**Policy Document**

Version 0.1

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Sterlite Technologies Ltd.

Elitecore, Block 6, Magnet Corporate Park,

Nr. Sola Flyover, Thaltej

Ahmedabad–380059, India

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| Point of Contact | | | |
| --- | --- | --- | --- |
| Name | Sarju Garg |  |  |
| Title | Sr. Solution Architect |  |  |
| Email | [Sarju@goldilocks-tech.com](mailto:Sarju@goldilocks-tech.com) | Skype-ID | sarjug |
| Mobile | +91.9810304396 |  |  |

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| --- | --- |
| Target Audience | |
| 1 | DMC/CEIR Project Team |
| 2 | Sterlite Internal teams |
| 3 | Cambodian CEIR Policy and Other Stakeholders in project |

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| Reference& Resources | | Remark |
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| Open Points Tracker | | Remark |
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# Introduction

This document contains the policy details based on the internal team discussions. This is the initial draft of the document that is intended to list down all the features and functionalities of the policy subsystem.

As per the current understanding of the flow, the requirements have been defined and are hereby provided in the document along with some queries which have been raised wherever required. This document will further be updated once the queries have been resolved.

Dependencies

Describes the list of project-based dependencies.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Dependencies** | **Start Date** | **Status** | **Approved**  **By** | **Approved Date** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Target Audience

The intended audience required to have access to this document is as follows:

* DMC Team
* Sterlite Customization Team

Document Reference

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Document Title** | **File Name** | **Description** |
| 1 | Software Requirement Specifications | DMC\_Serlite\_CEIR\_SRS\_11Mar2019\_v02 | This document documented to match requirements mentioned in Section 4.16 and 4.99 of SRS. |

## Abbreviations

The terminologies that will be used in the document are as follows:

|  |  |  |
| --- | --- | --- |
| **Sr No** | **Name** | **Description** |
| 1 | CEIR | Central Equipment Identity Register |
| 2 | IMEI | International Mobile Equipment Identity |
| 3 | SIM | Subscriber Identification Module |
| 4 | TAC | Type Allocation Code |
| 5 | TRC | Telecom Regulatory of Cambodia |

# Introduction

## Background

DMC is looking for a solution to prevent SIM based devices of theft, misuse and getting lost. TRC also wants to address and improve quality of telecommunications service which are affected due to usage of counterfeit devices causing impact on voice and data capacity, cell coverage, interference issues, call drops, inefficient spectrum utilization etc.

In order to achieve the goal, Sterlite is providing a solution to provide a turnkey for all SIM based devices governance in Cambodia to meet the missions and visions of DMC.

## Requirement

This section covers the requirement as highlighted in the SRS document.

| **SRSID** | **Law or Policy Attribute** | **Remark** |
| --- | --- | --- |
| 8.1 | Law should prohibit the counterfeit devices in Cambodia and responsible authorities should be enabled to take action on CEIR reports. | E\_DUP\_DB |
| 8.2 | Law should prohibit producing cloned SIM and IMSI. | E\_DUP\_DB |
| 8.3 | Law should prohibit producing cloned IMEI or device reproduction. | E\_DUP\_DB |
| 8.4 | Cyber security Law should prohibit unauthorized access of CEIR system. | Security requirement. |
| 8.5 | Policy and Decree (Government Order) should be in place to enable rightful importers to register with CEIR authority or enable. | Registration Flow for Importer covered in Design Document |
| 8.6 | Policy and Decree (Government Order) should be in place to enable rightful wholesale/distributors to register with CEIR authority. | Registration Flow for Importer covered in Design Document |
| 8.7 | Policy and Decree (Government Order) Enable workflow of CEIR to fetch information from Operator systems/network in automated way. | ETL flow as defined in Signaling document |
| 8.8 | Policy and Decree (Government Order) should be in place to enable rightful retailers and ecommerce websites to register with CEIR authority for Device sales. | Registration Flow for Importer covered in Design Document |
| 8.9 | Policy and Decree (Government Order) should be in place to enable end users of device(Cambodian Citizen, Tourists, Foreign workers) to register with CEIR authority. | Register Device Flow at End user end |
| 8.10 | Policy and Decree (Government Order) should be in place to enable Immigration authorities to share the data related to tourists and foreign workers or visitors In Cambodia. | Immigration Manage user/devices flow |
| 8.11 | Policy and Decree (Government Order) should be in place to enable CEIR authority to Black List devices which are not allowed to Operate in Network by law. | Block Device flow at CEIR Admin |
| 8.12 | Policy and Decree (Government’s order) should be in place to enable Network Operator to monitor GREY Listed devices activity in Network Operator’s environment. . | Grey List Download flow for Operator |
| 8.13 | Policy and Decree (Government Order) should be in place to enable CEIR authority to receive base rates from customs to do the price discovery. | Out of scope |
| 8.14 | Policy and Decree (Government Order) should be in place to enable CEIR authority block the usage of NULL and all 0 IMEI or NULL ESN or 0 ESN devices after the grace period. | E\_NULL\_  CHECK |
| 8.15 | Policy and Decree (Government Order) should be in place to enable CEIR authority to request Operator for Tracing the usage of Grey Listed devices in their network. | Out of scope |
| 8.16 | Policy and Decree (Government Order) should be in place to enable CEIR authority to request Immigration department (all ports) to share information related to tourist’s visa details and local Cambodian’s traveller information. | Out of scope |
| 8.17 | Policy and Decree (Government Order) should be in place to enable CEIR authority to facilitate the Immigration department (all port) for tourist to register mobile device related information in CEIR system with simple interface. | Immigration Portal for Visa update, register device/user |
| 8.18 | Policy and Decree (Government order) should be in place to enable CEIR authority to request national ID or local identification card authorities to share information with CEIR authority for validation of national ID or identification related information. | Out of scope |
| 8.19 | Policy and Decree (Government’s order) should be in place to enable end users and common people of Cambodia to use prescribed identity cards to use for registration for Mobile devices with CEIR. | Out of scope |
| 8.20 | Policy and Decree (Government order) should be in place to enforce the SIM registration process at Operator side and device registration with CEIR authority. Order should enforce Operator to synchronise user account information with CEIR system. | Out of Scope |

In the Remark section above, the requirement is mapped with the different rules defined in the system

# Policy Subsystem Overview

As per the current understanding, the policy subsystem will be accessed by System Admin using web portal. Username/password would be provided for same purpose.

To start with, each policy is referred to as a rule in the system.

Initially all the rules would be defined in the system. The list of rules is covered in the Section 3.1.

These rules will be applied on various offline/online processes.

Example of offline process is the backend application that process the device file uploaded by importer as part of consignment management process.

Example of online process is Check IMEI where end user is checking the IMEI status.

The list of flows where rule can be applied in covered in Section 3.2

For each rule, there would be a list of predefined actions based on the purpose why the rule is to be applied. There are broadly following sets of actions

1. Allow – Allow this device to used in the network
   1. There would be different reason why devices are allowed. The following are the reasons:
      1. Device is ok and all rule has passed
      2. Device is not ok as some rule has failed but device is allowed as per policy decision.
      3. Exception Rule has passed in this case like VIP number
      4. Device is temporarily allowed as awaiting user to pay taxes
2. Block – Block the usage of this device in the network
3. Reject – Reject the request for this device. This would be used in case while consignment is uploaded with incorrect length for IMEI etc
4. Report – To check rule for reporting purpose like stolen phone in the network
5. Skip – This flow is applicable to exception case like VIP. If the rule is found to fail, then the record will be skipped.

This action is on per IMEI basis. For example if there are 5 IMEI in a consignment file, then the rules will be applied for each IMEI and action would be based on each IMEI.

The final action would be based on the feature. For ex, if consignment is the feature, and some records are marked as rejected, then the whole request will be rejected.

The action may differ based on the period as well. So, there are two types of periods: grace period and post grace period. For the same rule, the action may differ in grace period and post period. For example, while uploading stock by distributor, the distributor details can be updated without checking whether the devices is uploaded first by manufacturer/importer in grace period while in post grace period, the distributor device details would be checked again the device details uploaded by manufacturer/importer

All rules will be applied in the order as given. The order in which rules need to be executed can be defined by system admin.

When the rule is executed, there would be two outcomes: success OR fail

If the outcome of rule execution is success, then next rule in the order is executed. If the outcome of the rule execution is fail, the action would be taken, there are 2 possibilities.

1. Take action and move to next record (ACT\_MOVE\_RECORD)
2. Take action but move to next rule (ACT\_MOVE\_RULE)

The intent is that some rules are to be checked but does not have any impact on the record processing, like the reporting action as discussed.

The description of the policy subsystem is as follows

* **Rules:** This section defined all the possible rules in the system.
* **Flows:** This section list down all possible flows where rule can be applied
* **Mapping of Flow to Rules:** This section link the flow to the rules, actions in the grace/post grace period.
* **Static Rules:** This section list down the possible rule on the file that are received in the system

## Rules

This section list down the possible rules in the system. As part of various workflow like stock upload, registration of consignment etc, lots the data is generated. All the rules are data driven, where data is generated as part of the workflow performed by different stakeholders.

For example, when custom clears the devices, it is assumed that the taxes have been paid. As a result, a tax paid list is created which contain all IMEI/ESN/MEID for which tax is paid and is hence allowed to be used in the country.

Note: IMEI wherever used as standalone, signify all three kinds of devices: IMEI/ESN/MEID

The list of rules is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Rule** | **Description** | **Dependency/**  **Source** | **Remarks** |
| E\_TAC\_DB | The TAC is present in the TAC DB | GSMA TAC API integration | If TAC is present, it signify that this TAC is valid as it is registered at GSMA end |
| E\_IMPORT\_DB | The IMEI is present in the importer database | Register Consignment by Importer | If IMEI is present, it signify this device has come thru a legal channel in Cambodia |
| E\_TAX\_DB | The IMEI is present in the custom database | Clear the Consignment by customs  Device Registration by end user | If IMEI is present, it signify this device is tax paid and allowed to be used in the network |
| E\_GSMA\_BL\_DB | The IMEI is present in the GSMA Blacklist DB | GSMA Black list API integration | If IMEI is present, it signify this device is globally blacklisted and should not be allowed to be used in the network |
| E\_DIST\_DB | The IMEI is present in the distributor DB | Stock Upload by distributor | This rule does not have much significance. It also means that this IMEI is available in market for future sale and usage. |
| E\_RETAIL\_DB | The IMEI is present in the retailer DB | Stock Upload by retailer | This rule does not have much significance. It also means that this IMEI is available in market for future sale and usage. |
| E\_TA\_TAC\_DB | The TAC is present in the Type approved DB | Type Approved Request from importer or Upload by TRC | If TAC is present, it signify that this TAC is allowed to be sold in the country |
| E\_STOLEN\_DB | The IMEI is present in the stolen DB | Stolen / Recovery by Lawful Agency | If IMEI is present, it signify this device is locally blacklisted and should not be allowed to be used in the network |
| E\_USAGE\_DB | The IMEI is present in the usage DB | CDR Upload by ETL | If IMEI is present, it signify this device is in use in the network |
| E\_MAN\_DB | The IMEI is present in the manufacturer DB | CDR Upload by ETL | If IMEI is present, it signify this device is manufactured locally and will be sold in Cambodia |
| S\_FORMAT\_CHECK | The IMEI format is as per the 3GPP/3GPP2 specification | IMEI as received in various flow | If IMEI format is valid, then it mean IMEI is authentic |
| S\_LUHN\_CHECK | The checksum for IMEI is as per the Luhn’s algorithm | IMEI as received in various flow | If IMEI checksum is valid, then it mean IMEI is authentic |
| E\_VIP\_DB | The IMEI is present in the VIP DB | Register Device Flow by VIP user | If IMEI is present, it signify this device is part of exception list and no rule should be applied on this |
| E\_EXIST\_DB | The IMEI is present in any database be it importer DB, distributor DB etc | All applicable flows | This rule is applicable as IMEI should be unique across all DB |
| E\_DUP\_DB | The IMEI is mapped to multiple MSISDN | CDR Upload by ETL | This rule signifies the same IMEI is paired with number of MSISDN. |
| S\_NULL\_IMEI | The IMEI is blank or all zeros | IMEI as received in various flow | If IMEI is blank or all zeros, then it mean IMEI is illegal |
| E\_PENDING\_  REG\_DB | The IMEI is present in regularization DB | Tax not paid by user | User will be asked to pay taxes in a defined period. If tax not paid, the device would be blocked. |
| E\_ENDUSER\_DB | The IMEI is regularized by end user after paying taxes | End user tax payment at customs | This include both Cambodian and foreigner. |
| E\_FOREIGN\_DB | The IMEI is present in the foreigner DB | Register device by foreigner/Tourist | User is allowed to use till visa is valid. Post that it would be reported for further action. This is temporary whitelist. |
| E\_ORIGIN\_DB | The IMEI is present in the DB which can be the origin source from where IMEI can come into the country | Consignment Register by Importer, Stock Upload By manufacturer, End user device registration | This is a composite rule contain E\_IMPORT\_DB, E\_MAN\_DB, E\_ENDUSER\_DB |

Please note the following points

* Rule ID starting with S are static check and does not depend on any work flow or databases created by such work flows.
* Rule ID starting with E are dynamic check and depends on work flow or databases created by such work flows
* As the rule will be executed in order, there are some rules which has higher priority than other. Number indicates priority and 1 is the highest priority.
* Some rules are at the same level. For example, a device can be present either in importer database or in local manufacturer database.
* Some rules are composite in nature, which is like applying multiple rules at the same time.

## Flows

The section contains possible flow where the rules can be applied.

|  |  |  |  |
| --- | --- | --- | --- |
| **Flow Name** | **Description** | **Dependency** | **Remarks** |
| CDR Processing | This flow is invoked when CDR are received from ETL system | ETL integration with operator | The CDR will come from different kind of operator. Some rule like TAC may not be applicable for CDMA network supporting ESN |
| Consignment File processing | This flow is invoked when file is being processed that is uploaded as part of consignment registration process | Consignment Registration By Importer |  |
| Stock File processing | This flow is invoked when file is being processed that is uploaded as part of stock upload process | Stock Upload by manufacturer, importer, distributor, retailer, custom and custom | This process will be performed for various stakeholders. So the rule can differ for stock upload by manufacturer, importer, distributor, retailer and custom as each time purpose of stock upload is different |
| Stolen File Processing/Single Request Processing | This flow is invoked when file is being processed that is uploaded as part of stolen process | Report Stolen Cases by Lawful Agency |  |
| Recovery File Processing/ single Request processing | This flow is invoked when file is being processed that is uploaded as part of recovery process | Report Recovery Cases by Lawful Agency |  |
| Check IMEI | This flow is invoked when user want to check the IMEI validity | Check IMEI case by End user | This flow is online |
| Block Device File Processing/single request processing | This flow is invoked when file is being processed that is uploaded as part of request block devices process | Request Block Devices by Operator |  |
| UnBlock Device File Processing/single request processing | This flow is invoked when file is being processed that is uploaded as part of request unblock devices process | Request UnBlock Devices by Operator |  |
| End user request | This flow is invoked when device is being processed uploaded as part of end user device registration process | Device Registration by end user (Cambodian or local Cambodian) | This is an online check. |

The rule acts a validation step to allow certain devices to be added in the final CEIR database. For example, only blocked device can be unblocked. This can be a simple rule or validation step for processing the unblocked device cases

Some database is temporary in nature and entry may be added/deleted like stolen DB created by stolen/blocked cases.

## Mapping of Flow with Rules

Each flow will have a set of defined rules and can be applicable differently in grace and post grace period.

It is important to note that not all rules can be applied to all the flow. For ex, E\_VIP\_DB rule is only applicable in CDR processing flow.

Some of the rule like E\_FORMAT\_CHECK may be ignored while processing CDR while would be applied while processing consignment file.

The order of rule processing is very important.

Also, to execute action applicable to the rule, it is important to note that rule should be defined in a manner so that rule should fail.

This is covered in detail in Section 4

## Static File Rules

The section defined the rules to be defined on the various parameters as received in the file from the various workflow.

To start with, there are 2 kinds of workflows:

1. CDR File Format
2. User File Format

CDR File format is same for all operators while user file format is same for all files as uploaded by various users for various workflow like stock upload

The CDR File format is as follows:

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Record Type | Record Type – MO Call/SMS |
| servedIMEI | IMEI of the subscriber |
| servedIMSI | IMSI of the subscriber |
| ServedMSISDN | MSISDN of the subscriber |
| System Type | System Type |

Note: One of the field IMEI, IMSI and MSISDN should be present in the CDR. Not all 3 field can be missing.

The User File format is as follows:

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Device Type: Values could be Handheld, Mobile Phone/Feature phone, Vehicle, Portable(include PDA), Module, Dongle, WLAN Router, Modem, Smartphone, Connected Computer, Tablet, e-Book |
| Device ID type | IMEI/ESN/MEID |
| Multiple SIM Status | Does the IMEI belong to Dual SIM phone: Y/N |
| S/N of Device | Device Serial Number |
| IMEI/ESN/MEID | The IMEI / ESN / MEID actual value |
| Device launch date | Launch Date or Manufacture Date in the format DDMMYYYY |
| Device Status | Whether the device is New OR Used |

The static file check are described in Section 4

## Rule Framework Architecture

All the rules and mapping to flow can be defined from the web panel. All the rules are defined in the database.

There are two kind of flow: online and offline. For online flow like Check IMEI, the response time is paramount and hence rules should be less.

For any flow, the steps are as follows:

1. Read the Request
2. Process the Request
   1. Check Static File rules as applicable
   2. Apply all rules in order
      1. Execute Rule
      2. If Rule output is as per expected output
         1. Then
            1. Move to next record
         2. Else
            1. Execute Action and either move to next rule or record as per configuration
   3. Execute the final action
      1. Example is saving the record in the CDR table in case of CDR processing flow

When the rule is modified, it will be applicable from the next processing of file. So for each flow, rules are read at the start of execution

## IMEI Life Cycle Management

In IMEI life cycle management, the birth of IMEI means how the IMEI come into the country.

The scenarios when the IMEI is added in the CEIR system are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **SN** | **Scenarios** | **Flow** | **Remarks** |
| 1 | It already existed in the Cambodia in form of stocks, lying with different stakeholders or with end user who are either using the device or lying with them as new stock or old phone used sometime for travel purpose | CDR Flow | Whitelist (in grace period) |
| 2 | End user bring device from outside Cambodia | Register user | Whitelist post tax paid |
| 3 | Importer order new consignment | Register Consignment |  |
| 4 | Manufacturer produce new devices | Stock Upload |  |
| 5 | Foreigner bring new devices and leave the device in the country and left the country | Register Device |  |
| 6 | Foreigner bring new devices and leave the device in the country and left the country | Register Device |  |

## Rule Validity

Each rule is data driven and data is coming from the workflow that is implemented and executed by different stakeholder. When Importer upload the consignment, the importer database is created which is then used as a rule to check if the device in use in the network was really imported by some importer.

CEIR system has two periods: Grace and Post-grace.

The rule should only be applied when the data is build completely. In case the rule is applied but data is not built completely, then it may create issue.

A case in point is TAC DB where the device is validated for TAC and if TAC DB is not complete, the rule is bound to fail.

Each stakeholder may be ready at different point of time and hence there is following configuration as well to support the same.

The values are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **SN** | **Value** | **Meaning** | **Remark** |
| 1 | Disabled | This rule is disabled and should be applied |  |
| 2 | Partial | This rule can be applied for only user file processing and not in cdr processing |  |
| 3 | Full | This rule can be applied for both user file and cdr processing |  |

It may happen some database for applying some rule is ready to be used in grace period and we can rollout by changing the value = FULL

## Rule Guidelines

There are 2 periods:

1. Grace period
2. Post Grace period

In grace period, the idea is to build the whitelist database as much as possible. Policy/rule may be applied to check if the devices in the market are complaint or not. Rule will be applied where most of the policy action in case of rule fail scenario would be report and move to next rule.

In post grace period, the idea is to ensure that device from now onwards are complaint from all rules aspect. Only valid devices where all policy has been passed would be allowed to be used in the network.

# Flow and Rule Mapping

This section describe the mapping of rule to be applied for different flow for both period.

If action is set as NA (Not Applicable), it means that this rule is not required in this flow. If action is set as NA in both grace/post grace periods, then the rule should not be present.

## CDR Processing Flow

The system will receive the CDR from the operator via ETL system.

The following suggested rules are applied:

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 4 | E\_TAC\_DB | If not found, Report and Move to next rule | If not found, Report and Move to next rule |
|  | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
| 5 | E\_GSMA\_BL\_DB | NA | If found, Report and move to next rule |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
| 3 | E\_TA\_TAC\_DB | NA | If not found, Report to TRC and Move to next rule |
| 6 | E\_STOLEN\_DB | If found, Report and Move to next record | If found, Report to lawful agency and Move to next record |
| 1 | E\_USAGE\_DB | If found and allowed as system regularized, move to next record | If found and marked system regularized or user regularized, move to next record |
|  | E\_MAN\_DB | NA | NA |
| 8 | S\_FORMAT\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 7 | S\_LUHN\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 2 | E\_VIP\_DB | If found, move to next record | If found, move to next record |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | If the count is more than allowed devices, report and move to next rule | If the count is more than allowed devices, report and move to next rule |
| 9 | S\_NULL\_IMEI | If IMEI is null, then add in null DB and allow | If IMEI is null, Report to operator and move to next record |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | If case of visa expiry, report to immigration and move to next rule |
|  | E\_ORIGIN\_DB | NA | Check if device has come from valid source: Valid sources are   1. Manufacturer 2. End user tax paid devices 3. Foreigner tax paid devices 4. Device used for foreigner for whom visa not expired 5. Device regularized by User 6. Device regularized by system 7. Device cleared as part of consignment clearance 8. Stock uploaded in grace period by retailer and distributor in grace period and in use in post grace period |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

Note: It is preferred this order to be added with utmost careful inspection or else the processing would

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Record Type | Mandatory |
| servedIMEI | Optional |
| servedIMSI | Optional |
| ServedMSISDN | Optional |
| SystemType | Mandatory |

## Consignment Processing Flow

The system will receive the CDR from the operator via ETL system. This rule is only applicable if the Rule status is marked as FULL.

The following suggested rules are applied:

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | If not found, Reject and Move to next record | If not found, Reject and Move to next record |
| 2 | E\_IMPORT\_DB | If found, then Update and move to next rule | If found, then Reject and move to next record |
|  | E\_TAX\_DB | If found, then Reject and move to next record | If found, then Reject and move to next record |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | If found, Reject and move to next record |
|  | E\_DIST\_DB | NA | If found, then reject and move to next record |
|  | E\_RETAIL\_DB | NA | If found, then reject and move to next record |
|  | E\_TA\_TAC\_DB | If not found, Report and Move to next rule | If not found, Report and Move to next rule |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_MAN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
|  | S\_FORMAT\_CHECK | If check fails, Reject and Move to next record | If check fails, Reject and Move to next record |
|  | S\_LUHN\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_FOREIGN\_DB | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_ORIGIN\_DB | NA | NA |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Mandatory |
| Device ID type | Mandatory |
| Multiple SIM Status | Mandatory |
| S/N of Device | Mandatory |
| IMEI/ESN/MEID | Mandatory |
| Device launch date | Mandatory |
| Device Status | Mandatory |

## Stock Processing Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | If not found, Reject and Move to next record | If not found, Reject and Move to next record |
| 2 | E\_IMPORT\_DB | If found, then Update and move to next rule | If found, then reject and move to next record |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | If found, Reject and move to next record |
|  | E\_DIST\_DB | NA | If found, then reject and move to next record |
|  | E\_RETAIL\_DB | NA | If found, then reject and move to next record |
|  | E\_TA\_TAC\_DB | If not found, Report and Move to next rule | If not found, Report and Move to next rule |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_MAN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
|  | S\_FORMAT\_CHECK | If check fails, Reject and Move to next record | If check fails, Reject and Move to next record |
|  | S\_LUHN\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | NA |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied for manufacturer

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Grace** | **Post Grace** |
| Device type | Mandatory | Mandatory |
| Device ID type | Mandatory | Mandatory |
| Multiple SIM Status | Mandatory | Mandatory |
| S/N of Device | Mandatory | Mandatory |
| IMEI/ESN/MEID | Mandatory | Mandatory |
| Device launch date | Mandatory | Mandatory |
| Device Status | Mandatory | Mandatory |

The following static rule for file is applied for other users

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Grace** | **Post Grace** |
| Device type | Optional | Mandatory |
| Device ID type | Optional | Mandatory |
| Multiple SIM Status | Optional | Mandatory |
| S/N of Device | Mandatory | Mandatory |
| IMEI/ESN/MEID | Mandatory | Mandatory |
| Device launch date | Optional | Mandatory |
| Device Status | Optional | Mandatory |

The stock upload is happening from multiple stakeholder and rule may differ depending on which user is doing the operation. So, the rule may differ as per the stakeholder.

**Stock upload by Importer in grace period**

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | NA |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | NA |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | NA |
|  | S\_FORMAT\_CHECK | NA | NA |
|  | S\_LUHN\_CHECK | NA | NA |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | NA | NA |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | NA |

**Stock upload by Manufacturer in grace period**

Same policy as given in the consignment for importer.

**Stock upload by Distributor in grace period**

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA |  |
|  | E\_TAX\_DB | NA | If not found, then reject and move to next record |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
|  | E\_DIST\_DB | NA | If found, then reject and move to next record |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | If not found , then reject and move to next record |
|  | S\_FORMAT\_CHECK | NA | NA |
|  | S\_LUHN\_CHECK | NA | NA |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | NA | NA |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | NA |

**Stock upload by Retailer in grace period**

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | If not found, then reject and move to next record |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
|  | E\_DIST\_DB | NA | If not found, then reject and move to next record |
|  | E\_RETAIL\_DB | NA | If found, then reject and move to next record |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | If not found , then reject and move to next record |
|  | S\_FORMAT\_CHECK | NA | NA |
|  | S\_LUHN\_CHECK | NA | NA |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | NA | NA |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | If not found, then reject and move to next record |

**Stock upload by Custom**

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | If not found , then reject and move to next record |
|  | S\_FORMAT\_CHECK | NA | NA |
|  | S\_LUHN\_CHECK | NA | NA |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | NA | NA |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | If not found, then reject and move to next record |

**Stock upload by Annoymous user (grace period only)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | If found, then reject and move to next record | NA |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | NA |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | NA |
|  | S\_FORMAT\_CHECK | NA | NA |
|  | S\_LUHN\_CHECK | NA | NA |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | NA | NA |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | NA |

## Stolen Processing Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | NA | NA |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | NA |
|  | S\_FORMAT\_CHECK | If check fails, Reject and Move to next record | If check fails, Reject and Move to next record |
|  | S\_LUHN\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | NA |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Mandatory |
| Device ID type | Mandatory |
| Multiple SIM Status | Mandatory |
| S/N of Device | Mandatory |
| IMEI/ESN/MEID | Mandatory |
| Device launch date | Mandatory |
| Device Status | Mandatory |

## Recovery Processing Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | NA | NA |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | NA | NA |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | NA |
|  | S\_FORMAT\_CHECK | If check fails, Reject and Move to next rule | If check fails, Reject and move to next rule |
|  | S\_LUHN\_CHECK | If check fails, Reject and Move to next rule | If check fails, Reject and move to next rule |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | If check fails, Reject and Move to next rule | If check fails, Reject and move to next rule |
|  | E\_PENDING\_  REG\_DB |  |  |
|  | E\_ENDUSER\_DB |  |  |
|  | E\_FOREIGN\_DB |  |  |
|  | E\_ORIGIN\_DB |  |  |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Optional |
| Device ID type | Mandatory |
| Multiple SIM Status | Optional |
| S/N of Device | Optional |
| IMEI/ESN/MEID | Mandatory |
| Device launch date | Optional |
| Device Status | Optional |

## Block Processing Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | NA | NA |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If found, then reject and move to next record | If found, then reject and move to next record |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | NA |
|  | S\_FORMAT\_CHECK | If check fails, Reject and Move to next record | If check fails, Reject and Move to next record |
|  | S\_LUHN\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | If found, Reject and move to next record | If found, Reject and move to next record |
|  | E\_PENDING\_  REG\_DB | NA | NA |
|  | E\_ENDUSER\_DB | NA | NA |
|  | E\_FOREIGN\_DB | NA | NA |
|  | E\_ORIGIN\_DB | NA | NA |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Mandatory |
| Device ID type | Mandatory |
| Multiple SIM Status | Mandatory |
| S/N of Device | Mandatory |
| IMEI/ESN/MEID | Mandatory |
| Device launch date | Mandatory |
| Device Status | Mandatory |

## Unblock Processing Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | NA | NA |
| 2 | E\_IMPORT\_DB | NA | NA |
|  | E\_TAX\_DB | NA | NA |
|  | E\_GSMA\_BL\_DB | NA | NA |
|  | E\_DIST\_DB | NA | NA |
|  | E\_RETAIL\_DB | NA | NA |
|  | E\_TA\_TAC\_DB | NA | NA |
|  | E\_STOLEN\_DB | If not found, reject and move to next rule | If not found, reject and move to next rule |
| 1 | E\_USAGE\_DB | NA | NA |
|  | E\_MAN\_DB | NA | NA |
|  | S\_FORMAT\_CHECK | If check fails, Reject and Move to next rule | If check fails, Reject and move to next rule |
|  | S\_LUHN\_CHECK | If check fails, Reject and Move to next rule | If check fails, Reject and move to next rule |
| 2 | E\_VIP\_DB | NA | NA |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | NA |
|  | S\_NULL\_IMEI | If check fails, Reject and Move to next rule | If check fails, Reject and move to next rule |
|  | E\_PENDING\_  REG\_DB |  |  |
|  | E\_ENDUSER\_DB |  |  |
|  | E\_FOREIGN\_DB |  |  |
|  | E\_ORIGIN\_DB |  |  |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Mandatory |
| Device ID type | Mandatory |
| Multiple SIM Status | Mandatory |
| S/N of Device | Mandatory |
| IMEI/ESN/MEID | Mandatory |
| Device launch date | Mandatory |
| Device Status | Mandatory |

## Check IMEI Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Order** | **Rule Name** | **Action in Grace Period** | **Action in Post Grace Period** |
| 1 | E\_TAC\_DB | If not found, Report and Move to next rule | If not found, Report and Move to next rule |
| 2 | E\_IMPORT\_DB | NA | If not found, Check E\_MAN\_DB Rule |
|  | E\_TAX\_DB | NA | If not found, Report and Move to next rule |
|  | E\_GSMA\_BL\_DB | NA | If found, Report and move to next rule |
|  | E\_DIST\_DB | NA | If found, and device added in grace period, then system regularize the device |
|  | E\_RETAIL\_DB | NA | If found, and device added in grace period, then system regularize the device |
|  | E\_TA\_TAC\_DB | NA | If not found, Report and Move to next rule |
|  | E\_STOLEN\_DB | If found, Report and Move to next record | If found, Report and Move to next record |
| 1 | E\_USAGE\_DB | NA | If found and allowed temporarily, move to next record |
|  | E\_MAN\_DB | NA | If not found, Ask user to regularize and move to next rule |
|  | S\_FORMAT\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
|  | S\_LUHN\_CHECK | If check fails, Report and Move to next rule | If check fails, Report and move to next rule |
| 2 | E\_VIP\_DB | NA | If found, move to next record |
|  | E\_EXIST\_DB | NA | NA |
|  | E\_DUP\_DB | NA | If the count is more than allowed devices, report and move to next rule |
|  | S\_NULL\_IMEI | If check fails, Report and Move to next rule |  |
|  | E\_PENDING\_  REG\_DB |  |  |
|  | E\_ENDUSER\_DB |  |  |
|  | E\_FOREIGN\_DB |  |  |
|  | E\_ORIGIN\_DB |  |  |

As a process, first order of execution should be the one where post action, the next rule to be executed. Post all such rules are defined, then next sets of rules would be such where post action, the next record is to be executed.

The following static rule for file is applied.

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| Device type | Optional |
| Device ID type | Mandatory |
| Multiple SIM Status | Optional |
| S/N of Device | Optional |
| IMEI/ESN/MEID | Mandatory |
| Device launch date | Optional |
| Device Status | Optional |

## Flow

# Rule Wise Action Mapping

For each rule, multiple action can be possible. For each action, there would be pre-defined handling.

One of the action can be selected for a given flow OR for a given period.

## E\_TAC\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the TAC is matching with IMEI, then device should be allowed and move to next rule | This is success case |
| Block /Reject | If the TAC is NOT matching with IMEI, then device should be blocked | Fail case on which action can be defined |
| Report and Skip to next Record | If the TAC is NOT matching with IMEI, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the TAC is NOT matching with IMEI, then device should be reported and move to next rule | Fail case on which action can be defined |

One of the above action can be selected for a given flow OR for a given period.

## E\_IMPORT\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT present in importer DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is present in importer DB, then device should be blocked | Fail case on which action can be defined. |
| Reject | If the IMEI is present in importer DB, then device should be rejected |  |
| Overwrite | If the IMEI is present in importer DB, then device should be overwritten | This is valid for grace period when we want to overwrite information if same information is provided by more than other stakeholders |
| Report and Skip to next Record | If the IMEI is NOT present in importer DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in importer DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_TAX\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is present in tax paid DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is NOT present in tax paid DB, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is NOT present in tax paid DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in tax paid DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_GSMA\_BL\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT present in GSMA Black list DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is present in GSMA Black list DB, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is present with GSMA Black list DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is present with GSMA Black list DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_DIST\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is present in distributor DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is NOT present in distributor DB, then device should be blocked | Fail case on which action can be defined. |
| Reject | If the IMEI is present in distributor DB, then device should be rejected |  |
| Overwrite | If the IMEI is present in distributor DB, then device should be overwritten | This is valid for grace period when we want to overwrite information if same information is provided by more than other stakeholders |
| Report and Skip to next Record | If the IMEI is NOT present in distributor DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in distributor DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_RETAIL\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is present in retailer DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is NOT present in retailer DB, then device should be blocked | Fail case on which action can be defined. |
| Reject | If the IMEI is present in retailer DB, then device should be rejected |  |
| Overwrite | If the IMEI is present in retailer DB, then device should be overwritten | This is valid for grace period when we want to overwrite information if same information is provided by more than other stakeholders |
| Report and Skip to next Rule | If the IMEI is NOT present in retailer DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_TA\_TAC\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the TAC is present in type approved DB, then device should be allowed and move to next rule | This is success case |
| Block | If the TAC is NOT present in type approved DB, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the TAC is NOT present in type approved DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the TAC is NOT present in type approved DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_STOLEN\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT present in stolen DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is present in stolen DB, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is present in stolen DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is present in stolen DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_USAGE\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow in grace period | If the IMEI is present in usage DB and marked as system regularized, then device should be allowed and move to next rule. If IMEI is not found in this DB, then it also a success case | This is success case |
| Allow in post grace period | If the IMEI is present in usage DB and marked as system regularized OR user regularized, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is NOT present in usage DB, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is NOT present in usage DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in usage DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_MAN\_DB

This action for this rule can be as follows:

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is present in manufacturer DB, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is NOT present in manufacturer DB, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is NOT present in manufacturer DB, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in manufacturer DB, then device should be reported and move to next rule | Fail case on which action can be defined |

## S\_FORMAT\_CHECK

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI length and format is as per specification, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI length and format is NOT as per specification, then device should be blocked | Fail case on which action can be defined. |
| Reject | If the IMEI length and format is NOT as per specification, then device should be rejected | Fail case on which action can be defined |
| Report and Skip to next Record | If the IMEI length and format is NOT as per specification, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI length and format is NOT as per specification, then device should be reported and move to next rule | Fail case on which action can be defined |

## S\_LUHN\_CHECK

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI length and format is as per specification, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI length and format is NOT as per specification, then device should be blocked | Fail case on which action can be defined. |
| Reject | If the IMEI length and format is NOT as per specification, then device should be rejected |  |
| Report and Skip to next Record | If the IMEI length and format is NOT as per specification, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI length and format is NOT as per specification, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_VIP\_DB

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT present in VIP list, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is present in VIP list, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is present in VIP list, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is present in VIP list, then device should be reported and move to next rule | Fail case on which action can be defined |
| Skip to next rule | If the IMEI is present in VIP list, then move to next record |  |

## E\_EXIST\_DB

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT present in the system, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is present in the system, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is present in the system, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is present in the system, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_DUP\_DB

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the same IMEI is paired with single MSISDN and the limit is within permissible limit, then device should be allowed and move to next rule | This is success case |
| Block | If the same IMEI is paired with multiple MSISDN and the limit is beyond permissible limit, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the same IMEI is paired with multiple MSISDN and the limit is beyond permissible limit, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the same IMEI is paired with multiple MSISDN and the limit is beyond permissible limit, then device should be reported and move to next rule | Fail case on which action can be defined |

## S\_NULL\_IMEI

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT blank or all zeros, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is blank or all zeros, then device should be blocked | Valid for CDR file format scenarios |
| Reject | If the IMEI is blank or all zeros, then device should be rejected | Valid for user file format scenarios |
| Report and Skip to next Record | If the IMEI is blank or all zeros, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is blank or all zeros, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_PENDING\_DB

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is NOT present in the system, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is present in the system, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is present in the system, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is present in the system, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_FOREIGN\_DB

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is present in the device list as registered by the tourist in the system, then device should be allowed and move to next rule | This is success case |
| Block | If the IMEI is NOT present in the device list as registered by the tourist in the system, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is NOT present in the device list as registered by the tourist in the system, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in the device list as registered by the tourist in the system, then device should be reported and move to next rule | Fail case on which action can be defined |

## E\_ORIGIN\_DB

|  |  |  |
| --- | --- | --- |
| **Action Name** | **Description** | **Remarks** |
| Allow | If the IMEI is present in the system from anyone of the mentioned sources, then device should be allowed and move to next rule | This is success case. The source are as listed above |
| Block | If the IMEI is NOT present in the system from anyone of the mentioned sources, then device should be blocked | Fail case on which action can be defined. |
| Report and Skip to next Record | If the IMEI is NOT present in the system from anyone of the mentioned sources, then device should be reported and move to next record | Fail case on which action can be defined |
| Report and Skip to next Rule | If the IMEI is NOT present in the system from anyone of the mentioned sources, then device should be reported and move to next rule | Fail case on which action can be defined |

# Policy Configuration Parameter

This section describe the various configuration parameter for policy

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter Name** | **Description** | **Value** | **Remarks** |
| END\_USER\_DEVICE  \_COUNT | Number of devices allowed to be imported by end user | 0 | This will enable people to buy device locally |
| DUPLICATE\_COUNT | Number of max. MSISDN paired with same IMEI | 5 | People switch phone for testing and other reason. So there can be some duplicity |
| END\_USER\_DEVICE\_  REG\_TIME\_LIMIT | Time period in days during which user should regularize the device | 30 |  |

# Policy Reports

This section list down the reports created due to policy violation

The report data would contain the following in case when the report need to be created in case of reporting:

1. Rule ID
2. Flow
3. IMEI
4. TAC
5. Date

