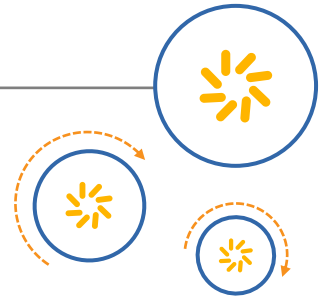




Qualcomm Technologies, Inc.



Device Verification Subsystem 1.0.0

User Guide (Authority Web App)

DVS-User-Guide-Authority-Web-App-1.0.0

June 19, 2018

Revision history

Revision	Date	Description
A		Initial release

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1. Introduction

The Device Verification Subsystem (DVS) is the subsystem of Device Identification, Registration and Blocking System (DIRBS) .It provides platform for Authorized entity(s) to check and verify the status of IMEI(s).

The Device Identification, Registration & Blocking System (DIRBS) is a country-wide system deployed in cooperation between the country regulator, operators in that country, and a technology partner that supports deployment. The system checks, identifies, and discourages non-compliant devices by verifying the installed base of devices currently active in a market and continuing to monitor as new devices are activated.

DIRBS can verify that:

- Devices have properly allocated identifiers and type approval
- Devices are not duplicated or stolen
- Device importation takes place through legal channels

1.1. Purpose

This document is intended to give assistance to the user to use the Device Verification Subsystem (DVS).

1.2. Supported Desktop Browsers

Table 1-Supported Desktop Browsers

Name	Version
Internet Explorer	11.0
Firefox 52.5 ESR	57.0
Chrome	63.0
Safari	11.0
Edge	41.16299

1.3. Supported Mobile Browsers

Table 2-Supported Mobile Browsers

Name	Version
Chrome	63.0
UC Browser	11.5
Opera(Android)	44.1
Opera(iOS)	16.0.7
Safari	11.1
Samsung Internet	6.2
Android	4.1.x - 4.3

1.4. Definitions, Acronyms, and Abbreviations

Table 3-Definitions, Acronyms, and Abbreviations

Term	Definition
DIRBS	Device Identification Registration and Blocking System
IAM	Identity Access Management
DVS	Device Verification Subsystem
MSISDN	Mobile Subscriber Integrated Services Directory Number
IMEI	International Mobile Equipment Identity

2. System Description

Table 4-System Description

Feature /Sections	Description
Login Screen	<ul style="list-style-type: none"> To access the system, authorized user(s) first needs to enter his/her credentials on login page, this login page authenticate(s) user from the IAM and redirects user to the DVS
Portal Sections	<p>The portal is divided into following sections</p> <ul style="list-style-type: none"> Header Header section displays the name of the system, name of the logged in user with logout functionality Navigation Panel Navigation Panel contains main navigation menu through which user can navigate the whole system Main Content Area Main Content Area contains all the content to be displayed and actions to be performed for respective feature Breadcrumbs Breadcrumbs allows user to keep track of their location within the system Footer Footer contains the software version and copyright text
Verify IMEI	<ul style="list-style-type: none"> Allows user to enter the valid IMEI to check and verify the status of device
Subscribers Seen with IMEI table	<ul style="list-style-type: none"> Displays list of IMSIs and MSISDNs seen on the network with particular IMEI
Paired Subscribers table	<ul style="list-style-type: none"> Displays list of last seen paired IMSIs with particular IMEI
Bulk IMEI	<ul style="list-style-type: none"> To check the status of larger number of IMEIs (bulk of IMEIs) either by submitting a tab delimited file or by TAC
Tab-Delimited File Method	<ul style="list-style-type: none"> This method allows user, to check and verify the status of all IMEIs, that are submitted in the form of tab-delimited file
Enter the TAC Method	<ul style="list-style-type: none"> This method allows user to enter the TAC to check and verify the status of all associated IMEIs

Feature /Sections	Description
Device Status	<p>Displays the complete status of the device in a table.</p> <p>IMEI Status</p> <ul style="list-style-type: none"> • Normalized IMEI Displays the entered IMEI • IMEI Compliance Status Displays the status of IMEIs i.e. Compliant, Non-Compliant • Registration Status Displays the status of IMEI i.e. Registered, Pending registration, Not registered • Lost/stolen Status Displays the status of IMEI i.e. Lost/ stolen (if applicable) • Block as of Date Displays the block date of the device <p>Device Information</p> <ul style="list-style-type: none"> • Brand Displays the brand name of the device • Model Name Displays the model name of the device • Model Number Displays the model number of the device • Manufacturer Displays the name of the company/country where the device is manufactured • Device Type Displays the device type i.e. smartphone, tablet etc. • Operating System Displays the operating system of the device i.e. Android or iOS • Radio access technology Displays the radio access technologies of that device i.e. 2G, 3G, 4G, 5G etc. <p>Per-Condition Classification States: All classification states are configurable parameters that are coming from the core such that GSMA not found, Duplicate, Local Stolen, Duplicate Compound</p>

Feature /Sections	Description
Check Status	<p>Display the status of all IMEIs requested to be verified either by TAC or list of IMEIs in tab delimited file.</p> <ul style="list-style-type: none"> • Tracking Ids Displays the tracking id of the request • Current Status Displays the status of request i.e. Success or pending • Created At Displays date and time of the request submission • Verification Method Displays the name of verification method through which the request has submitted i.e. Tab delimited file or TAC • Check Status Displays the “Check Status” button, by clicking on this button, a table will display Total Number of IMEIs Verified, Invalid IMEIs, Non-Compliant IMEIs (not registered with regulatory authority), Per-Condition Classification States (GSMA not found, Duplicate, Local stolen, Duplicate Compound), IMEIs Pending Registration, IMEIs Pending Lost/Stolen Report Verification
Non-compliant IMEIs report	<ul style="list-style-type: none"> • This report shows the information related to the IMEIs such that <ul style="list-style-type: none"> • Non-compliant IMEI • Reasons for non-compliance • Block as of date

3. System Navigation

3.1. Log-In Screen

1. Enter user credentials i.e. username, password
2. Click on the “Log-In” button



Image
1600 x 1068

Figure 1-login Screen

3.2. Portal Sections

The portal screen is divided into following sections.

1. **Header** section displays the name of the system, name of the logged in user with logout functionality
2. **Main Navigation Panel** helps user to navigate through system
3. **Breadcrumbs** is a navigational aid in UI
4. **Main Content Area** contains all relevant information related to the respective feature/option
5. **Footer** contains the version and copyrights of the system

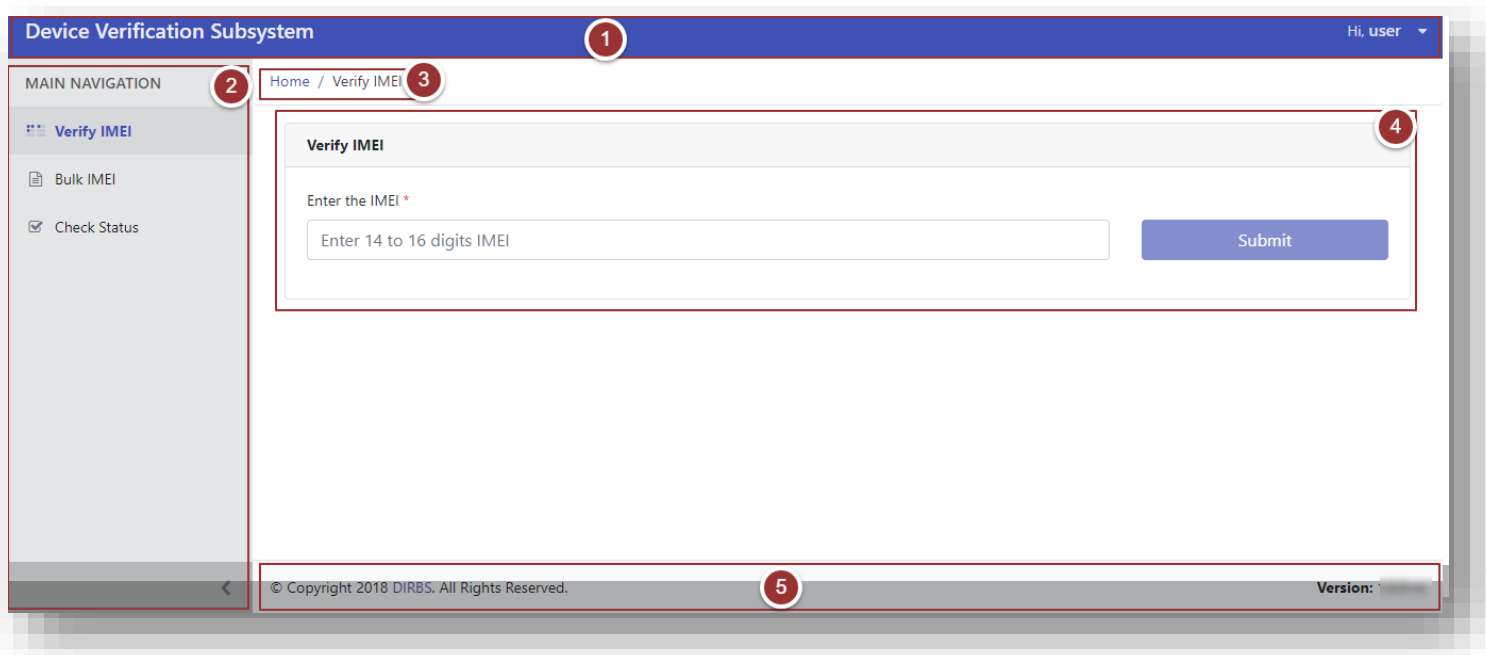


Figure 2-Portal Overview

3.3. Verify IMEI

1. Click on the “Verify IMEI” tab under the “Main Navigation” heading
2. Enter the IMEI in the respective field
Note: IMEI can contain alphanumeric characters (0-9, A-F, a-f). The length of the IMEI should be between 14-16 characters
3. Click on the “Submit” button

The screenshot displays the 'Verify IMEI' web application interface. On the left, a 'MAIN NAVIGATION' sidebar contains three items: 'Verify IMEI' (highlighted with a red box and a red circle with the number 1), 'Bulk IMEI', and 'Check Status'. The main content area has a breadcrumb trail 'Home / Verify IMEI'. Below this, the title 'Verify IMEI' is followed by a form section. The form contains a label 'Enter the IMEI *' and a text input field with a placeholder 'Enter 14 to 16 digits IMEI' (highlighted with a red box and a red circle with the number 2). To the right of the input field is a blue 'Submit' button (highlighted with a red box and a red circle with the number 3).

Figure 3-Verify IMEI

- A page will display maximum information related to the IMEI in three different tables:
- Device Status
 - Subscribers seen with IMEI
 - Paired Subscribers

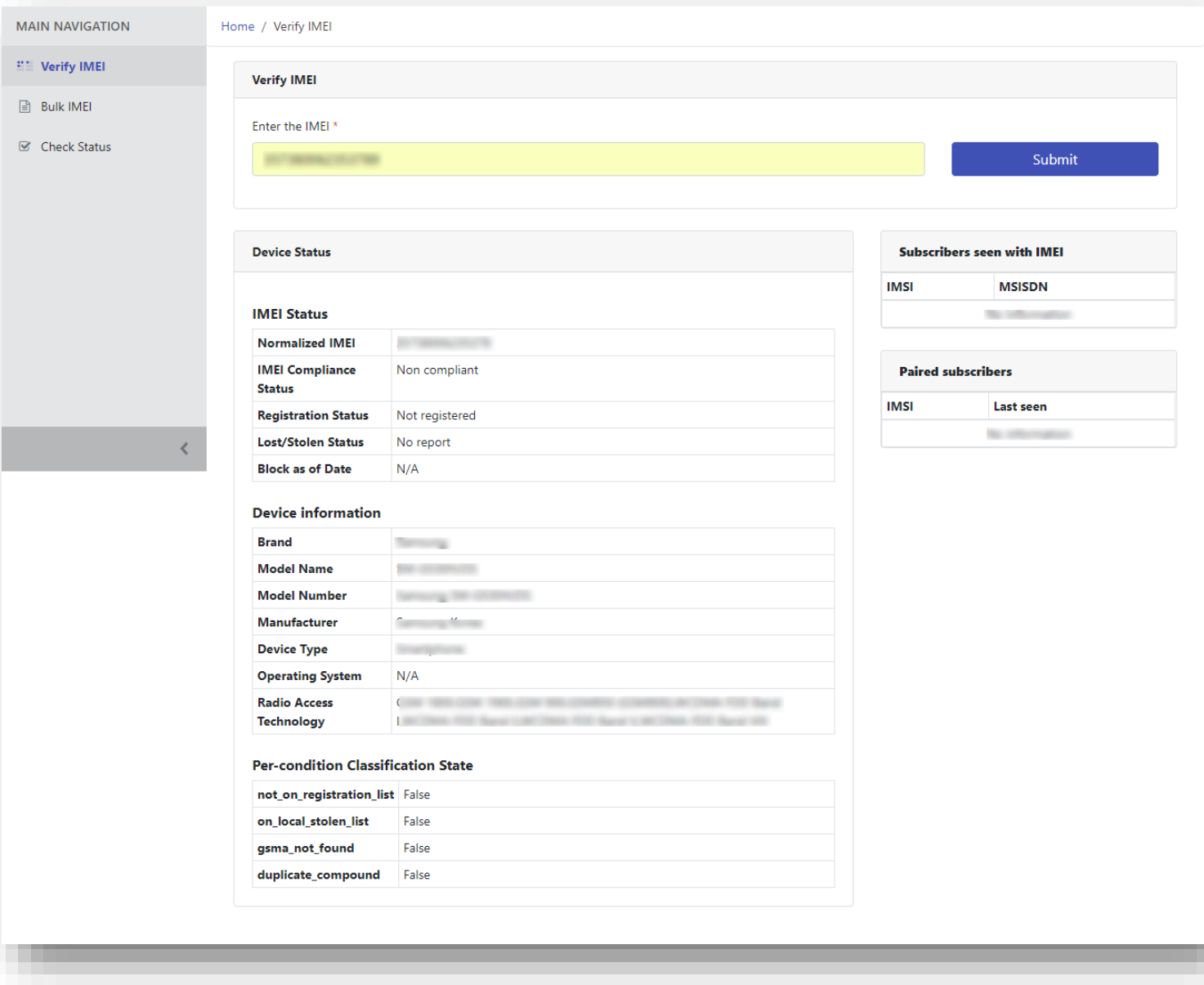


Figure 4-Device Status Table

3.4. Bulk IMEI

3.4.1. Tab-delimited File Method

1. To submit IMEIs in bulk, click on the “Bulk IMEI” tab under the “Main Navigation” heading
2. To check the status of a large number of IMEIs through tab delimited file, select “Tab-delimited file” option

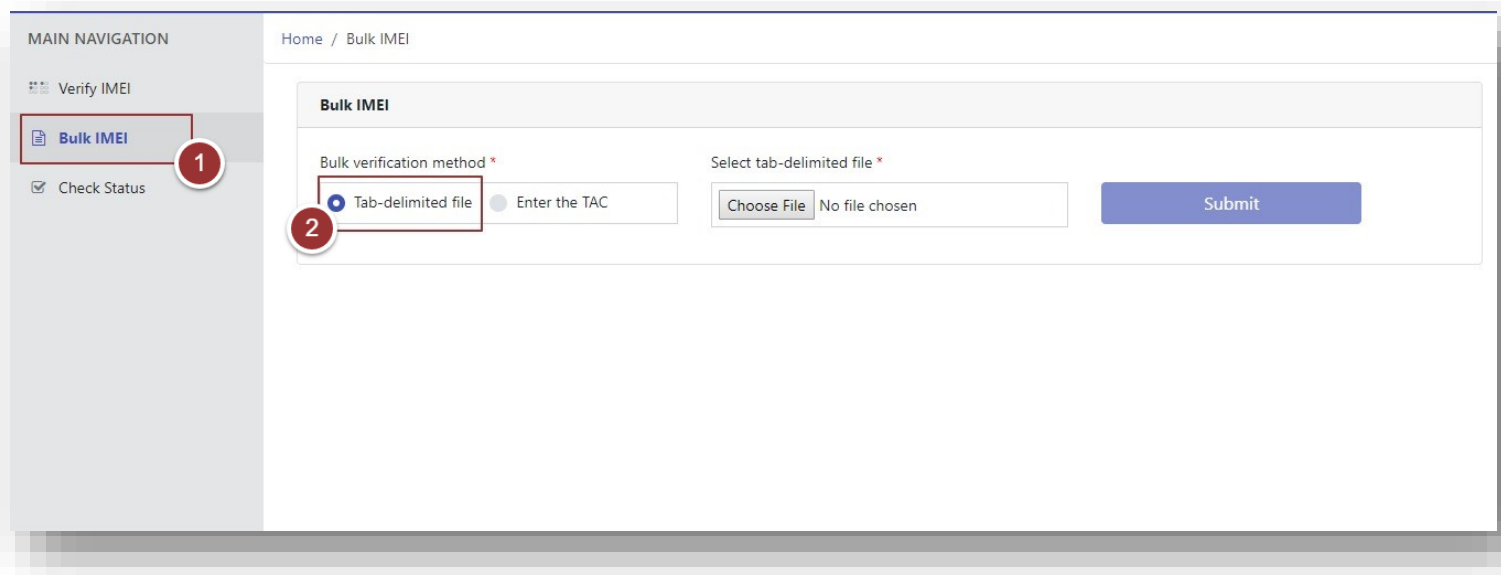


Figure 5-Bulk IMEI Verification Methods

3. Upload tab delimited file, click on the “Choose File” button and select the required file
Note: File should be in “.TSV” format
4. Click on the “Submit” button

The screenshot shows the 'Bulk IMEI' section of the Authority Web App. On the left is a 'MAIN NAVIGATION' sidebar with links for 'Verify IMEI', 'Bulk IMEI' (highlighted), and 'Check Status'. The main content area has a breadcrumb 'Home / Bulk IMEI' and a title 'Bulk IMEI'. Below the title, there's a 'Bulk verification method *' section with two radio buttons: 'Tab-delimited file' (selected) and 'Enter the TAC'. To the right, there's a 'Select tab-delimited file *' section with a 'Choose File' button and the filename 'imeis.tsv'. A blue 'Submit' button is located to the right of the file selection area. Red callout boxes with numbers 3 and 4 are overlaid on the interface. Callout 3 points to the 'Choose File' button, and callout 4 points to the 'Submit' button.

Figure 6-Select Tab-Delimited file

5. The system will generate a unique tracking id for the request, click on the id to check the status of your request

Note: Perform steps 1-4 to submit more IMEIs in bulk through tab delimited file.

The screenshot displays the 'Bulk IMEI' section of the Authority Web App. On the left is a 'MAIN NAVIGATION' sidebar with links for 'Verify IMEI', 'Bulk IMEI' (highlighted), and 'Check Status'. The main content area has a breadcrumb 'Home / Bulk IMEI'. Below this is a form titled 'Bulk IMEI' with two sections: 'Bulk verification method *' and 'Select tab-delimited file *'. The first section has radio buttons for 'Tab-delimited file' (selected) and 'Enter the TAC'. The second section has a 'Choose File' button and the filename 'imeis.tsv'. A blue 'Submit' button is on the right. Below the form, a green message box states: 'You can track your request using this id: 3d74ec22-f97b-4446-ab73-1467ac8d89c3'. A red circle with the number '5' is positioned over the tracking ID.

Figure 7-Tracking ID

After clicking on the tracking Id, it will redirect on a page where all the information related to the request would be displayed (Tracking Id, Current Status, Verification Method etc.)

6. To check status of your request, click on the “Check Status” button against respective request

Home / Check Status

Tracking Ids	Current Status	Created at	Verification Method	Check Status
68a962c2-295e-427a-918b-b5e78fa3c838	PENDING	10/9/2018, 8:53:36 AM	TAC: [REDACTED]	Check Status
cba719c8-0e2f-4f9e-814e-53f6894b1954	Not found	10/9/2018, 2:28:25 PM	TAC: [REDACTED]	Check Status
3b9967f7-c3da-4e1f-ac87-8f9619055aed	Not found	10/9/2018, 2:28:27 PM	TAC: [REDACTED]	Check Status
11db855b-1256-4a35-a135-d3c2b37effc5	SUCCESS	10/9/2018, 3:07:53 PM	imeis.tsv	Check Status

Figure 8-Check Status Button

After clicking on “Check Status” button, a table will display which contains device status information.

Note: Please wait for 2-3 minutes until required information being populated

- To view the non-compliant IMEIs, click on the link to download the report for non-compliant IMEIs

Home / Check Status

Tracking Ids	Current Status	Created at	Verification Method	Check Status
68a962c2-295e-427a-918b-b5e78fa3c838	PENDING	10/9/2018, 8:53:36 AM	TAC: [REDACTED]	Check Status
cba719c8-0e2f-4f9e-814e-53f6894b1954	Not found	10/9/2018, 2:28:25 PM	TAC: [REDACTED]	Check Status
3b9967f7-c3da-4e1f-ac87-8f9619055aed	Not found	10/9/2018, 2:28:27 PM	TAC: [REDACTED]	Check Status
11db855b-1256-4a35-a135-d3c2b37effc5	SUCCESS	10/9/2018, 3:07:53 PM	imeis.tsv	Check Status

Total number of IMEIs verified	7								
Invalid IMEIs	3								
Non-compliant IMEIs	7								
Per-condition Classification State	<table border="1"> <tbody> <tr> <td>duplicate_compound</td> <td>0</td> </tr> <tr> <td>gsma_not_found</td> <td>0</td> </tr> <tr> <td>not_on_registration_list</td> <td>0</td> </tr> <tr> <td>on_local_stolen_list</td> <td>0</td> </tr> </tbody> </table>	duplicate_compound	0	gsma_not_found	0	not_on_registration_list	0	on_local_stolen_list	0
duplicate_compound	0								
gsma_not_found	0								
not_on_registration_list	0								
on_local_stolen_list	0								
IMEIs pending registration	0								
IMEIs pending stolen report verification									

[Download the report for non-compliant IMEIs.](#) 7

Figure 9-Download link

3.4.2. Enter the TAC Method

Perform step 1.

2. To check the status of IMEI via TAC verification method, select “Enter the TAC” option

The screenshot displays the 'Bulk IMEI' verification interface. On the left is a 'MAIN NAVIGATION' sidebar with three items: 'Verify IMEI', 'Bulk IMEI' (highlighted with a blue bar), and 'Check Status'. The main content area has a breadcrumb 'Home / Bulk IMEI'. Below this is a 'Bulk IMEI' section with a form. The form contains two radio buttons under the label 'Bulk verification method *': 'Tab-delimited file' and 'Enter the TAC'. The 'Enter the TAC' option is selected and highlighted with a red box and a red circle containing the number '2'. To the right of the radio buttons is a text input field labeled 'Enter the TAC *'. A blue 'Submit' button is located to the right of the input field.

Figure 10- TAC Verification Method

3. Now, enter tac in the respective field
4. Click on the “Submit” button

The screenshot shows the 'Bulk IMEI' verification page. On the left is a 'MAIN NAVIGATION' sidebar with links for 'Verify IMEI', 'Bulk IMEI' (highlighted), and 'Check Status'. The main content area has a breadcrumb 'Home / Bulk IMEI' and a title 'Bulk IMEI'. Below the title, the 'Bulk verification method' is set to 'Enter the TAC' (selected with a blue radio button). A red circle with the number '3' points to the 'Enter the TAC' label, and a red box highlights the text input field. To the right, a blue 'Submit' button is highlighted with a red circle and the number '4'.

Figure 11-Enter the TAC Number

5. The system will generate a unique tracking id for the request, click on the id to check the status of your request

Note: Perform steps 1-4 to submit more IMEIs in bulk through TAC.

The screenshot displays the 'Bulk IMEI' page of the Authority Web App. On the left, a 'MAIN NAVIGATION' sidebar includes links for 'Verify IMEI', 'Bulk IMEI' (which is highlighted), and 'Check Status'. The main content area has a breadcrumb 'Home / Bulk IMEI'. Below this, a form titled 'Bulk IMEI' contains two sections: 'Bulk verification method *' with radio buttons for 'Tab-delimited file' and 'Enter the TAC' (the latter is selected), and 'Enter the TAC *' with a text input field and a 'Submit' button. Below the form, a green message box states 'You can track your request using this id' followed by the tracking ID 'ca2e6528-6843-44b1-a365-4241eec3de4a'. A red circle with the number '5' is placed over the tracking ID, indicating the step to click on it.

Figure 12-Tracking ID

After clicking on the tracking Id, it will redirect on a page where all the information related to the request would be displayed (Tracking Id, Current Status, Verification Method etc.)

Note: To check the status of the request perform steps 5-7 as per section [2.4.1](#).

3.5. Check Status

1. To view complete device status, click on the “Check Status” tab under the “Main Navigation” heading

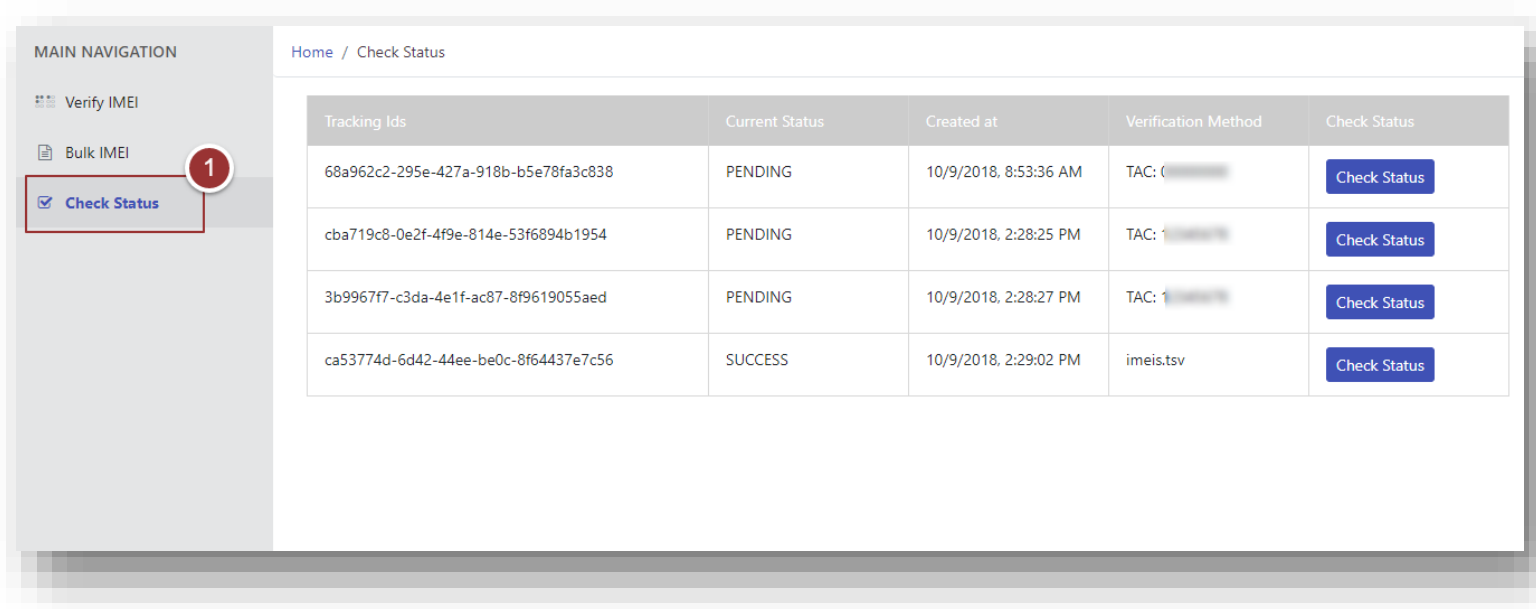


Figure 13-Check Status Tab

2. Click on the “Check Status” button against particular tracking id

The screenshot displays the 'Check Status' page of the Authority Web App. On the left, a 'MAIN NAVIGATION' sidebar contains three items: 'Verify IMEI', 'Bulk IMEI', and 'Check Status' (which is selected and highlighted in blue). The main content area has a breadcrumb trail 'Home / Check Status' and a table with five columns: 'Tracking Ids', 'Current Status', 'Created at', 'Verification Method', and 'Check Status'. The table contains four rows of data. The 'Check Status' column for each row contains a blue button labeled 'Check Status'. The button in the last row, corresponding to the tracking ID 'ca53774d-6d42-44ee-be0c-8f64437e7c56' and status 'SUCCESS', is highlighted with a red rectangular box. To the right of this box is a red circular badge with the number '2' inside.

Tracking Ids	Current Status	Created at	Verification Method	Check Status
68a962c2-295e-427a-918b-b5e78fa3c838	PENDING	10/9/2018, 8:53:36 AM	TAC: [REDACTED]	Check Status
cba719c8-0e2f-4f9e-814e-53f6894b1954	PENDING	10/9/2018, 2:28:25 PM	TAC: [REDACTED]	Check Status
3b9967f7-c3da-4e1f-ac87-8f9619055aed	PENDING	10/9/2018, 2:28:27 PM	TAC: [REDACTED]	Check Status
ca53774d-6d42-44ee-be0c-8f64437e7c56	SUCCESS	10/9/2018, 2:29:02 PM	imei.tsv	Check Status

Figure 14-Check Status Button

After Clicking on “Check Status” button, a table will display which contains status of the device information.

Note: Please wait for 2-3 minutes until required information populate.

- To view the information of non-compliant IMEIs, click on the link to download the report

Home / Check Status

Tracking Ids	Current Status	Created at	Verification Method	Check Status
68a962c2-295e-427a-918b-b5e78fa3c838	PENDING	10/9/2018, 8:53:36 AM	TAC: [REDACTED]	Check Status
cba719c8-0e2f-4f9e-814e-53f6894b1954	PENDING	10/9/2018, 2:28:25 PM	TAC: [REDACTED]	Check Status
3b9967f7-c3da-4e1f-ac87-8f9619055aed	PENDING	10/9/2018, 2:28:27 PM	TAC: [REDACTED]	Check Status
ca53774d-6d42-44ee-be0c-8f64437e7c56	SUCCESS	10/9/2018, 2:29:02 PM	imeis.tsv	Check Status

Total number of IMEIs verified	7
Invalid IMEIs	3
Non-compliant IMEIs	7
Per-condition Classification State	duplicate_compound 0
	gsma_not_found 0
	not_on_registration_list 0
	on_local_stolen_list 0
IMEIs pending registration	0
IMEIs pending stolen report verification	

[Download the report for non-compliant IMEIs.](#)

Figure 15-Check Status Information Table