

CADUP, portability and mimport

Notes:

- Techprefix is NOT used normally for routing decision. (Use the called prefix instead! You can still set the techprefix for SIP servers to insert a prefix before the number when it sent outbound if that is needed for any reason)
- You don't need to add the country code from "Rules" as this can be done automatically
- No sip servers and routing rules are going to be created automatically anymore
- You should clear the old imported data before starting with the new mimport (backup first):
 - delete from tb_users where comment like '_cadup%' or comment like '_annex5%'
 - delete from tb_routing where name like '_cadup%'
 - delete from tb_routinglist
- Cadup and spid will be stored in tb_directions and ported numbers to tb_portednumbers.
- Remember to convert Annex V (SPID) to simple CSV before importing with mimport

Numbers:

- A full number format internally can be represented as DDI + SPID + CNL + DDD + PREFIX + SUFFIX
- DDI: means country code in your language (55 for Brazil)
- SPID: Operators (carriers) in Brazil has a 4 digit SPID number which can be used as a prefix for routing decisions (to be extracted from Annex V, used in routing called prefix and also for number portability rewrite)
- CNL: landline numbers also has a CNL component (loaded from CADUP)
- DDD: defines the region, consisting of 2 digits
- PREFIX: identifies the carrier (DDD +), formed by 4 or 5 digits
- SUFFIX: final complement number consisting of 4 digits.
- We usually name PREFIX + SUFFIX as "number"
- SPID and CNL are used only internally (not received or sent)

Mimport:

- Is a tool to import from CADUP, Annex V (SPID) and number portability (Annex IV)
- Latest version can be downloaded from here: <https://www.mizu-voip.com/G/download/mimport.zip>

CADUP:

- Is the database with operator name – prefix – CNL (CNL for landline only). Actually it is the Brazil numbering plan.

There are 3 types:

- SMP: for mobile (stype in tb_spid is 1)
- STFC: landline (with CNL as the penultimate column) (stype in tb_spid is 2)
- SME: special mobile (stype in tb_spid is 3)

Can be downloaded from

<http://sistemas.anatel.gov.br/sapn/ArquivosABR/faixaSMP.asp?SISQsmodulo=18099>

<http://sistemas.anatel.gov.br/sapn/ArquivosABR/faixaSTFC.asp?SISQsmodulo=18099>
<http://sistemas.anatel.gov.br/sapn/ArquivosABR/faixaSME.asp?SISQsmodulo=18098>

Example: CLARO S.A.;40432544000147;55;9100;2000;2999;1

means that from number 559100-2000 until 559100-2999 route to Claro S.A.

SPID:

Operators (carriers) in Brazil has a 4 digit SPID number which can be used as a prefix for routing decisions

to be extracted from Annex V (convert to simple CSV first!)

used in routing called prefix and also for number portability rewrite

will be imported to tb_directions

Number portability:

Is the database with operator name – number – new SPID

Will be imported to tb_portednumbers

Can be downloaded from FTP:

- o Host: ?
- o User: ?
- o Password: ?

Field 2 Action – constant value corresponding to create Numeric 0 Numeric of which:
0=Create and 1=Delete

Field 3 Telephone Number – TN N(10 or 11) 1288887777 or 11988887777

Field 6 New SPID – Identification of new provider N(4) 0121

There are full (geral) and diff files but that doesn't matter too much because we import all files anyway (handling new/modify/delete automatically) starting from full files and the file format is the same.

Description:

Mimport is a simple windows GUI app, but can be invoked also from command line with the following parameters:

oop, db, file, usr, pwd, sep, prefix, go, nogo, exit

for example: mimport.exe /oop 1 /file "<ftp://10.20.30.40/xxxx.txt>" /usr "username" /pwd "password" /db "Provider=SQLOLEDB.1;Password=xxx;Persist Security Info=True;User ID=sa;Initial Catalog=mserver;Data Source=127.0.0.1,2223"

The import tasks can be run manually (from gui) or auto scheduled (command line from windows task scheduler or "Scheduled tasks" from MManage)

first time:

import cadup from downloaded csv

import spid - carrier mapping from downloaded annex V csv

import full number portability from downloaded csv

periodically:

import cadup by finding it at

<http://sistemas.anatel.gov.br/sapn/ArquivosABR/faixaSMP.asp?SISQsmodulo=18099> and

<http://sistemas.anatel.gov.br/sapn/ArquivosABR/faixaSTFC.asp?SISQsmodulo=18099>

import number portability from ftp

Operations (oop):

Operation to perform:

1. Import CADUP (operator name, DDD + prefix and CNL to tb_directions)
(file name might be also like FAIXA_SMP)
you can specify the html page

(<http://sistemas.anatel.gov.br/sapn/ArquivosABR/faixaSMP.asp?SISQsmodulo=18099>) and will extract the file automatically if the "Type" is not set to "Exact"

(Note: if the cnl field is set, it means that the record is for STFC/landline. Otherwise the record is for SMP/mobile)

2. Not used anymore
3. Import SPID - Name mapping (from Annex V)
(file name might be also like BDT...)
convert from xlsx to csv format first with some tool (Excel -> Save As)
this will just store the spid number as tb_directions.spid
have to be run at least one time at the beginning. maybe also later if these could also change
4. Import portability full or diff (Annex IV)
have to be run at the beginning then periodically to import the new files

Parameters:

To DB (db):

Target mizu voip database ADO connection string

From file (file):

Data source (csv file format, local, ftp or http)

Username/Password (usr/pwd):

Used for ftp or http authentication if required

Separator (sep):

CSV column separator (by default will be auto guessed from first lines)

Prefix (prefix):

Country prefix to insert before numbers or prefixes. Set to 55 by default.

Add all operators (addall):

Not used anymore

Ignore first line (ignore):

Will skip the first line in the CSV (for example if header or comment)

Type (type):

If Exact then an exact file must be provided and that will be parsed

If other, then check if the specified URL is a http index file or ftp dir list. The file locations will be extracted from here

Will remember already downloaded files and will not download it again (the history can be cleared by deleting the history.dat file)

Server settings and upgrade:

- set global config dbversion to 144
- set global config checknumport to 5 (prefix insert)
- set global config checknumportpx to 55 (so will check only brazil numbers)
- set global config spidrewrite to 1 (0 means no, 1 means check, 2 means reject call if not found)
- set global config lookupcdrdirection to 2

- CREATE TABLE [tb_spid]([id] [int] IDENTITY(1,1) NOT NULL,[spid] [varchar](8) NULL,[stypc] [tinyint] NULL,[name] [varchar](165) NULL,[location] [varchar](165) NULL,[area] [varchar](165) NULL)
- CREATE CLUSTERED INDEX [idx_spid_name] ON [tb_spid] ([name] ASC)
- update v_check_numport: select TOP 1 tb_portednumbers.* from tb_portednumbers with(nolock) where number = @number
- upgrade tb_directions (add spid and cnl columns)
 - ALTER TABLE tb_directions ADD [spid] [varchar](8) NULL
 - ALTER TABLE tb_directions ADD [cnl] [varchar](8) NULL
- CREATE UNIQUE CLUSTERED INDEX [idx_directions_prefix] ON [tb_directions]
- set numdircachexlen to max prefix len (this is deprecated now as it will be detected automatically by the server)

```
select LEN(prefix), count(prefix)
from tb_directions
group by LEN(prefix)
order by count(prefix) desc
```
- Update the v_getprice stored procedure
- Update the v_selpattern2 stored procedure
- Update the v_getpriceexf function

Routing setup:

Use mimport to import cadup, spid and portability

Run MManage -> Tool menu -> Server Setup -> Normalize directions once all imported by mimport. This will compact the tb_directions table (backup db first)

Add sip servers (manually)

Add routing rules (manually)

Add prefix list to routing rules (manually for "called prefix" in tb_routingprefix). The number will come here as SPID + CNL + DDI + DDD + PREFIX + SUFFIX

Call-flow example:

1. If incoming number begins with 00 that means international calls so we skip the whole procedure.
2. Incoming number from user arrives like 0 11 12345678 (DDD + number) for national calls (just a virtual example)
3. Remove 0 and prefix with 55 (DDI country code of brazil 55) so the number will look like 55 11 12345678
4. Then we lookup tb_directions (imported from CADUP and SPID Annex V) and will insert SPID + CNL. (CNL only for landline). Supposing that SPID is 2222 and CNL 3333 the number looks like this: 2222 3333 55 11 12345678 (SPID+CNL+DDI+DDD+num)
5. Then we lookup if the number exists in the tb_portednumbers (imported from Annex IV). The number format here is DDI + DDD + number so we lookup like this. (So in tb_portednumbers there is no SPID and CNL prefixes)
6. If number found, then we replace the spid from tb_portednumbers. If the new spid looks like 8888 then our number will be rewritten like this: 8888 3333 55 11 12345678.
So we will have PORTNUMPREFIX + CNL + rest after this step.
7. Then we pass the number to routing which will select a sip server based on the rules your entered on the "Routing" form in MManage (called prefixes)

8. When sending the call to the outbound SIP server, we remove SPID and CNL so the number sent in SIP INVITE will be: [SIP server tech prefix if any] + DDI+DDD+number. Example: 55 11 12345678
9. On billing, the price (prefix list) will be checked in both the normalized (DDI+ DDD+num) and extended (SPID+CNL+DDI+DDD+num) number formats and the first longest match will be loaded

Test:

Directory normalization should be also tested

This normalization can reduce the size of the tb_direction table with considerable amount

The normalization might take some time to complete (run in offpeak only in production servers)

Backup database first

MManage -> Tools -> Server Setup -> Normalize Directions

Check correctness (tb_direction prefix lookup should be still correct)