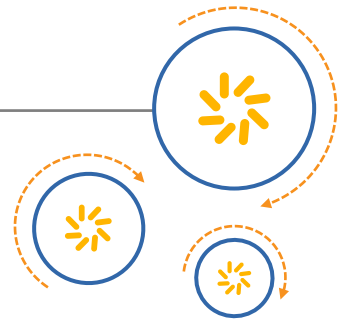




---

Qualcomm Technologies, Inc.



# Device Pairing Subsystem 1.0.0

## User Guide (Authority)

DPS-Authority-User-Guide-1.0.0

Oct 15, 2018

## Revision history

Revision	Date	Description
A		Initial release

# Contents

---

<b>1.</b>	<b>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 .....	5
<b>2.</b>	<b>System Description.....</b>	<b>6</b>
<b>3.</b>	<b>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.</b>	<b>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- Search Request.....	12

## Tables

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

# 1. Introduction

---

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 lists 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 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

Name	Version
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
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 the 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 allows 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>  Enter IMEI number for which you want to get a pair code, for multiple number of IMEIs click on “Add IMEIs” button. </li> <li> <b>Device Identifiers</b> </li> <li> <b>Serial Number</b>  Enter serial number of the device. </li> <li> <b>Brand</b>  Enter brand name of the device. </li> <li> <b>Model Name</b>  Enter model name of the device. </li> <li> <b>MAC (Wi-Fi) address</b>  Enter MAC address of the device in below 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 </li> <li> <b>Radio Access Technology</b>  Select radio access technology of the system i.e. 2G, 3G, 4G, 5G etc. </li> <li> <b>Reference MSISDN</b>  Enter MSISDN number as a reference contact number. </li> </ul>
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

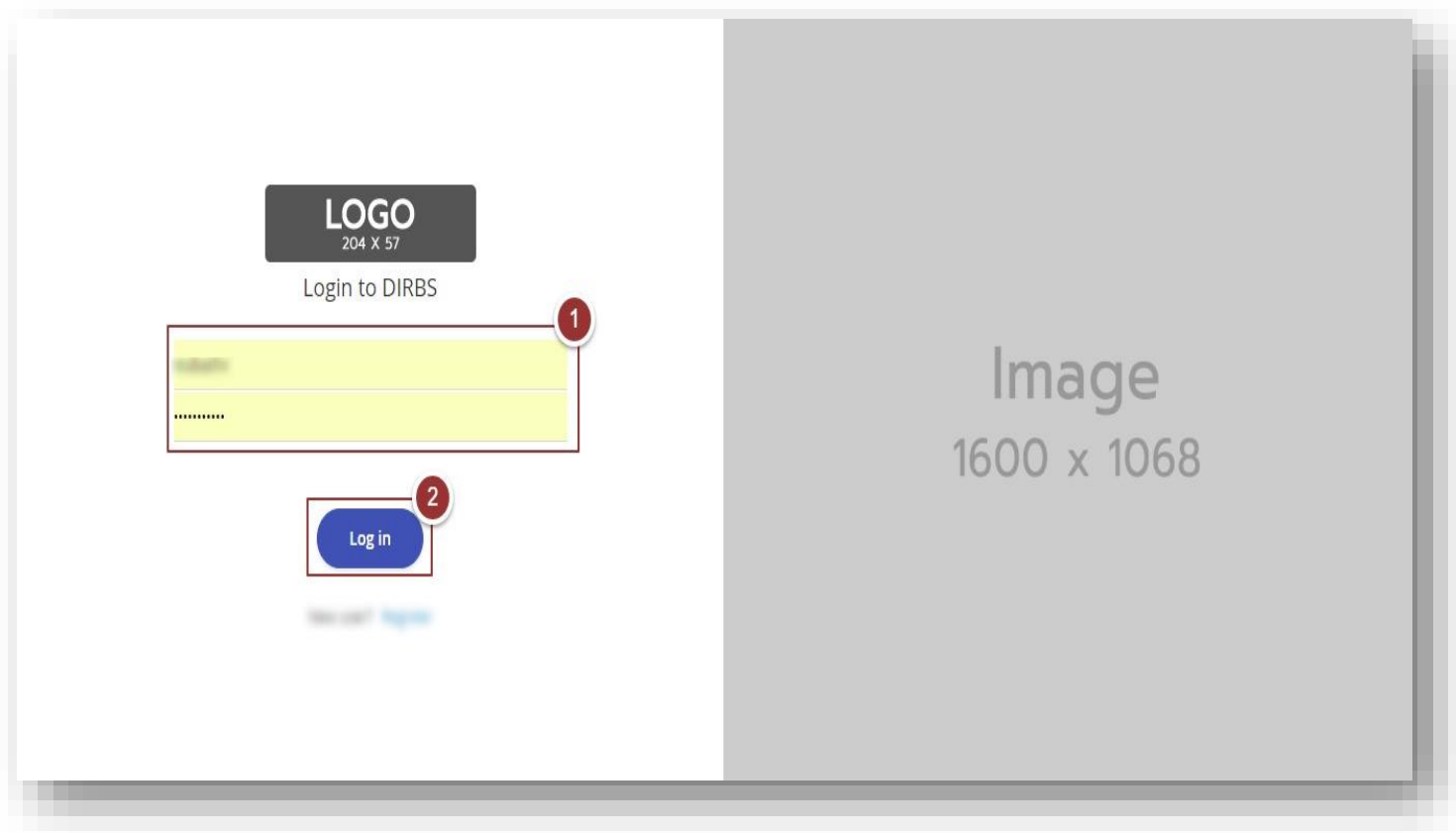


Figure 1- login Screen



## 3.2. Portal Sections

The portal screen is divided into following sections.

1. **Header** section displays 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

The screenshot shows the 'Device Pairing Subsystem' portal. The header (1) displays 'Device Pairing Subsystem' and 'Hi, dps auth user'. The main navigation panel (2) includes 'Generate Pair Code' and 'Search Request'. The breadcrumbs (3) show 'Home / Generate Pair Code'. The main content area (4) contains two sections: 'Device IMEI(s)' with input fields for 'Type IMEI' and 'Retype IMEI', and 'Device Identifiers' with input fields for 'Serial number', 'Brand', 'Model Name', 'MAC (Wi-Fi) address', 'Radio Access Technologies', and 'Reference MSISDN'. A 'SUBMIT' button is at the bottom right of the main content area. The footer (5) shows '© Copyright 2018 DIRBS, All Rights Reserved.' and 'Version: 1.0.0'. Two informational boxes on the right provide details about 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 IMEIs numbers can be added
4. Enter Device Identifiers (Serial Number, Brand, Model Name, MAC address, Radio Access Technology and Reference MSISDN) in the respective fields  
**Note:** Other than MAC address, all identifiers are mandatory.
5. Click on the “Submit” button

The screenshot shows the 'Generate Pair Code' interface. On the left, a 'MAIN NAVIGATION' sidebar has a 'Generate Pair Code' link highlighted with a red circle and the number 1. The main content area has a breadcrumb 'Home / Generate Pair Code'. The 'Device IMEI(s)' section contains two input fields for 'Type IMEI \*' and 'Retype IMEI \*', both with 'Type IMEI 1' entered, and an 'Add IMEIs' button highlighted with a red circle and the number 3. The 'Device Identifiers' section contains fields for 'Serial number \*', 'Brand \*', 'MAC (Wi-Fi) address', 'Radio Access Technologies \*' (a dropdown menu), and 'Reference MSISDN \*', each with a corresponding 'Retype' field. A red box highlights these fields with a red circle and the number 4. At the bottom right, a blue 'SUBMIT' button is highlighted with a red circle and the number 5. Two informational boxes on the right provide details: 'Device IMEI(s)' notes that IMEIs are alphanumeric (0-9, A-F), 14-16 characters long, and up to 5 can be added; 'Mac (Wi-Fi) Address' lists valid MAC address formats.

Figure 3- Generate Pair Code

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

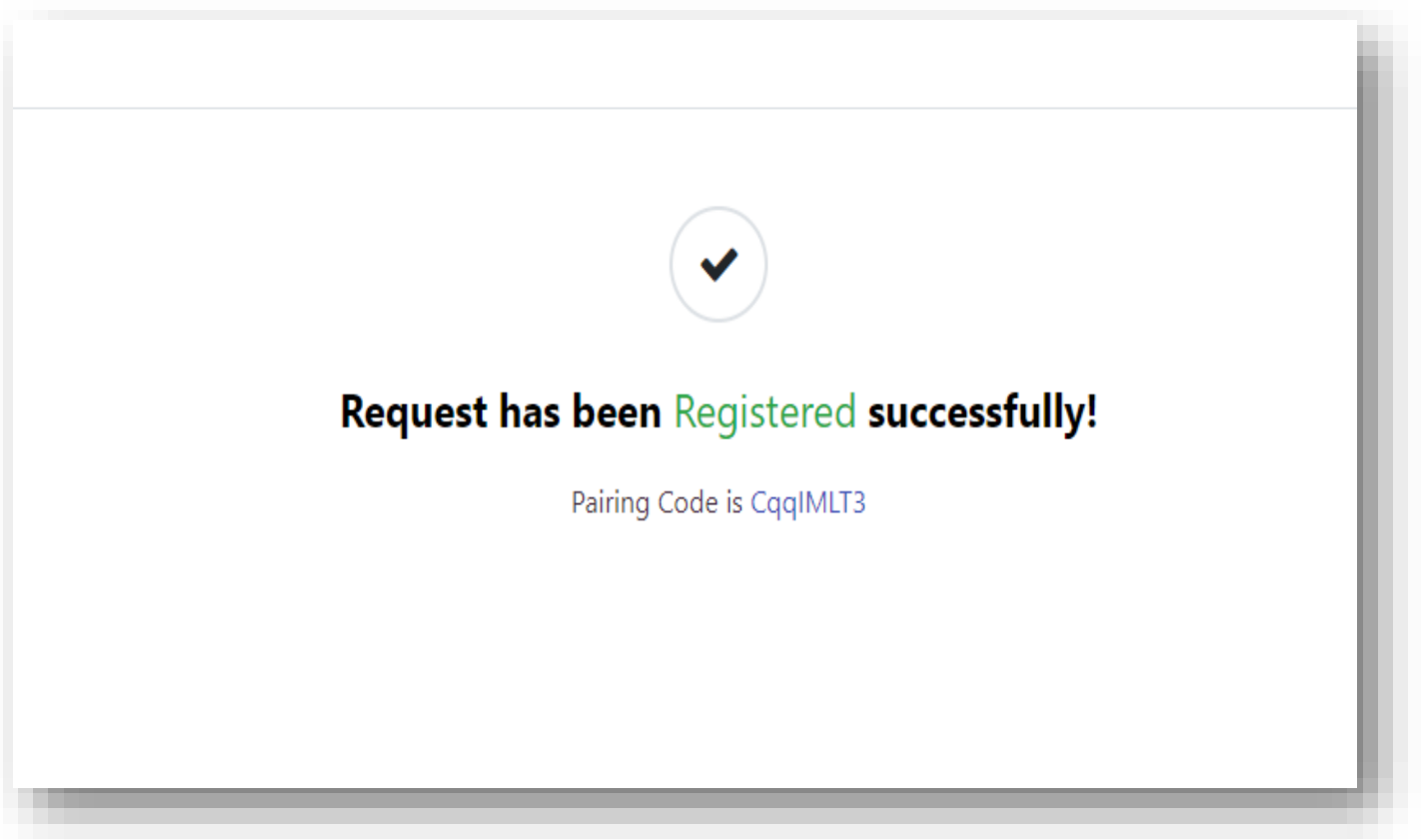


Figure 4- Request Registered Successfully

### 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. To clear search filters click on “Clear Search” button
4. Click on the “Search Request” button to view the searched items

The screenshot displays the 'Search Request' interface. On the left, a 'MAIN NAVIGATION' sidebar contains a 'Generate Pair Code' link and a 'Search Request' link, the latter being highlighted with a red box and a red circle containing the number 1. The main content area has a breadcrumb 'Home / Search Request' and a red circle with the number 2 pointing to the 'Search Filters' section. This section contains four input fields: 'IMEI', 'Serial Number', 'MAC Address', and 'Reference MSISDN', each with a placeholder text matching the field name. Below these fields, there are two buttons: a grey 'CLEAR SEARCH' button and a blue 'SEARCH REQUESTS' button. A red circle with the number 3 points to the 'CLEAR SEARCH' button, and a red circle with the number 4 points to the 'SEARCH REQUESTS' button.

Figure 5- Search Request

## 4. SMS Help

---

### 4.1. Request First Pair

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

**Note:** Make sure that the MSISDN must not be paired already 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 the 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 by sending “HELP” to xxxx short code.

SMS Text → HELP