

# Device Pairing Subsystem 3.0.0

## User Guide (Authority)

DPS-User-Guide-Authority-3.0.0

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## Revision history

Revision	Date	Description
A		Initial release
B	November 2020	Release 3.0.0

# Contents

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<b>1. Introduction.....</b>	<b>4</b>
1.1. Purpose .....	4
1.2. Supported Desktop Browsers .....	4
1.3. Supported Mobile Browsers.....	4
1.4. Definitions, Acronyms, and Abbreviations .....	4
<b>2. System Description .....</b>	<b>6</b>
<b>3. System Navigation.....</b>	<b>8</b>
3.1 Log-In Screen .....	8
3.2 Portal Sections .....	9
3.3 Generate Pair Code.....	10
3.4 Search Request.....	12
<b>4. SMS Help .....</b>	<b>13</b>
4.1 Request First Pair.....	13
4.2 Verify Pair Code .....	13
4.3 Request Additional Pair .....	13
4.4 Confirm Additional Pair .....	13
4.5 Find Pair .....	13
4.6 Release Existing Pair.....	14
4.6.1 Release Single Additional Pair .....	14
4.6.2 Release All Pairs .....	14
4.7 SIM Replacement .....	14
4.8 Request Help Text.....	14

## Figures

Figure 1 - login Screen .....	8
Figure 2 - Portal Overview.....	9
Figure 3 - Generate Pair Code .....	10
Figure 4 - Request Registered Successfully .....	11
Figure 5 - Search Request .....	12

## Tables

Table 1 - Supported Desktop Browsers .....	4
Table 2 - Supported Mobile Browsers .....	4
Table 3 - Definitions, Acronyms, and Abbreviations.....	5
Table 4 - System Description .....	6

# 1. Introduction

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The Device Pairing Subsystem (DPS) is the subsystem of Device Identification, Registration and Blocking System (DIRBS). The main purpose of DPS is to facilitate the pairing of user's devices with their SIMs (IMSI) over the SMS service. It also generates Pairing-list for DIRBS-Core through which it generates exception list and black list for MNOs to implement on their EIR.

The Device Identification, Registration & Blocking System (DIRBS) is a country-wide system that is developed to check, identify and discourage non-compliant devices by verifying the installed base of devices currently active in a market. It continuously monitors the mobile eco system as new devices are activated. It can be deployed in collaboration with country's regulatory bodies, Mobile operators and other technology partners.

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 Pairing Subsystem (DPS).

## 1.2. Supported Desktop Browsers

Table 1 - Supported Desktop Browsers

Name	Version
Internet Explorer	11.0
Firefox	82.0.3
Chrome	86.0
Safari	13.1.2
Edge	86.0

## 1.3. Supported Mobile Browsers

Table 2 - Supported Mobile Browsers

Name	Version
Chrome	86.0.4
UC Browser	13.3.3
Opera (Android)	60.3

Name	Version
Opera Touch (iOS)	2.5.1
Safari	13.1.2
Samsung Internet	13.0.1
Android	10

## 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
DPS	Device Pairing Subsystem
MSISDN	Mobile Subscriber Integrated Services Digital Network Number
IMEI	International Mobile Equipment Identity
MAC	Media Access Control
SMS	Short Message Service

## 2. System Description

Table 4 - System Description

Feature/Sections	Description
Login Screen	<ul style="list-style-type: none"><li>• To access the system, authorized user first needs to enter his/her credentials on login page. This login page authenticates user from the IAM and redirects user to the DPS</li></ul>
Portal Sections	<p>The portal is divided into following sections.</p> <ul style="list-style-type: none"><li>• <b>Header</b> Header section displays name of the system, name of the logged in user with logout functionality.</li><li>• <b>Navigation Panel</b> Navigation Panel contains main navigation menu through which user can navigate the whole system.</li><li>• <b>Main Content Area</b> Main Content Area contains all the content to be displayed and actions to be performed for respective feature.</li><li>• <b>Breadcrumbs</b> Breadcrumbs allow user to keep track of their location within the system.</li><li>• <b>Footer</b> Footer contains the software version and copyright statement.</li></ul>

Feature/Sections	Description
Generate Pair Code	<p>Allows user to enter device details to generate pair code.</p> <ul style="list-style-type: none"> <li>• <b>Device IMEI</b></li> </ul> <p>Enter IMEI number for which you want to get a pair code, for multiple number of IMEIs click on “Add IMEIs” button.</p> <p><b>Device Identifiers</b></p> <p><b>Serial Number</b></p> <p>Enter serial number of the device.</p> <p><b>Brand</b></p> <p>Enter brand name of the device.</p> <p><b>Model Name</b></p> <p>Enter model name of the device.</p> <p><b>MAC (Wi-Fi) address</b></p> <p>Enter MAC address of the device in below formats:</p> <p>A2:C9:66:F8:47:C5</p> <p>A2-C9-66-F8-47-C5</p> <p>A2C.966.F84.7C5</p> <p>00:25:96:FF:FE:12:34:56</p> <p>0025:96FF:FE12:3456</p> <p><b>Radio Access Technology</b></p> <p>Select radio access technology of the system i.e. 2G, 3G, 4G, 5G etc.</p> <p><b>Reference MSISDN</b></p> <p>Enter MSISDN number as a reference contact number.</p>
Search Request	<p>Allows user to search particular request by applying different filters i.e. IMEI, Serial Number, MAC Address, Reference MSISDN</p>

## 3. System Navigation

### 3.1 Log-In Screen

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

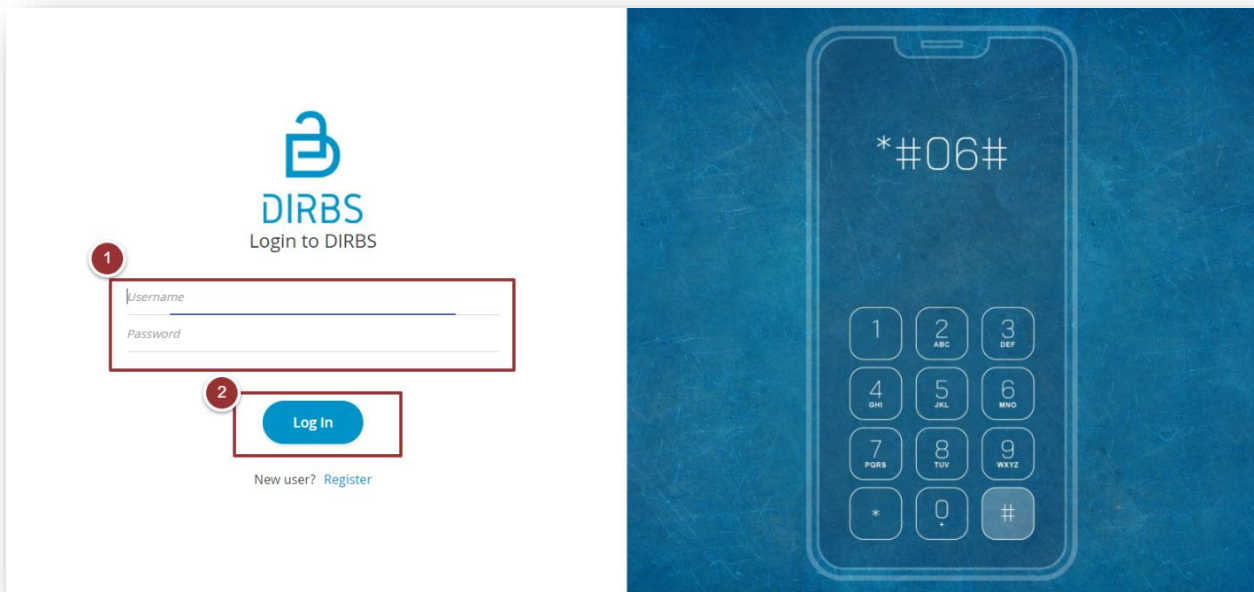


Figure 1 - login Screen



## 3.2 Portal Sections

The portal screen is divided into following sections.

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

The screenshot shows the 'Device Pairing Subsystem' portal. The header (1) displays 'Hi, dps auth user'. The main navigation panel (2) on the left includes 'Generate Pair Code' and 'Search Request'. The breadcrumb (3) shows 'Home / Generate Pair Code'. The main content area (4) contains a form for 'Device Identifiers' with fields for IMEI, Serial number, Brand, Model Name, MAC (Wi-Fi) address, and Radio Access Technologies. A 'SUBMIT' button is at the bottom right. The footer (5) shows '© Copyright 2018 DIRBS. All Rights Reserved.' and 'Version:'. A right-hand sidebar provides instructions for IMEI and MAC addresses.

**Device IMEI(s):**

- IMEI can contain alphanumeric characters (0-9, A-F). The length of the IMEI should be between 14-16 characters.
- In a single request up to 5 IMEI numbers can be added.

**Mac (Wi-Fi) Address:**

- MAC addresses are 6-byte (48 bits) in length, and are written in the following formats:
  - A2:C9:66:F8:47:C5
  - A2-C9-66-F8-47-C5
  - A2C.966.F84.7C5
  - 00:25:96:FF:FE:12:34:56
  - 0025:96FF:FE12:3456

Figure 2 - Portal Overview

### 3.3 Generate Pair Code

1. Click on the “Generate Pair Code” tab under the “Main Navigation” heading
2. Type and Retype IMEI number 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. For more IMEIs, click on “Add IMEIs” button

**Note:** Maximum 5 IMEI numbers can be added

4. Enter Device Identifiers (Serial Number, Brand, Model Name, MAC address, Radio Access Technology and Reference MSISDN) in the respective field

**Note:** Other than MAC address, all identifiers are mandatory.

5. Click on the “Submit” button

The screenshot shows the 'Generate Pair Code' page. On the left, a sidebar contains 'MAIN NAVIGATION' with a 'Generate Pair Code' link (callout 1) and a search bar. The main content area is titled 'Home / Generate Pair Code'. It features two main sections: 'Device IMEI(s)' and 'Device Identifiers'. The 'Device IMEI(s)' section has input fields for 'Type IMEI \*' and 'Retype IMEI \*' (both with 'Type IMEI 1' entered, callout 2), and an 'Add IMEIs' button (callout 3). The 'Device Identifiers' section contains fields for 'Serial number \*', 'Retype Serial number \*', 'Brand \*', 'Model Name \*', 'MAC (Wi-Fi) address', 'Retype MAC (Wi-Fi) address', 'Radio Access Technologies \*' (a dropdown menu), and 'Reference MSISDN \*'. A 'SUBMIT' button is located at the bottom right (callout 5). On the right side of the page, there are two informational boxes: 'Device IMEI(s):' which states that IMEIs can contain alphanumeric characters (0-9, A-F, a-f) and should be 14-16 characters long, and 'Mac (Wi-Fi) Address:' which lists valid MAC address formats (e.g., A2:C9:66:F8:47:C5, 00:25:96:FF:FE:12:34:56).

Figure 3 - Generate Pair Code

On the submission of request, a page will display details of the request i.e. Confirmation Status, Pairing Code.

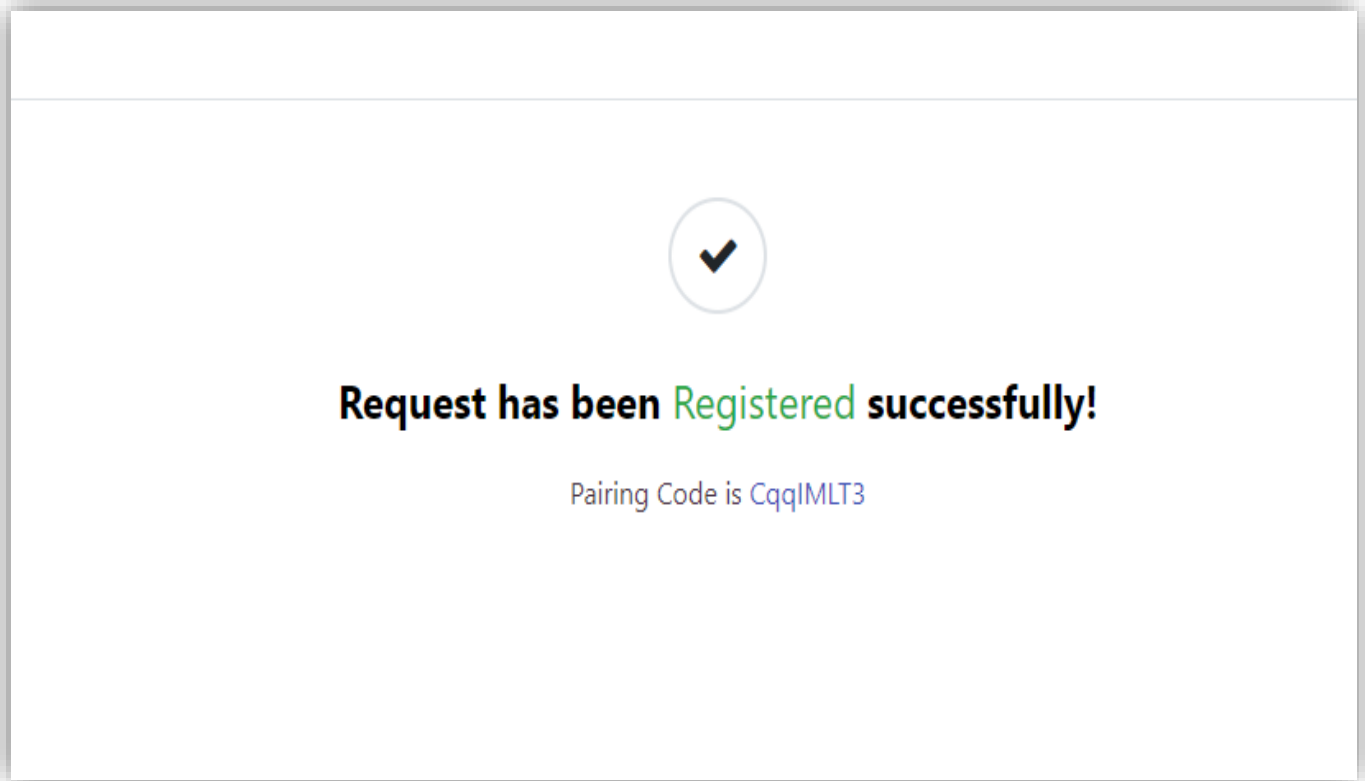


Figure 4 - Request Registered Successfully

## 3.4 Search Request

1. To search any particular request(s) click on “Search Request” tab
2. Enter any known information (i.e. IMEI Number, Serial Number, MAC Address, Reference MSISDN) of required request
3. Click on the “Search Request” button to view searched items

The screenshot shows the 'Search Request' page in the Device Pairing Subsystem. The interface includes a main navigation sidebar on the left with a 'Search Request' tab highlighted by a red box and a red circle with the number 1. The main content area has a breadcrumb 'Home / Search Request' and a 'Search Filters' section. This section contains four input fields: 'IMEI', 'Serial Number', 'MAC Address', and 'Reference MSISDN', each with a corresponding label above it. A red box and a red circle with the number 2 highlight the entire 'Search Filters' section. At the bottom right of the main content area, there is a blue button labeled 'SEARCH REQUEST', which is highlighted by a red box and a red circle with the number 3.

Figure 5 - Search Request

## 4. SMS Help

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### 4.1 Request First Pair

To request for Primary Pair, send SMS to xxxx short code from MSISDN that you want to set as Primary Pair with the particular device.

**Note:** Make sure that MSISDN isn't already paired with any other device as Primary Pair.

SMS Text → First [Pairing Code]

### 4.2 Verify Pair Code

To verify the status of a pairing code for particular IMEI.

SMS Text → VERIFY [Pairing Code] [IMEI]

### 4.3 Request Additional Pair

To request for Additional MSISDN to be paired with the device, send SMS to xxxx short code from Primary MSISDN.

SMS Text → ADD [new MSISDN]

**Note:** Primary MSISDN can only add X Additional Pairs for a single device separately.

New MSISDN will receive below SMS to confirm the request of pairing with a device as additional pair. Here, primary MSISDN is also provided to differentiate the device as new MSISDN may pair with more than one device.

SMS Text → CONFIRM [Primary MSISDN]

### 4.4 Confirm Additional Pair

The new MSISDN will send a confirmation SMS to allow the additional pairing.

SMS Text → YES/NO [Primary MSISDN]

### 4.5 Find Pair

To check Additional Pairs, send SMS to xxxx short code from Primary MSISDN.

SMS Text → FIND PAIRS

## 4.6 Release Existing Pair

### 4.6.1 Release Single Additional Pair

To release or remove an additional pair.

SMS Text → RELEASE [MSISDN]

**NOTE:** Only Primary MSISDN can request for removal of additional pairs.

### 4.6.2 Release All Pairs

To release or remove all additional and primary pair.

SMS Text → RELEASE ALL

## 4.7 SIM Replacement

To continue using the paired-device for Primary and Additional pairs after SIM replacement.

SMS Text → SIM CHANGE

## 4.8 Request Help Text

To get complete information on how to use SMS function of the DPS, send “HELP” to xxxx short code.

SMS Text → HELP