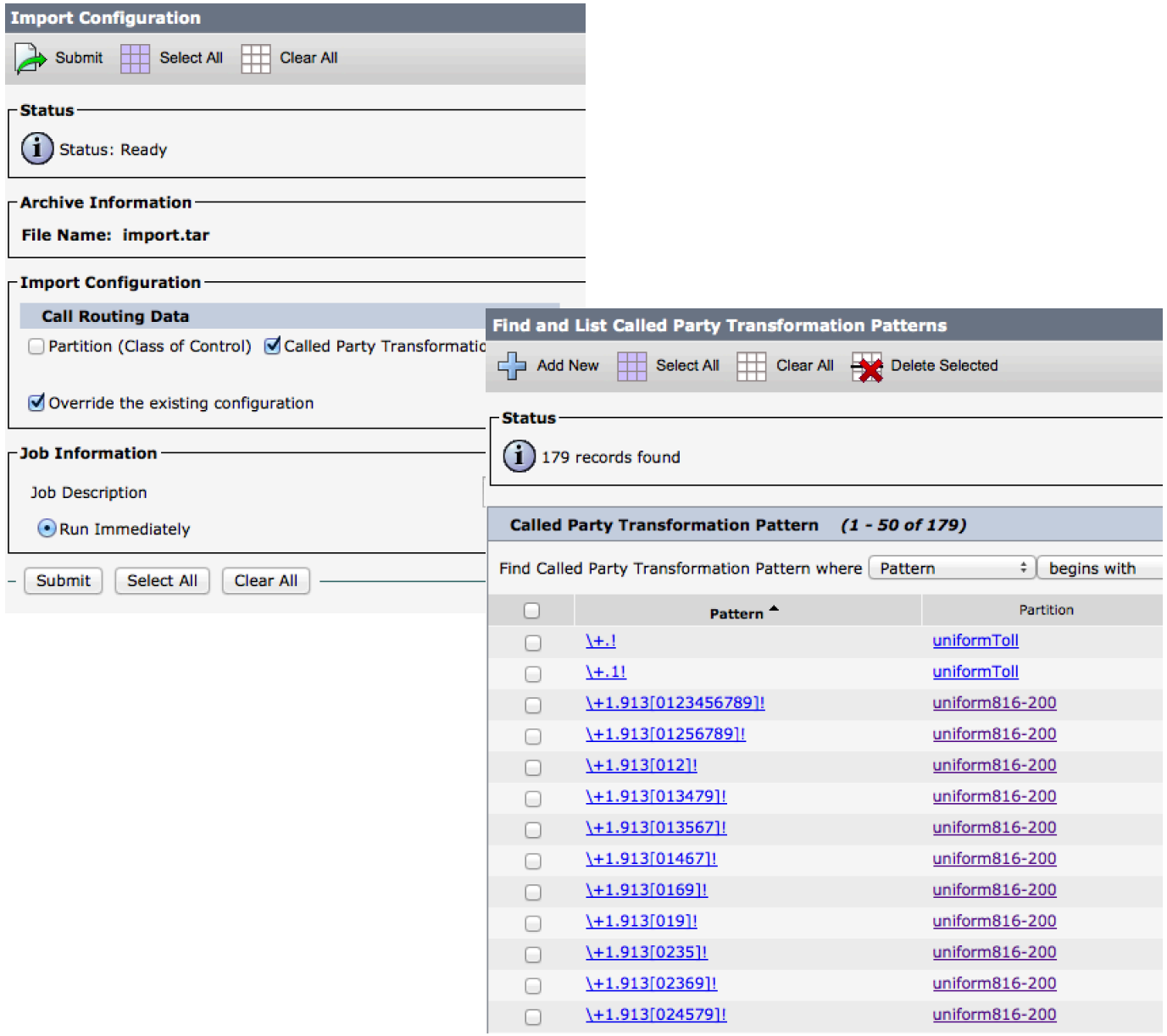
  tar -cf import.tar transforms_02082013173927/header.txt transforms_02082013173927/calledpartytranspattern.csv transforms_02082013173927/partition.csv

- Upload TAR to CUCM
- Validate import file



Patch exported data

- Import Data (transformation pattern only!)
- Caution:
  - overriding the existing configuration possibly not the best idea
- Alternative: w/o “override” CdPTx are added to set of already defined CdPTx
  - Might want to delete all existing CdPTx in given partition prior to import w/o “override” set
  - If no off-peak hour can be found: add CdPTx to new partition, change CdPTx CSS to use new partition, delete patterns in old partition, delete old partition



… or use a script

- AXL API allows programatic creation of transformation patterns
- Example Perl script together with example excel worksheet to optimize called party transforms available in Spark room
- Pls. only use as reference/example