

# “Uniform” dialing in the US

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

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

# 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](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](http://www.cnac.ca/canadian_dial_plan/canadian_dial_plan.htm)

## UNIFORM DIALING PLANS October 19, 2012

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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

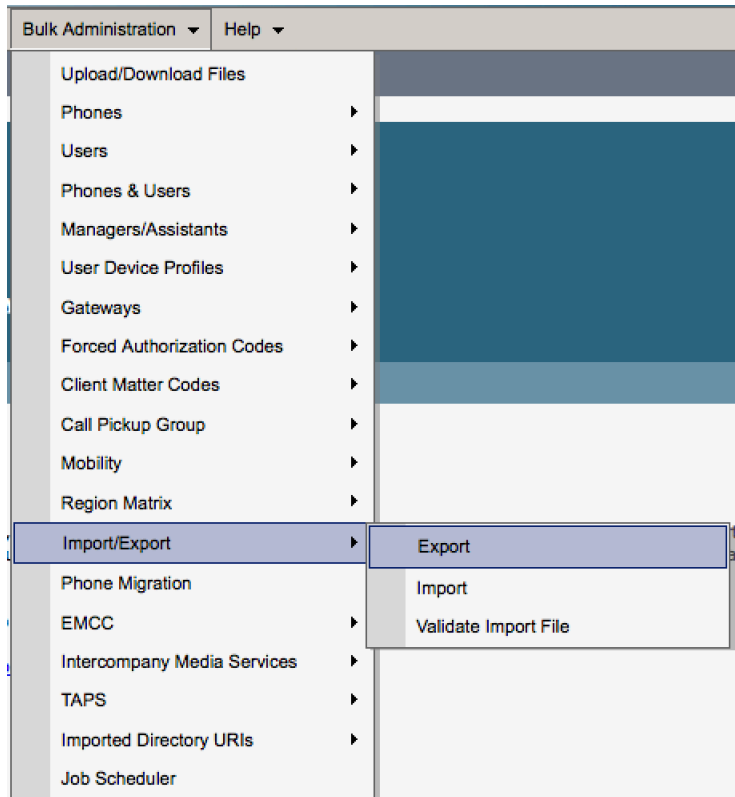
- Assumption using CdPTx matching on the left 6 digits of all local NPA-NXXes with a wildcard for the 6<sup>th</sup> digit
- Example pattern: : \+1816.20[012346]!
- CdPTx
  - For each HNPA LOCAL NXX: \+1816.20[012346]!, strip pre-dot → result is 7D
  - For each FNPA LOCAL NPA-NXX: \+1.913[1389]! , strip 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

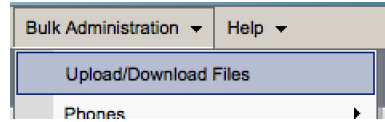


Call Routing Data		
<input type="checkbox"/> Application Dial Rules	<input type="checkbox"/> Calling Search Space	<input checked="" type="checkbox"/> Partition (Class of Control)
<input type="checkbox"/> Time Period	<input type="checkbox"/> Time Schedule	<input type="checkbox"/> Translation Pattern
<input type="checkbox"/> Forced Authorization Codes	<input type="checkbox"/> Directory Lookup Dial Rules	<input type="checkbox"/> Client Matter Codes
<input type="checkbox"/> Call Pickup Group	<input type="checkbox"/> Directory Number (Unassigned)	<input type="checkbox"/> Meet-Me Number / Pattern
<input type="checkbox"/> SIP Dial Rules	<input type="checkbox"/> Line Group	<input type="checkbox"/> Route Group
<input type="checkbox"/> Route List	<input type="checkbox"/> Hunt Pilot	<input type="checkbox"/> Intercom Route Partition
<input type="checkbox"/> Access List	<input type="checkbox"/> Route Pattern	<input checked="" type="checkbox"/> Called Party Transformation Pattern
<input type="checkbox"/> Intercom Directory Number (Unassigned)	<input type="checkbox"/> Intercom Translation Pattern	<input type="checkbox"/> Calling Party Transformation Pattern

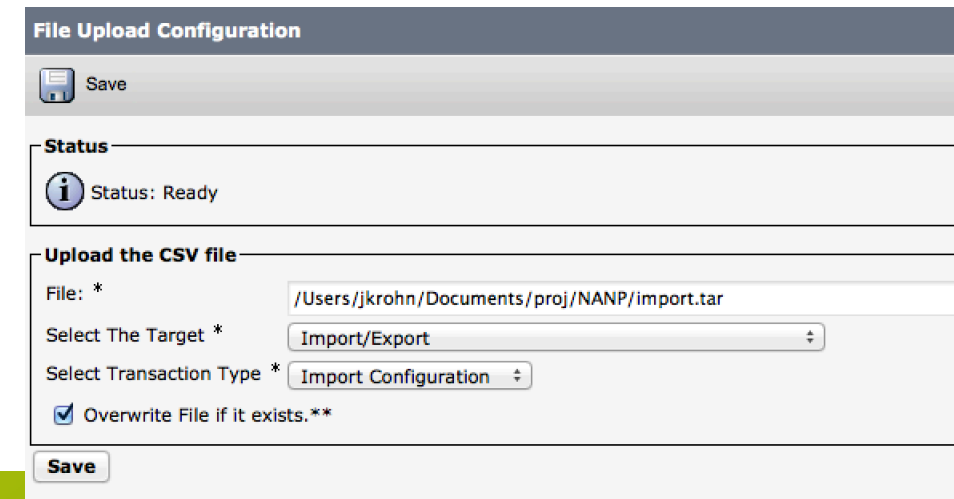
# Patch exported data (1)

- 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




```
transforms_02082013173927 — vim — 98x25
PATTERN,ROUTE PARTITION,DESCRIPTION,NUMBERING PLAN,ROUTE FILTER,URGENT PRIORITY,DISCARD DIGITS,CAL
LED PARTY TRANSFORMATION MASK,PREFIX DIGITS,CALLED PARTY NUMBER TYPE,CALLED PARTY NUMBERING PLAN
\+1816.[012346]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[02345678]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[1356]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[1457]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[1257]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[24567]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[089]!,uniform816-200,,NULL,NULL,t,PreDot,,,Unknown,Unknown
\+1816.[45678]!.uniform816-200..NULL..NULL..t..PreDot...Unknown..Unknown
```



**File Upload Configuration**

 Save

**Status**

 Status: Ready


**Upload the CSV file**

File: \*

Select The Target \*




Select Transaction Type \*


☒ Overwrite File if it exists.\*\*

 Save

# 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




**Import Configuration**  
 Submit  Select All  Clear All





**Status**  
 Status: Ready


**Archive Information**  
**File Name:** import.tar

**Import Configuration**  
**Call Routing Data**  
☐ Partition (Class of Control) ☒ Called Party Transformation  
☒ Override the existing configuration

**Job Information**  
Job Description  
☒ Run Immediately

 Submit  Select All  Clear All

**Find and List Called Party Transformation Patterns**  
 Add New  Select All  Clear All  Delete Selected

**Status**  
 179 records found

Called Party Transformation Pattern (1 - 50 of 179)		
Find Called Party Transformation Pattern where <input type="text" value="Pattern"/> begins with		
<input type="checkbox"/>	Pattern ^	Partition
<input type="checkbox"/>	<a href="#">\+.</a>	<a href="#">uniformToll</a>
<input type="checkbox"/>	<a href="#">\+.1</a>	<a href="#">uniformToll</a>
<input type="checkbox"/>	<a href="#">\+1.913[0123456789]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[01256789]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[012]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[013479]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[013567]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[01467]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[0169]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[019]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[0235]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[02369]!</a>	<a href="#">uniform816-200</a>
<input type="checkbox"/>	<a href="#">\+1.913[024579]!</a>	<a href="#">uniform816-200</a>

## ... 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

