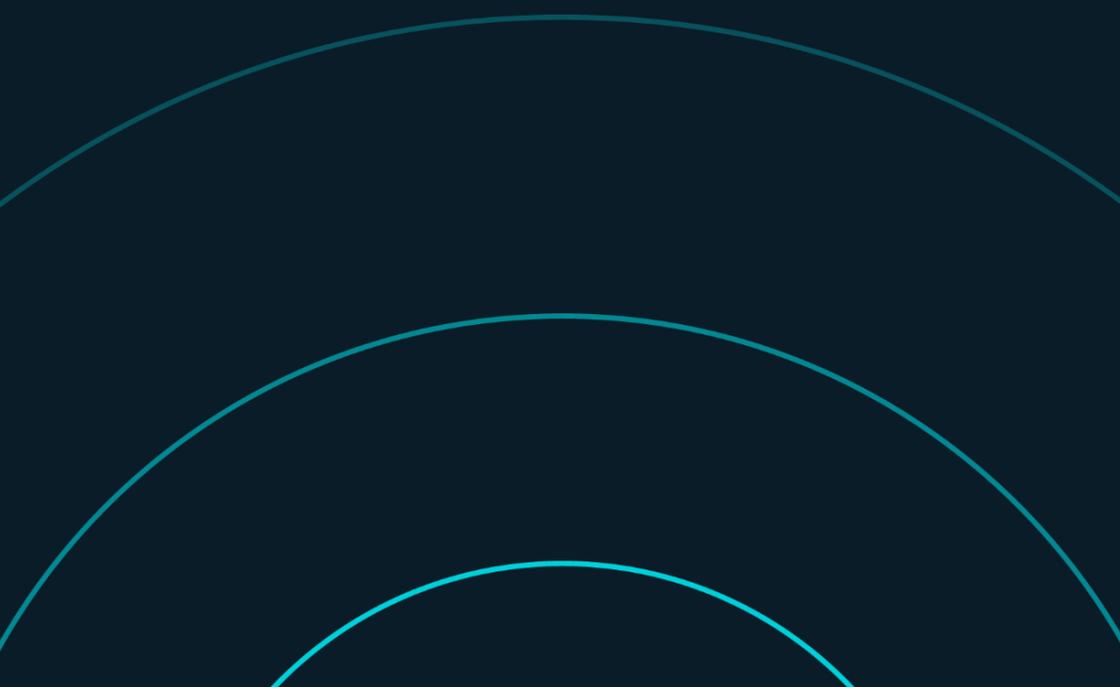


equi**♥**vital

eq wave

Web Service  
User Guide



## Introduction and Scope

The eqWave Web service is available to all customers who have purchased eqWave devices. With this service you can access raw alert log records that have been retrieved by the Android Kiosk app, from the eqWave devices.

You can upgrade your subscription to eqWave+, which in addition offers:

1. Management Reports on social distance policy compliance
2. Contact tracing capability
3. Access all data stored in the database
4. Hosting / deployment options

This document helps you to:

1. Get setup by connecting your eqWave Android app to the Web service
2. Download alert log data retrieved from your eqWave devices
3. Access Management Reports
4. Access Contact tracing
5. Update eqWave Software (Firmware)
6. Interpret your alert log data

## Getting setup

The following four simple steps are required to get setup

1. Login to the eqWave web account (<https://wave.equivital.net>) using the details provided. We recommend that you change your password on first use
2. Upgrade your Kiosk Android APP to version 3 or later from the Google Play store
  - Search for eqWave in the Play store OR
  - Scan this QR using your Android's camera



**! Important** If you already have a previous version of this app installed, DO NOT uninstall it as this will delete any data previously retrieved from the eqWave devices

3. Configure your Android Kiosk app to send data to your eqWave web account. You'll need to provide a username and password

- Create a new user in the eqWave Service webpage (recommended) and use the details to setup the kiosk app or
- Use the login details used for accessing the web account

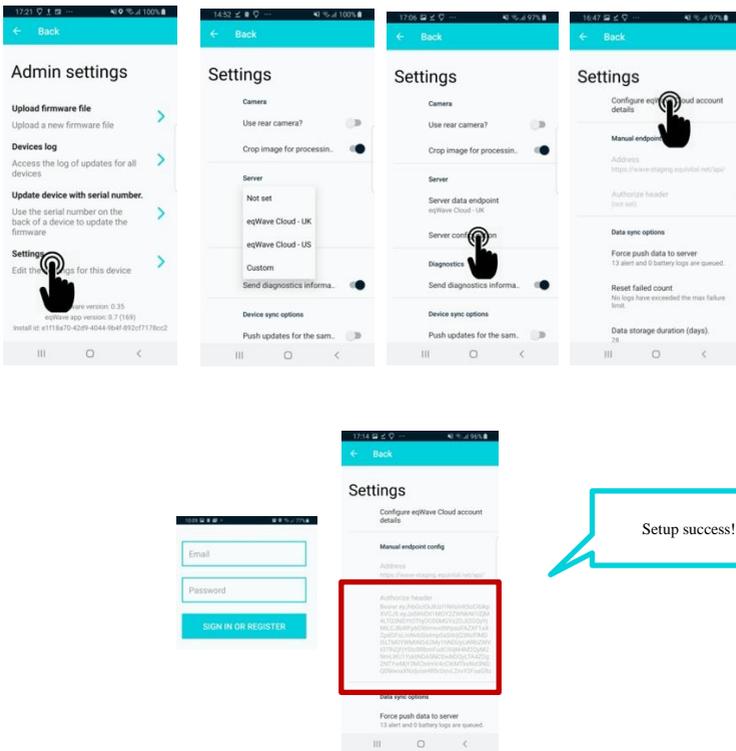


Fig. 1: Configuring your Android app

**! Important:** Unless step 3 is followed, the Android Kiosk app will not retrieve data from the eqWaves when they are scanned

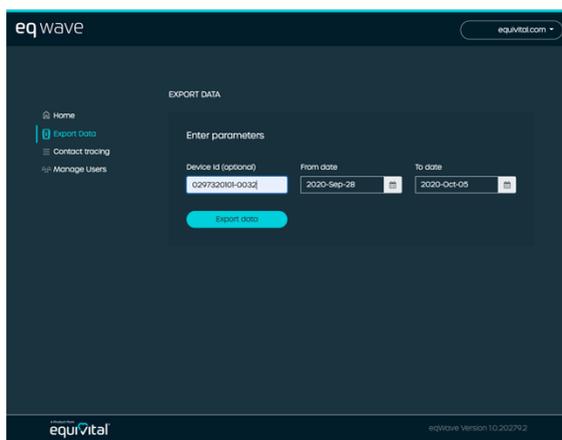
## Uploading alert data

All eqWave devices automatically generate logs detailing when device infringements have occurred.

When an eqWave device is scanned on the Android app, alert log records are retrieved from the device. Retrieved data is queued on the Android app until it can connect to the configured server end point and upload its data.

You can extract these logs from the eqWave service using the steps below:

1. Login using details provided: <https://wave.equivital.net>
2. Click on Export Data
3. Enter a device serial number if you wish to retrieve data from a specific device
4. Select Start and End time of interest
5. Click on Export to download a .csv file to your computer



You can check if your Android app has been unable to upload data to the configured server end point as illustrated below.

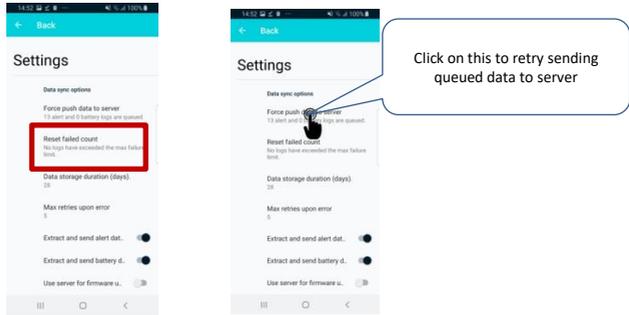


Fig. 2: Retry sending data to server on the android app

You can force the Android app to retry uploading data. By default, it tries 5 times. To interpret your downloaded alert logs, see later section on Alert Log format.

## Update eqWave Software (Firmware)

The Web Service provides the capability to upload and distribute the latest software updates for the eqWave device (referred to as firmware) to the Android Kiosk apps. The Android app updates the firmware on devices when they are next scanned and if the app determines that a firmware update is required.

Only Equival supplied Firmware files which are .zip files can be used. The .zip file needs to be uploaded in the Settings area of the Webapp for connected Kiosks to pick them up.



Firmware Upload in Web service



Configuration in mobile app

## Management Reports (eqWave+)

New!

The Management Reports feature is available to all eqWave+ users and accessible from the home page. With this feature, users can:

- Get a summary level picture of compliance to social distancing policies
- Identify areas where compliance can be improved
- Get insights on actions that could deliver the best results

Note: For the first release of this feature, the duration of the report is restricted to 5 days to deliver a consistent user experience in report run times and success



Screenshots of Charts and Tables in Management Reports feature

### Generating a report

To generate a report, provide a Start and End time and select Load Data

- Use the Time of day Start and End options to remove any alerts that don't qualify (for example: false alerts raised when the sensors are being handed over at the start/end of shift)
- Use the Min alert time to remove alerts below a specific duration (ex: short alerts < 1min)

- Use the Min. Cumulative Duration to only see alerts where the total duration of all alerts between any device pair is above the selected value within the selected start and end date. (Example: Most government guidelines consider 15 mins cumulative as minimum time for contact tracing)

### Charts and tables in the generated Management Report

Here’s a brief description of the various charts and tables available in the generated report.

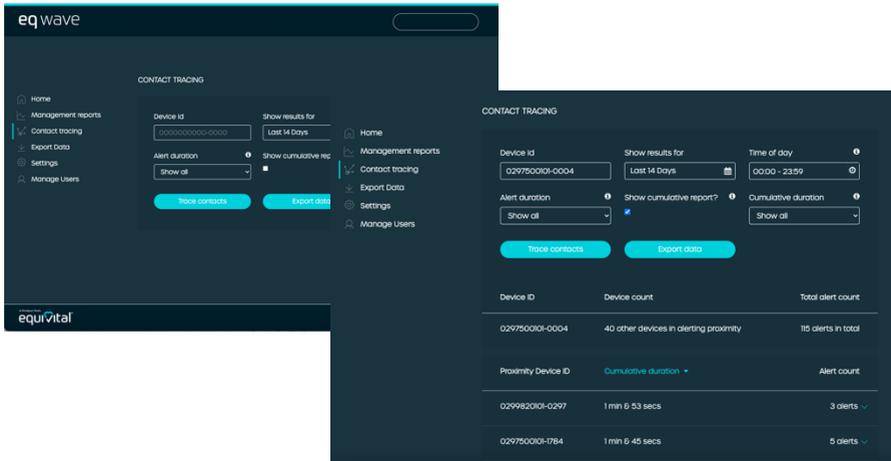
Note: An alert between two devices is typically reported by both the devices unless data from one of the devices has not been uploaded. The system is able to identify the same alerts from two devices and use it to display the most valuable and accurate information

	Chart or table	Brief description
1	Alert Summary table	<u>Total number of alerts</u> – Count of all alert instances including repeat alerts between any device pairs for the selected time window <u>Number of Unique alerts</u> – excludes repeat alerts between any device pairs for the selected time window <u>Durations</u> – Sum of all alert durations
2	Distribution of contacts (by hour)	Shows distribution of alert start times across the hours of the day. Alert start times from selected days are added up into buckets of 1 hour
3	Change in workplace risk over time (by day)	Displays alert trends over a 14 day period ending in the selected end date. Any alerts that started during the day are added up
4	Top 10 devices by Alert Count	Shows the top devices contributing to the overall alert count
5	Top 10 devices by Cumulative Alert Duration	Shows the top devices by total alert time
6	Top 10 device pairs by Alert Count	Shows top device pairs that repeatedly got within the alerting distance
7	Top 10 device pairs by Cumulative Alert Duration	Shows top device pairs that spent the highest time within alerting distance

## Contact Tracing (eqWave+)

eqWave+ also brings you contact tracing capability at your fingertips based on data gathered by the eqWaves. With this feature you can identify all devices that have been in the vicinity of a selected device within a specific timeframe.

To use contact tracing, start by entering the serial number or ID of the device to reveal all other devices that have been in alerting proximity of the entered device. The serial number or Id is the 14-digit numeric that can be found on the back of the eqWave device.



Contact Tracing Screens in the webapp

Several filtering options are available for effective contact tracing

- Start and End Date – show alerts from other devices within the selected dates
  - Pre-sets such as Today, Yesterday, 7 days are available to narrow down the search. You can also choose any start and end date from the calendar
- Time of the day – shows only the devices and alerts where the other device was in alerting proximity during the selected start and end time

- 
- Examples: This can show alerts for a visitor's hours in the building or eliminate any alerts during preparation time by an admin before handing out the devices to workers in the next shift
3. Duration of an alert – show only the devices and alerts where the other device was in alerting proximity for at least the selected duration
    - Example: This can filter out alerts that may have been raised when somebody walked by which only took 1 or 2 seconds
  4. Cumulative duration – show only the devices and alerts where the other devices were in total alerting proximity for at least selected duration. Individual alerts for each device are summed up to derive the cumulative figure
    - Example: a report based on US CDC guidelines or UK guidelines that lists all devices within alerting vicinity with a minimum cumulative duration of 15 minutes

In most cases, the start and end time for an infringement is available and the duration can be calculated. However, in the scenario where the device stopped alerting (flat battery, firmware update, device scanned by Android app, connected to USB), the end time indication will indicate the reason for the end time (indicated with !)

## Alert log format

The exported raw alert log csv files show the records for a selected eqWave device or all eqWave devices within the matching time period supplied. The file contains a metadata section and the content section.

### **File Metadata - These start with #**

The metadata section summarizes the information contained within the file, primarily the start and end times

# Alert data export – indicates content in the file

#From date: Start date in UTC

#Local from date: Start date in Browser time zone (time zone of computer used to request export)

#To date: End date in UTC

#Local to date: End date in Browser time zone

#Device serial number: Serial number entered to generate this alert export

### **File content – These start with a header row with a name for each comma separated column**

The content section contains rows of alert log records that the reporting device has created for other devices in its vicinity that it is tracking. In most cases, where two devices come into alerting range and then leave alerting range, two entries are recorded – an entry record and an exit record.

The Distance band field helps understand the reason for the event:

The Previous Distance band field aims to explain the context in which the event happened (for example, the device was previously detected outside the alerting zone)

Field	Description
ReportingSensor	Serial number of Reporting device from which data was retrieved
OtherSensor	Serial number of the other device recorded in the vicinity for which this log was generated by the ReportingSensor
TimestampUtc	Time in UTC recorded by the ReportingSensor for this record
TimestampUtcTicks	Above in Ticks format (since midnight 0001-01-01 00:00:00, every tick is 1/ 10000000)
TimestampLocal	Equivalent Time in Browser time zone (Browser of the computer used to generate report)
TimestampLocalTicks	Above in Ticks format
DistanceCM	The distance field is one of <ul style="list-style-type: none"> <li>- Measured Distance between the two devices, recorded in Centimetres. Typically, 1 – 3 digits in length</li> <li>- Blank if distance could not be determined. Use error code for reason</li> </ul>
PreviousDistanceCM	The previous distance field is one of <ul style="list-style-type: none"> <li>- Value in cm previously recorded for this device</li> <li>- Blank means no previous record was available</li> </ul>
MinimumDistanceCM	Minimum value recorded for this device when in alerting range
DistanceBand	Band assigned for the recorded distance  A value of 3 means the devices are outside the alerting threshold  A value of 2 means the devices are within the alerting threshold
PreviousDistanceBand	Band assigned for previously recorded distance

	Sometimes a value of 0 can be observed which means alert band could not be determined
FileIndex	Information from ReportingSensor's file system for this record
RecordIndex	Information from ReportingSensor's file system for this record
Tag and Exit codes	<p>Value of 1 represents a typical alert log</p> <p>Value of 9 represents error code regarding the device supplying the data. Typically, the partner device id is blank and distance is blank</p> <p>Value of 8 represents error code regarding the partner device that was previously alerting. Typically, the distance field is blank for such entries</p> <p>Tag 9, Exit code 1 - Device was connected to USB</p> <p>Tag 9, Exit code 6 – Device was shut down by double tap (if configured)</p> <p>Tag 9, Exit code 1 – Device was connected to USB</p> <p>Tag 9, Exit code 7 – Device was shut down by low battery</p> <p>Tag 9, Exit code 8 – Device was set to sleep mode (aka Transport mode)</p> <p>Tag 9, Exit code 9 – Device was connected to via Bluetooth (typically by the kiosk app)</p> <p>Tag 8, Exit code 1 – Other device stopped communicating possibly because it may have been connected to USB or powered off</p> <p>Other values are not expected. Contact support if you need assistance</p>

## Interpreting these data fields with some examples

The eqWave device (i.e. the reporting device referred here as Device A) generates log entries when it is in the vicinity of another eqWave device (referred here as Device B). Note: Some columns have been truncated for easier explanation.

**Scenario 1:** Device-B is in alerting distance of Device-A but was previously detected outside alerting range. (Alert entry event shown below)

Device-A	Device-B	Time stamp	.	.	.	Distance	Pre. Dist	Min. Dist	Dist. Band	Prev. Band	.	.	.
0297500101-0347	02975001010072	2020-Sep-30 03:41:47.211 PM				147	341	337	2	3			

**Scenario 2:** Device-B was within the alerting distance of Device-A but has now gone outside the alerting zone. (Alert exit event shown below)

Device-A	Device-B	Time stamp	.	.	.	Distance	Pre. Dist	Min. Dist	Dist. Band	Prev. Band	.	.	.
0297500101-0347	02975001010072	2020-Sep-30 03:41:49.544 PM				232	147	147	3	2			

**Scenario 3:** Device-A found Device-B within its alerting range but was not aware of it previously. This could be because either Device-A or Device-B (or both) were charging or connected to Bluetooth but when they both standard scanning, they found each other in alerting range (Alert entry event shown below)

Device-A	Device-B	Time stamp	.	.	.	Distance	Pre. Dist	Min. Dist	Dist. Band	Prev. Band	.	.	.
0297500101-0091	02975001010077	2020-Sep-24 08:47:30.011 PM	.	.	.	27			2	0	.	.	.

**Scenario 4:** Device-B was within the alerting distance of Device-A but is no longer visible to Device-A. This could be because Device-B may have been plugged into USB, may have connected to a Kiosk using Bluetooth or may have depleted its battery. (Alert exit event shown below)

Device-A	Device-B	Time stamp	.	.	.	Distance	Pre. Dist	Min. Dist	Dist. Band	Prev. Band	.	Exit code
0297500101-0091	02975001010077	2020-Sep-24 08:47:30 .011 PM	.	.	.		17	17	0	2	.	<see exit codes in above table>

**Scenario 5:** Device-A was in alerting distance of Device-B but Device-A stopped alerting. Reason is shown by Exit code (see table for translation)

Device-A	Device-B	Time stamp	.	.	.	Distance	Pre. Dist	Min. Dist	Dist. Band	Prev. Band	.	Exit code
0297500101-0091	02975001010077	2020-Sep-24 08:47:30 .011 PM	.	.	.	17	300	17	2	3	.	
0297500101-0091	02975001010077	2020-Sep-24 08:49:30 .011 PM	.	.	.		1	1	0	2	.	<see table>

**Scenario 9:** Device-A went outside alerting range of Device-B and then disappeared, likely was put on charge or connected to BT (Alert exit event shown below)

Device-A	Device-B	Time stamp	.	.	.	Distance	Pre. Dist	Min. Dist	Dist. Band	Prev. Band	.	Exit code
0297500101-0091	02975001010077	2020-Sep-24 08:47:30 .011 PM	.	.	.		471	341	0	3	.	<see table>

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## Thank you & Please keep apart to keep each other safe

Please register on the Equivital Helpdesk for access to the latest version of eqWave user guides and other customer support  
<https://support.equivital.com>

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