

CONFIDENTIAL B

The MediaTek logo consists of the word "MEDIATEK" in white, uppercase, sans-serif font, centered within an orange parallelogram shape that is wider at the top and bottom and tapers in the middle.

**MEDIATEK**

# Dynamic IMS Switch Customer Document

[v1.0]

# Outline

- How to enable (Mandatory)
- How to customize IMS feature switch (optional)
- Overview
- Q&A



# How to enable

- MTK\_DYNAMIC\_SBP\_SUPPORT = yes
- Enable Dynamic IMS Switch (default disable)
  - Go to /device/mediatek/*\$project*/device.mk
  - Set persist.mtk\_dynamic\_ims\_switch = 1

```
ifeq ($(strip $(MTK_DYNAMIC_SBP_SUPPORT)), yes)
    PRODUCT_PROPERTY_OVERRIDES += persist.mtk_dynamic_ims_switch=1
endif
```

# Verify at runtime

- Check the D-SBP feature is enabled.
  - adb shell getprop **persist.radio.mtk\_dsbp\_support** be 1.
- Check Dynamic IMS Switch is enabled.
  - adb shell getprop **persist.mtk\_dynamic\_ims\_switch** be 1.



# Steps by steps

- Total 2 steps
  1. Get what platform support.
  2. Override what your project want.

# Step #1

- Get what combinations platform supported.
  - Go to ./frameworks/base folder.
  - Run the script “ims-platform-config.sh” in zip file to get all MCC-MNC combinations of each IMS features.
  - The output file “ims-platform-config.txt” will be generated.

```
base]$ ./ims-platform-config.sh
```

```
[volte]
values-mcc208-mnc01
values-mcc208-mnc09
values-mcc208-mnc10
values-mcc208-mnc11
values-mcc214-mnc01
values-mcc214-mnc06
values-mcc222-mnc06
values-mcc222-mnc10
values-mcc234-mnc15
values-mcc234-mnc20
values-mcc234-mnc27
```



# Step #2

- Override what configuration your project want.
  - Go to /device/mediatek/*\$project*/.
  - Create folder on it: overlay/frameworks/base/core/res/**res/**
  - Create MCC-MNC folders to override configuration  
“**values-mccMCC-mncMNC**”. e.g. values-mcc208-mnc01 ← At least 2 digits for MNC.
  - Create a file “**config.xml**” for each MCC-MNC folders.
  - Override the IMS features configuration in the xml file.
    - For example, to disable volte & vlte for 208-01

```
<?xml version="1.0" encoding="utf-8"?>
<resources xmlns:xliff="urn:oasis:names:tc:xliff:document:1.2">
  <!-- Enable Volte capability -->
  <bool translatable="true" name="config_device_volte_available">false</bool>
  <!-- Disable Wfc capability -->
  <bool translatable="true" name="config_device_vt_available">false</bool>
</resources>
```

# Important Notice

- Do **NOT** enable MCC-NNC combinations that platform NOT supported.
  - Unexpected behavior: Volte call fail.
  - Power consuming: Keeps try IMS registration...



# Concept



Project configuration



Default configuration

subset of



What **customer** want

What **platform** support

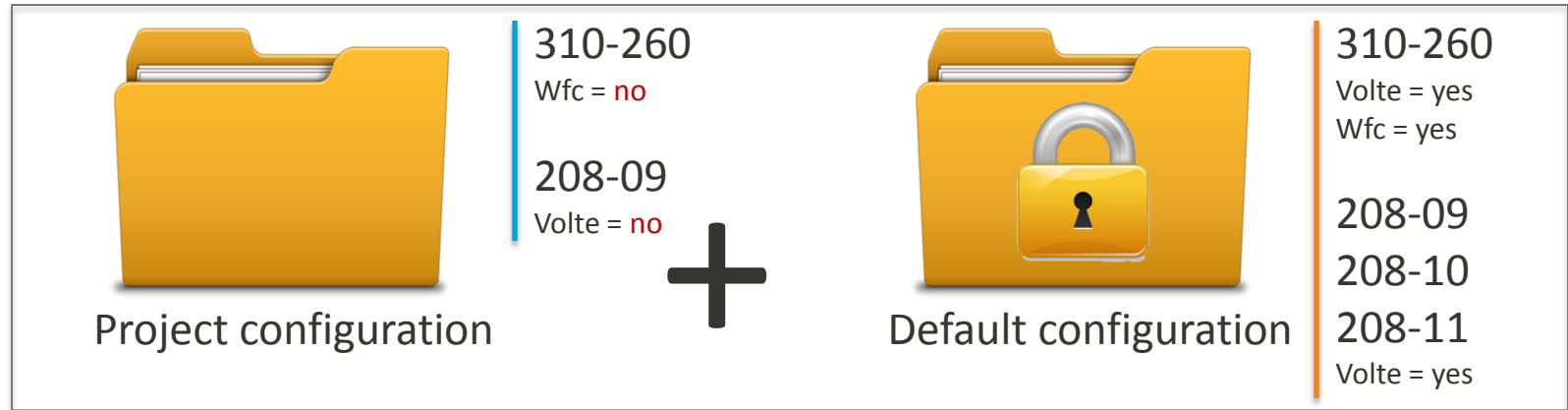
## ■ Default configuration

- All **MCC-MNC based** combinations that platform support.
- Must **NOT** modify default configuration.

## ■ Project configuration

- Only be **subset** mcc-mnc combinations from default configuration, filter out the combinations don't need.
- The project configuration can **override** default configuration.

# Quick Example



Result

310-260

Volte = yes

Wfc = no

208-09

Volte = no

208-10

208-11

Volte = yes

Mobile Country Code

**MCC-MNC**

Mobile Network Code

# The configurations

- IMS Configurations in framework resource:
  - Volte: config\_device\_volte\_available
  - Vlte: config\_device\_vt\_available
  - Wfc: config\_device\_wfc\_ims\_available

# Dynamic IMS Switch

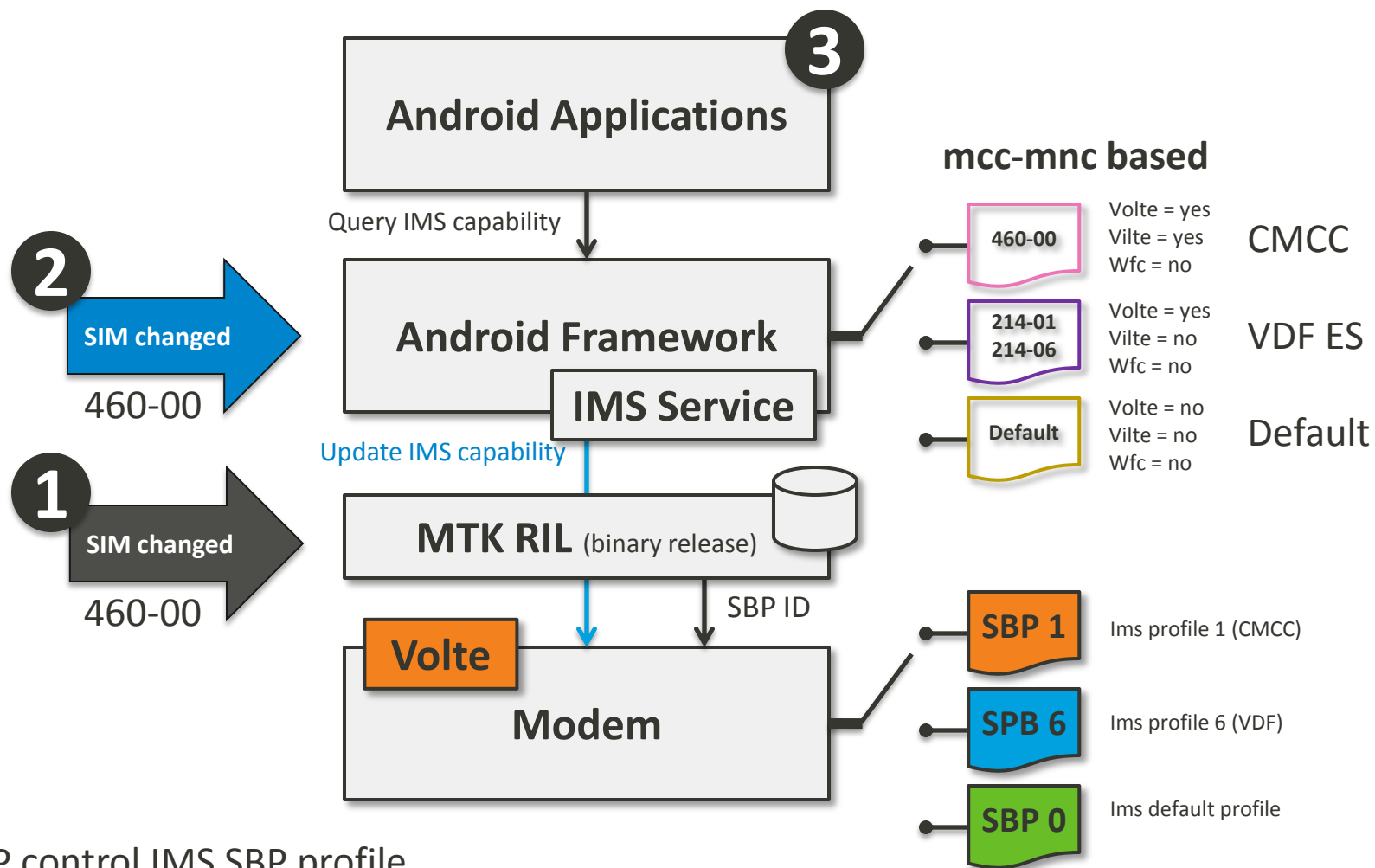
- A feature to enable / disable IMS features after SIM inserted.
  - Volte / Vlte / WFC.
- Leverage AOSP framework resource overlay mechanism, setup by MCC-MNC.
  - Ex. 310 240 (TMO-US) => volte (O), vlte (X), wfc(O)
- FWK ImsService updates IMS capabilities to MD side.
  - AT+EIMS / AT+EIMSWFC / AT+EIMSCCP...
- Setting asks FWK to decide UI.
  - ImsManager.isXXXEnabledByPlatform()

# Dynamic IMS Switch

- Case Study
  - Case #1 – Support SIM
  - Case #2 – Not support SIM
  - Case #3 – No SIM
  - Case #4 – Test SIM

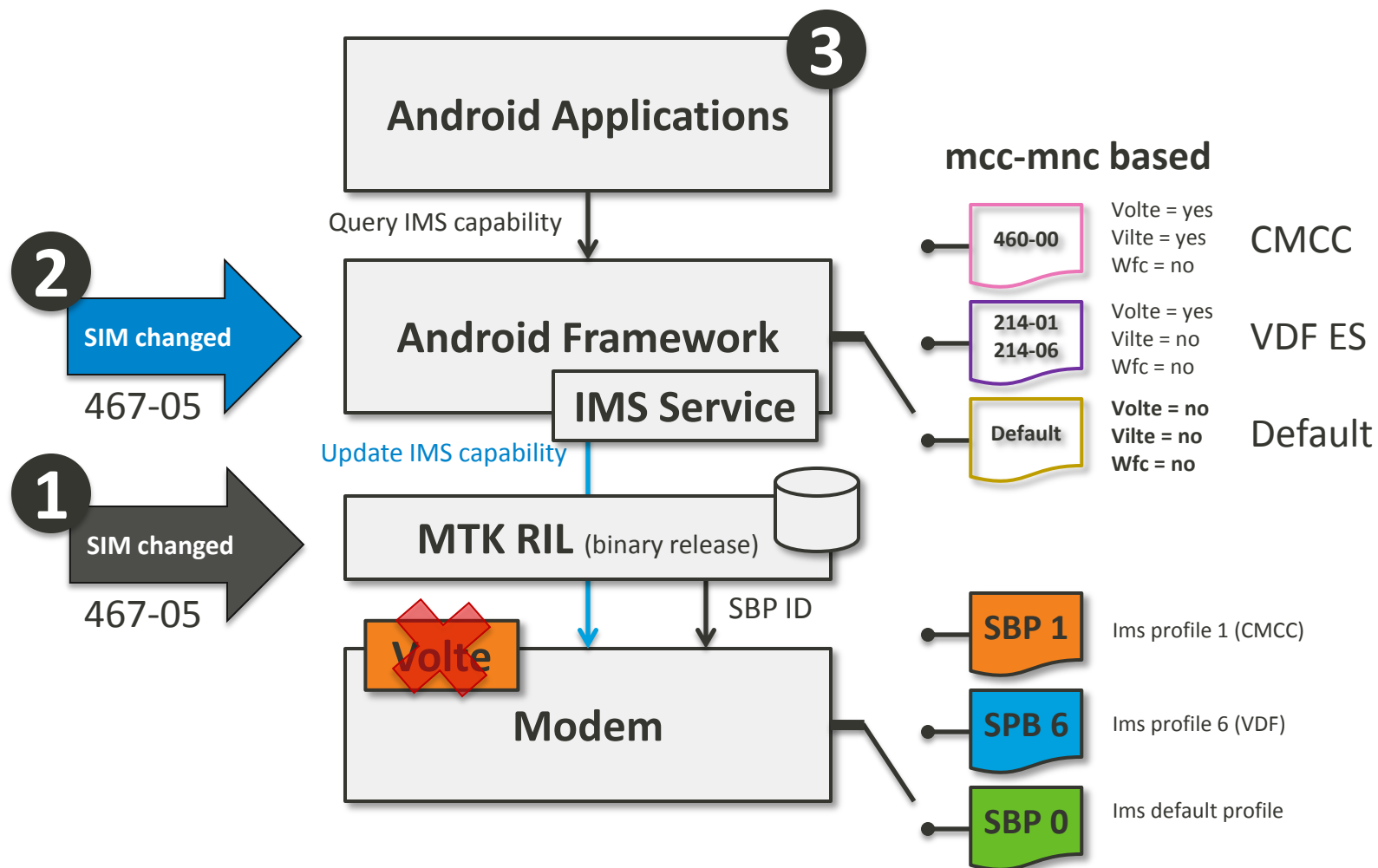


# Case #1 – Support SIM

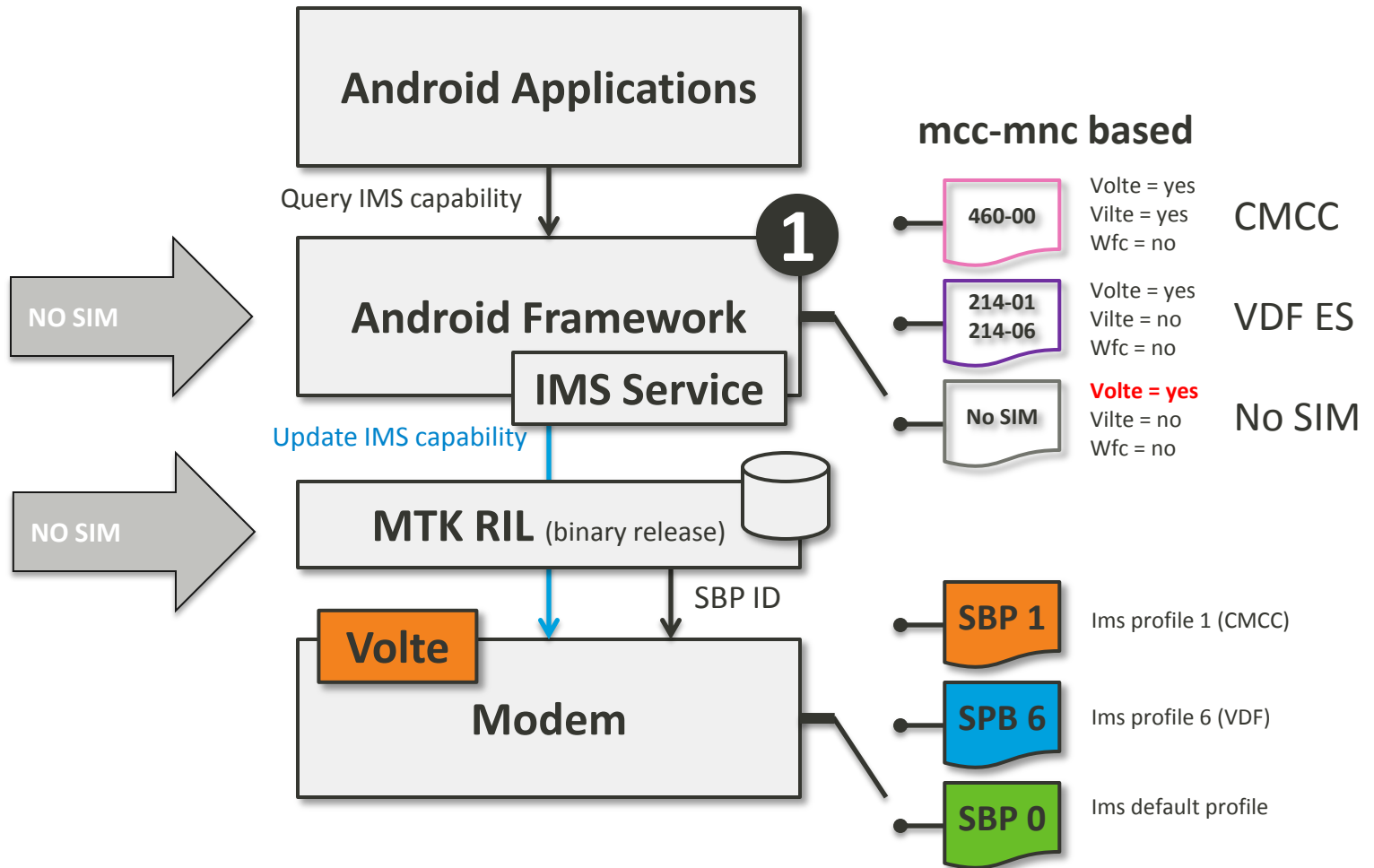


- #1. D-SBP control IMS SBP profile.
- #2. Android FWK control IMS capability.
- #3. App update UI according to FWK info.

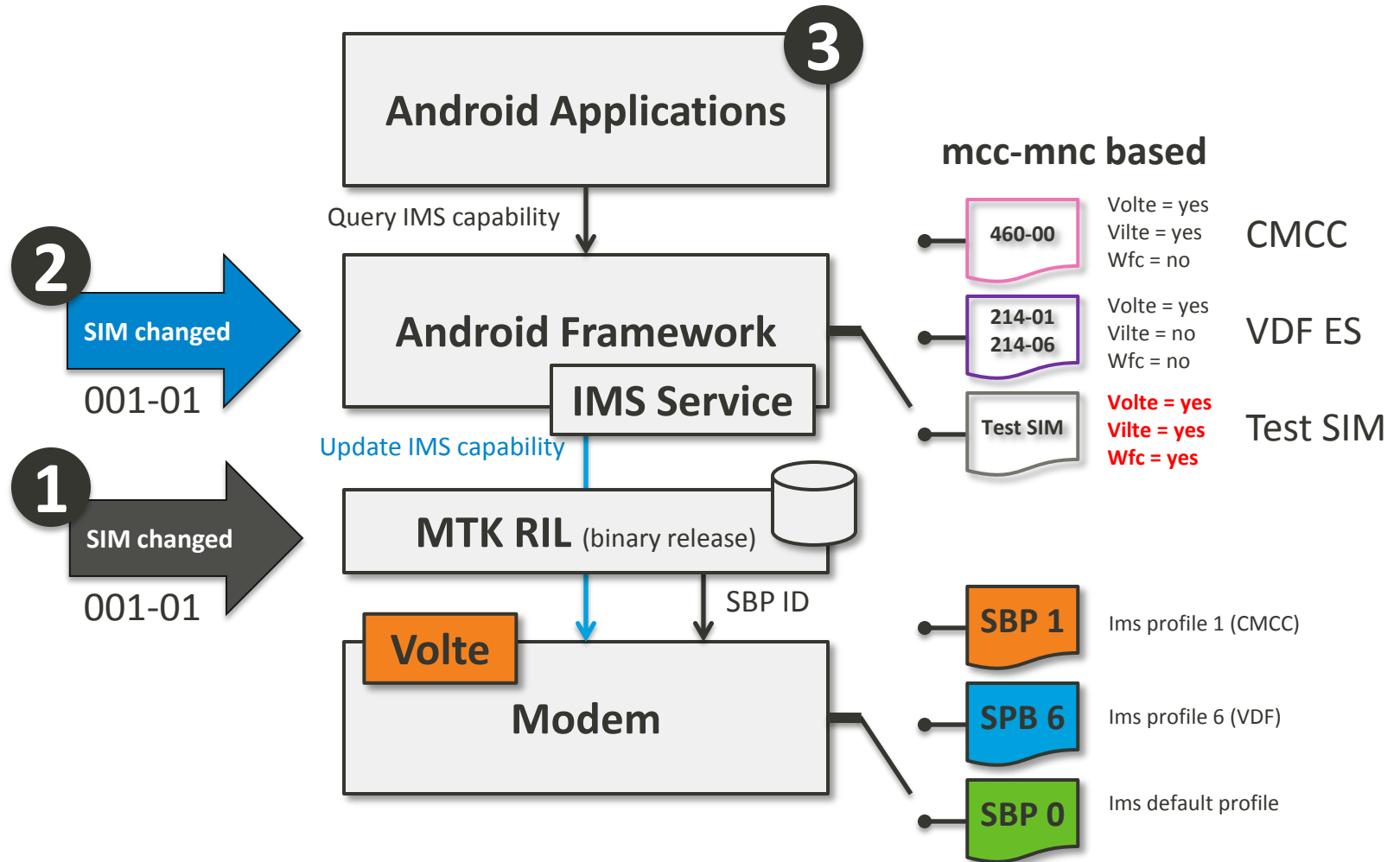
# Case #2 – Not support SIM



# Case #3 – No SIM

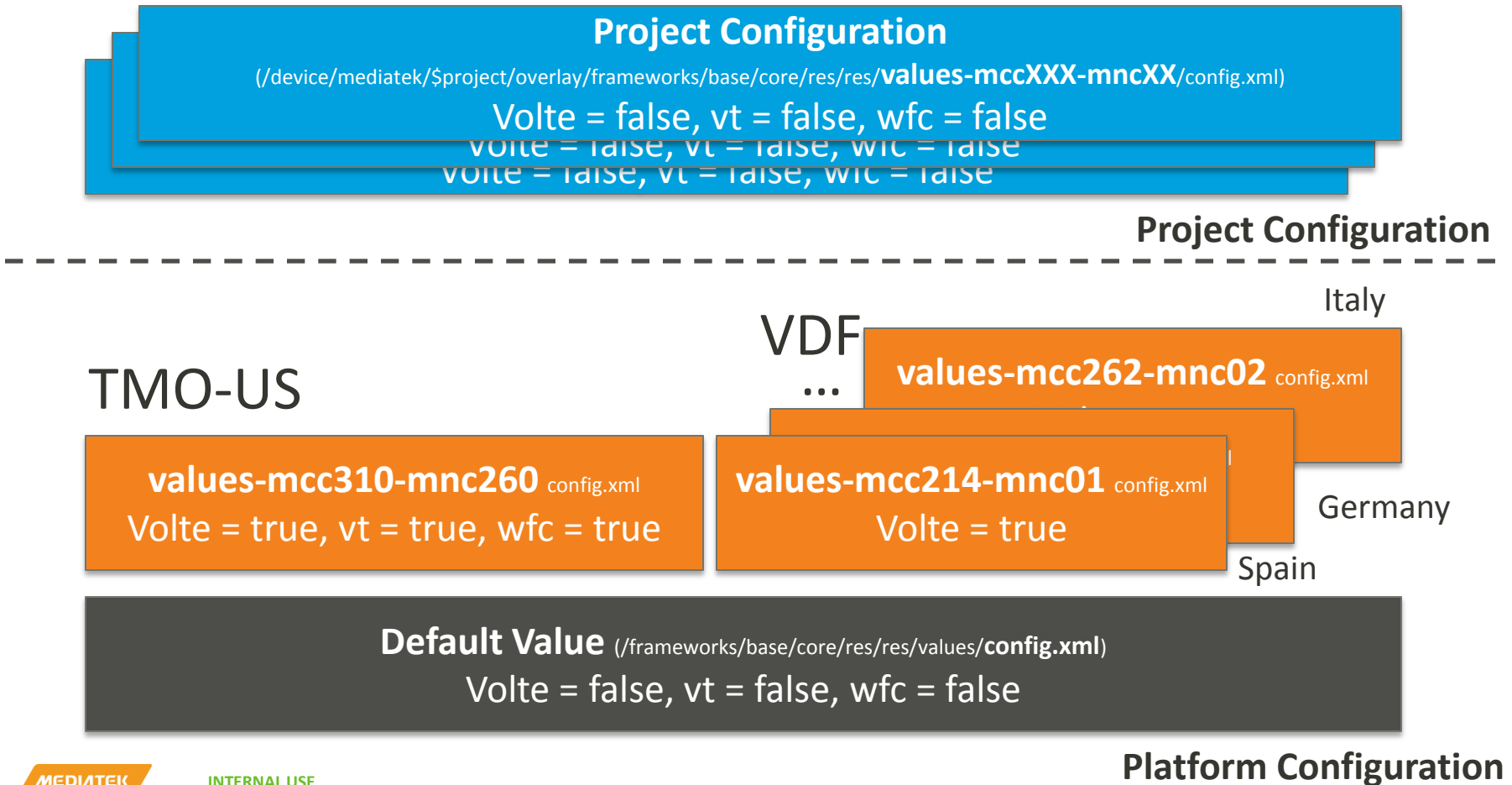


# Case #4 – Test SIM



# Customization

## ■ Graphic view





# What is MCC & MNC

- MCC (Mobile Country Code)
  - 3 digits, the country.
- MNC (Mobile Network Code)
  - 2 or 3 digits, the operator network.
- A **mobile country code** (MCC) is used in combination with a **mobile network code** (MNC) (also known as a "MCC / MNC tuple") to uniquely identify a mobile network operator (carrier) .

# How to map MCC-MNC to Operator

- Web Resource
  - [https://en.wikipedia.org/wiki/Mobile\\_country\\_code](https://en.wikipedia.org/wiki/Mobile_country_code)
  - <http://www.mcc-mnc.com/>
- SPN information (Codebase)
  - Device/mediatek/common/spn-conf.xml



# How to know MCC-MNC of SIM

