Digital contact tracing for COVID-19 in Europe

In the period March 2020 - February 2022 Austria offered its citizens a digital contact tracing app in its efforts to combat the COVID-19 pandemic. The Stopp Corona app could be installed on citizens' smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. The Stopp Corona App has been downloaded more than 1.4 million times.1

Key facts at a glance

- **Link**: [Link]  
- **Launch**: 25 March 2020  
- **App status**: Suspended  
- **Cross-border tracing warning**: Yes  
- **Source code**: [Link]

Main organisations involved

- **Data controller**: Austrian Red Cross
- **Operating system provider**: Accenture GmbH
- **Additional partners**: See app website

Key app functionalities

- Notify contacts when positive
- Symptom tracker
- Diary/journal

1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022. The latest number of downloads for Austria was reported on 12.01.2022.
Belgium’s app Coronalert has been developed to combat the COVID-19 pandemic. The app was launched on 30 September 2020 and is currently active. It can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Coronalert app has been downloaded more than 4 million times.

### Key facts at a glance

**Coronalert**

- **Launch**: 30 September 2020
- **Status**: Active
- **Cross-border tracing warning**: Yes
- **Source code**: Link

### Main organisations involved

- **Data controller**: Sciensano
- **Operating system provider**: Devise supported by Ixor
- **Additional partners**: See app website

### Key app functionalities

- Notify contacts when positive
- Symptom tracker
- Diary/journal
- In-app COVID-19 related statistics
- Navigate to external resources
- Receive test results in app

### Cross-border tracing and warning

The Coronalert app is part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. Belgium joined the EFGS on 4 January 2021 and has since uploaded more than 467,000 keys.

### Available information about use and uptake

<table>
<thead>
<tr>
<th><strong>App downloads</strong></th>
<th>4.2 million</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>App downloads as a share (%) of the population</strong>:</td>
<td>36 %</td>
</tr>
<tr>
<td><strong>Number of COVID-19 codes issued</strong>:</td>
<td>336,916</td>
</tr>
<tr>
<td><strong>Number of COVID-19 codes entered</strong>:</td>
<td>118,564</td>
</tr>
<tr>
<td><strong>Proportion of all positive tests that occur among app users</strong>:</td>
<td>8.3 % (issued codes) 2.9 % (entered codes)</td>
</tr>
<tr>
<td><strong>Proportion of positive tests among app users that are entered into the app (positive tests uploaded)</strong>:</td>
<td>35.2 %</td>
</tr>
<tr>
<td><strong>Ratio of exposure notifications received to positive test results entered</strong>:</td>
<td>Ø 3.6</td>
</tr>
<tr>
<td><strong>Total number of exposure notifications generated</strong>:</td>
<td>425,931</td>
</tr>
<tr>
<td><strong>Number of test results received in the app</strong>:</td>
<td>4,051,165</td>
</tr>
</tbody>
</table>

1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for number of COVID-19 codes and positive tests: 30.09.2020 - 05.06.2022.
The Croatian app Stop COVID-19 was launched on 27 July 2020 as part of the country’s strategy to combat the COVID-19 pandemic. The app can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Stop COVID-19 app has been downloaded more than 243,000 times.1

Key facts at a glance

- App downloads: 243,426
- App downloads as a share (%) of the population: 6 %
- Number of COVID-19 codes issued: 81,931
- Number of COVID-19 codes entered: 87
- Proportion of all positive tests that occur among app users: 6.9 % (issued codes) 0.007 % (entered codes)
- Proportion of positive tests among app users that are entered into the app (positive tests uploaded): 0.1 %

Main organisations involved

- Data controller: Croatian Ministry of Health
- Software developer: APIS IT
- Others: Bornfight, Croatian Agency for the Protection of Personal Data

Key app functionalities

- Notify contacts when positive

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1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection: 27.07.2020 – 08.08.2022
Cyprus developed the Covtracer-EN app to combat the COVID-19 pandemic. The app was launched on 11 March 2021 (with an earlier GPS-version released on 5 April 2020) and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Covtracer-EN has been downloaded more than 60,000 times.\(^1\)

### Key facts at a glance

<table>
<thead>
<tr>
<th>Event</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch</td>
<td>11 March 2021</td>
</tr>
<tr>
<td>Cross-border tracing and warning</td>
<td>Yes</td>
</tr>
<tr>
<td>Source code</td>
<td><a href="#">Link</a></td>
</tr>
</tbody>
</table>

### Main organisations involved

- **Data controller**: Ministry of Health of the Republic of Cyprus
- **Additional partners**:
  - KIOS Center of Excellence at the University of Cyprus
  - CYENS Centre of Excellence
  - Deputy Ministry of Research, Innovation and Digital Policy (DMRID)
  - National eHealth Authority (NeHA)

### Key app functionalities

- Notify contacts when positive
- Symptom tracker
- In-app COVID-19 related statistics
- Reach the call centre

### Available information about use and uptake\(^2\)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads:</td>
<td>60,958</td>
</tr>
<tr>
<td>App downloads as a share (%) of the population:</td>
<td>7 %</td>
</tr>
<tr>
<td>Peak number of active users:</td>
<td>23,395</td>
</tr>
<tr>
<td>Percentage of population who actively used the app (peak):</td>
<td>3 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes issued:</td>
<td>197</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered:</td>
<td>79</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users:</td>
<td>0.2 % (issued codes), 0.1 % (entered codes)</td>
</tr>
</tbody>
</table>

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1: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for number of COVID-19 codes and positive tests: 05.04.2020 – 29.10.2021.
2: Check performed on 31 August 2022.
The Czech Republic developed the eRouska app to combat the COVID-19 pandemic. The app was launched on 11 April 2020 and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the eRouska has been downloaded more than 1.6 million times.\(^1\)

**Key facts at a glance**

- **Launch**: 11 April 2020
- **Suspended**: on 1 November 2021
- **Cross-border tracing warning**: Yes (March – October 2021)
- **Source code**: Link

**Main organisations involved**

- **Data controller**: Ministry of Health of the Czech Republic
- **Others**: National Agency for Communication and Information Technologies
- **Additional partners**: See app website

**Key app functionalities**

- Notify contacts when positive

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1: Check performed on 31 August 2022. The app is interoperable with the German Corona-Warn-App but not connected to the EFGS

2: Based on the analysis performed in this study at the end of August 2022. Timeframe of data collection for COVID-19 codes, positive tests, and exposure notifications: 20.04.2020 – 24.03.2021

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**Cross-border tracing and warning**

In the period March – October 2021 the eRouska app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. 65,859 keys were uploaded to the EFGS via the eRouska app.
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Denmark

Denmark developed the Smittestop app to combat the COVID-19 pandemic. The app was launched on 18 June 2020 and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Smittestop app has been downloaded more than 2.2 million times.¹

Key facts at a glance

- Launch: 18 June 2020
- App downloads: 2.3 million
- App downloads as a share (%) of the population: 39%
- Source code: Link

Main organisations involved

- Data controller: Danish Patient Safety Agency
- Operating system provider: Netcompany
- Others: Danish Ministry of Health, Danish Health Authority, Danish Agency for Digitisation

Key app functionalities

- Notify contacts when positive
- In-app COVID-19 related statistics

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App architecture

Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

Data protection

Data Protection Authority: Danish Data Protection Agency Datatilsynet
Data Protection Impact Assessment: Download

Cross-border tracing and warning

In the period November 2020 – March 2022 the Smittestop app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. Denmark was one of the first Member States to join, with more than 4.8 million keys uploaded to the EFGS.

Available information about use and uptake

- App downloads: 2.3 million
- App downloads as a share (%) of the population: 39%

¹: Check performed on 31 August 2022
²: Last accessed on 31 March 2022
³: Based on the analysis performed in the study at the end of August 2022.
Estonia developed the HOIA app to combat the COVID-19 pandemic. The app was launched on 20 August 2020 and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the HOIA app has been downloaded more than 300,000 times.1

Key facts at a glance

- **App downloads:** 301,585
- **App downloads as a share (%) of the population:** 23 %
- **Number of infection confirmations in the app:** 8,556
- **Proportion of infection confirmations in the app:** 2.6 %

Main organisations involved

- **Data controller:** Estonian Health Board
- **Operating system provider:** Estonian Health and Welfare Information Systems Centre
- **Additional partners:** See app website

Key app functionalities

- **Notify contacts when positive**
- **Symptom tracker**
- **In-app COVID-19 related statistics**
- **Navigate to external resources**

App architecture

Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

Data protection

Data Protection Authority: Estonian Data Protection Inspectorate

Cross-border tracing and warning

In the period July 2021 – May 2022 the HOIA app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. 16,715 keys from Estonia have been uploaded to the EFGS.

Available information about use and uptake

1: Check performed on 31 August 2022

2: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection: 20.08.2020 – 01.2022. In Estonia, no COVID-19 codes are issued. Instead, the Estonian DCT app HOIA had a mechanism that allowed users to prove their identity to the backend using national electronic identity. The number of infection confirmations is equivalent to number of entered codes in other countries.
Finland developed the Koronavilkku app to combat the COVID-19 pandemic. The app was launched on 31 August 2020 and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Koronavilkku app has been downloaded more than 3 million times.¹

### Key facts at a glance

- **App architecture**
  - Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

- **Cross-border tracing and warning**
  - In the period January 2021 – June 2022, the Koronavilkku app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. More than 582,000 Finnish keys have been uploaded to the EFGS.

- **Available information about use and uptake³**
  - App downloads: 2.6 million
  - Peak number of active users: 892,216
  - Proportion of all positive tests that occur among app users: 8.7% (issued codes) 6% (entered codes)
  - Median time between exposure and receipt of exposure notification through the app: 2 days

### Main organisations involved

- **Data controller**: Finnish Institute for Health and Welfare
- **Backend operator**: Ministry of Social Affairs and Health
- **Others**: Soitta Oy, Digifinland Oy, National Cyber Security Centre

### Key app functionalities

- Notify contacts when positive
- Integration to symptom assessment
- In-app COVID-19 related statistics
- Navigate to external resources

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¹: Check performed on 31 August 2022
²: Last accessed on 31 March 2022
³: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 31.08.20 – 31.05.2022

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This fact sheet has been developed as part of the study “Lessons learned, best practices and epidemiological impact of the common European approach on digital contact tracing to combat and exit the COVID-19 pandemic,” commissioned by the European Commission’s DG CONNECT, Unit H3 – eHealth, Well-Being and Ageing and carried out by empirica Communication and Technology Research.

Study team contact: contacttracing@empirica.com; European Commission contact: CNECT-H3@ec.Europa.eu
France developed the TousAntiCovid app to combat the COVID-19 pandemic. The app was launched on 22 October 2020 and is one of only two EU apps which use a centralised app architecture. The app can be installed on citizens' smartphones to capture anonymised interactions between smartphones based on Bluetooth technology, on which the French public health authority can issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the TousAntiCovid app has been downloaded more than 59 million times, making it the contact tracing app with the highest number of unique downloads in the EU.

Key facts at a glance

- **App downloads:** 59.2 million
- **App downloads as a share (%) of the population:** 87%
- **Peak number of active users:** 18 million
- **Percentage of population who actively used the app (peak):** 27%
- **Number of COVID-19 codes entered:** 5.5 million
- **Proportion of all positive tests that occur among app users:** 16.5% (entered codes)
- **Ratio of exposure notifications received to positive test results entered:** ð­ 1.9, max 3.4
- **Total number of exposure notifications generated:** 4.2 million
- **Proportion of diagnosed cases among app users who have previously received an exposure notification through the app:** 2.3%
- **Median time between exposure and receipt of exposure notification through the app:** 2 days

Main organisations involved

- **Data controller:** INRIA
- **Backend operator:** Capgemini
- **Software developer:** Lunabee Studio

Key app functionalities

- Notify contacts when positive
- Symptom tracker
- In-app COVID-19 related statistics
- Manage vaccine and test certificates
- Navigate to external resources
- Call button to a call centre
- Check-in with QR code and check-in history

Data protection

- Data Protection Authority: French Data Protection Authority
- Data Protection Impact Assessment: Link unavailable

Cross-border tracing and warning

Currently, apps with a centralised architecture cannot be connected to the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures.

Available information about use and uptake

1: Check performed on 31 August 2022
2: Based on the analysis performed in the study at the end of August 2022 and on the Ministry of Solidarity and Health Directorate General of Health Activity Report of TousAntiCovid for the period 02.06.2020 – 30.11.2021. Timeframe of data collection for COVID-19 codes, positive tests and exposure notifications: 22.10.2020 – 12.08.2022. In France COVID-19 codes are generated for all positive tests.
Germany offers its citizens a digital contact tracing app in its efforts to combat the COVID-19 pandemic. The Corona-Warn-App was launched on 16 June 2020 and is currently active. The app, which can be installed on citizens’ smartphones, captures anonymised interactions between smartphones based on Bluetooth technology and issues warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Corona-Warn-App has been downloaded more than 46 million times.

**Key facts at a glance**

- **Launch**: 16 June 2020
- **Status**: Active
- **Cross-border tracing warning**: Yes

**Main organisations involved**

- **Data controller**: Robert Koch Institute
- **Backend operator**: Deutsche Telekom
- **Software developer**: SAP
- **Additional partners**: See app website

**Available information about use and uptake**

- **App downloads**: 46 million
- **App downloads as a share (%) of the population**: 56%
- **Peak number of active users**: 31 million
- **Percentage of population who actively used the app (peak)**: 37.2%
- **Number of COVID-19 codes issued**: 9,387,164
- **Number of COVID-19 codes entered**: 6,656,979
- **Proportion of all positive tests that occur among app users**: 28.1% (issued codes)
- **Proportion of positive tests among app users that are entered into the app (positive tests uploaded)**: 71%
- **Proportion of diagnosed cases among app users who have previously received an exposure notification through the app**: 6% – 11.7%
- **Median time between exposure and receipt of exposure notification through the app**: warned individuals get tested on Ø 4.4 days after the warning (half of them in 1.7 days)
- **Number of test results received in the app**: 209,803,348
The Hungarian VirusRadar app was launched on 13 May 2020 and has since been suspended. It is one of only two EU apps which use a centralised app architecture. The app could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology, based on which the Hungarian public health authority could issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the VirusRadar app has been downloaded more than 95,000 times.1

Key facts at a glance

- **App status**: Suspended
- **Launch**: 13 May 2020
- **Source code**: Not available

Main organisations involved

- **Data controller**: National Centre for Public Health
- **Software developer**: Nextsense
- **Others**: Ministry of Innovation and Technology in Hungary, Biztributor, Hungarian Government Agency for Development of Informatics

Key app functionalities

- Notify contacts when positive

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1: Check performed on 31 August 2022
2: Based on the analysis performed in the study at the end of August 2022.
Iceland developed the Rakning C-19 app to combat the COVID-19 pandemic. The app was launched on 2 April 2020. It can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Rakning C-19 app has been downloaded more than 547,000 times.¹

Key facts at a glance

- **App architecture**
  - Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

- **Data protection**
  - Data Protection Authority: Icelandic Data Protection Authority
  - Data Protection Impact Assessment¹: Link unavailable

Cross-border tracing and warning

The Rakning C-19 app was not part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications in case of detected exposures. Despite great interest from non-EU countries, the scope of application of the EFGS was limited to EU Member States.

Available information about use and uptake²

<table>
<thead>
<tr>
<th>App downloads:</th>
<th>547,937</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads as a share (%) of the population:</td>
<td>146 %</td>
</tr>
<tr>
<td>Peak number of active users:</td>
<td>100,000</td>
</tr>
<tr>
<td>Percentage of population who actively used the app (peak):</td>
<td>27 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes issued:</td>
<td>5,018</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered:</td>
<td>2,590</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users:</td>
<td>2.5 % (issued codes) 1.3 % (entered codes)</td>
</tr>
<tr>
<td>Proportion of positive tests among app users that are entered into the app (positive tests uploaded):</td>
<td>51.6 %</td>
</tr>
</tbody>
</table>

¹: Check performed on 31 August 2022
²: Based on the analysis performed in this study at the end of August 2022. Timeframe of data collection: 02.04.2020 – 23.08.2022
Ireland developed the COVID Tracker app to combat the COVID-19 pandemic. The app was launched on 7 July 2020. It can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the COVID Tracker app has been downloaded more than 4.5 million times.1

**Key facts at a glance**

- **Launch**: 7 July 2020
- **Active**: Yes
- **Source code**: Link

**Main organisations involved**

- **Data controller**: Health Service Executive (HSE)
- **Software developer**: NearForm
- **Additional partners**: See app website

**Key app functionalities**

- Notify contacts when positive
- Symptom tracker
- In-app COVID-19 related statistics
- Manage vaccine and test certificates
- Navigate to external resources

**Available information about use and uptake**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads</td>
<td>4.5 million</td>
</tr>
<tr>
<td>App downloads as a share (%) of the population</td>
<td>89 %</td>
</tr>
<tr>
<td>Peak number of active users</td>
<td>2 million</td>
</tr>
<tr>
<td>Percentage of population who actively used the app (peak)</td>
<td>40 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes issued</td>
<td>102,000</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered</td>
<td>24,857</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users: Issued codes</td>
<td>6.3 %</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users: Entered codes</td>
<td>1.5 %</td>
</tr>
<tr>
<td>Proportion of positive tests among app users that are entered into the app (positive tests uploaded):</td>
<td>24.4 %</td>
</tr>
<tr>
<td>Ratio of exposure notifications received to positive test results entered:</td>
<td>Ø 2.1</td>
</tr>
<tr>
<td>Total number of exposure notifications generated:</td>
<td>50,974</td>
</tr>
</tbody>
</table>

1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection: 07.07.2020 – 23.08.2022
Italy developed the Immuni app to combat the COVID-19 pandemic. The app was launched on 15 June 2020. It can be installed on citizens' smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Immuni app has been downloaded more than 21 million times.¹

Key facts at a glance

<table>
<thead>
<tr>
<th><strong>App architecture</strong></th>
<th><strong>Data protection</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.</td>
<td>Data Protection Authority: Italian Data Protection Authority (Garante)</td>
</tr>
<tr>
<td>Cross-border tracing and warning¹</td>
<td>Data Protection Impact Assessment²: Download</td>
</tr>
</tbody>
</table>

Main organisations involved

- **Data controller**: Presidency of the Council of Ministers
- **Software developer**: Bending Spoons
- **Additional partners**: See app website

Key app functionalities

- Notify contacts when positive
- Manage vaccine and test certificates
- Navigate to external resources

Available information about use and uptake³

- **App downloads**: 2.2 million
- **App downloads as a share (%) of the population**: 37%
- **Number of COVID-19 codes entered**: 88,363
- **Proportion of all positive tests that occur among app users**: 0.5% (entered codes)
- **Ratio of exposure notifications received to positive test results entered**: 2.2
- **Total number of exposure notifications generated**: 195,045

¹: Check performed on 31 August 2022
²: Last accessed on 31 March 2022
³: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection: 15.06.2020 – 30.06.2022
Latvia developed the Apturi Covid app to combat the COVID-19 pandemic. The app was launched on 29 May 2020. It can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Apturi Covid app has been downloaded more than 476,000 times.¹

Key facts at a glance

- **Launch**: 29 May 2020
- **Active**: Yes
- **Source code**: Link

Main organisations involved

- **Data controller**: Ministry of Health and Centre for Disease Prevention and Control
- **Additional partners**: A consortium of Latvian entities (see app website)

Key app functionalities

- Notify contacts when positive
- In-app COVID-19 related statistics
- Navigate to external resources

**Cross-border tracing and warning**

Latvia was one of the first countries to join in November 2020 the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. More than 42,000 keys from Latvia have been uploaded to the EFGS.

**Available information about use and uptake³**

- **App downloads**: 476,512
- **App downloads as a share (%) of the population**: 25%
- **Number of COVID-19 codes issued**: 17,016
- **Number of COVID-19 codes entered**: 7,787
- **Proportion of all positive tests that occur among app users**: 2% (issued codes) 1.9% (entered codes)
- **Proportion of positive tests among app users that are entered into the app (positive tests uploaded)**: 45.8%
- **Ratio of exposure notifications received to positive test results entered**: Ø 1.5
- **Total number of exposure notifications generated**: 12,004

¹: Check performed on 31 August 2022
²: Last accessed on 31 March 2022
³: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 29.05.2020 – 26.06.2022
The Korona Stop LT app was launched on 6 November 2020 as part of Lithuania’s strategy to combat the COVID-19 pandemic. The app can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Korona Stop LT app has been downloaded more than 410,000 times.1

<table>
<thead>
<tr>
<th>Key facts at a glance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>App downloads:</strong></td>
</tr>
<tr>
<td><strong>App downloads as a share (%) of the population:</strong></td>
</tr>
<tr>
<td><strong>Number of COVID-19 codes issued:</strong></td>
</tr>
<tr>
<td><strong>Number of COVID-19 codes entered:</strong></td>
</tr>
<tr>
<td><strong>Proportion of all positive tests that occur among app users:</strong></td>
</tr>
<tr>
<td><strong>Proportion of positive tests among app users that are entered into the app (positive tests uploaded):</strong></td>
</tr>
</tbody>
</table>

**Main organisations involved**
- **Data controller**: Lithuanian Ministry of Health
- **Software developer**: Dizaino Kryptis
- **Others**: Ministry of Health of the Republic of Lithuania, National Public Health Centre under the Ministry of Health of Lithuania

**Key app functionalities**
- Notify contacts when positive
- Navigate to external resources
- Call button to a call centre

**Cross-border tracing and warning**
In the period May 2021 – April 2022 the Korona Stop LT app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. 83,085 keys from Lithuania have been uploaded to the EFGS.

1: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 06.11.2020 – 31.07.2022

2: Check performed on 31 August 2022

This fact sheet has been developed as part of the study “Lessons learned, best practices and epidemiological impact of the common European approach on digital contact tracing to combat and exit the COVID-19 pandemic,” commissioned by the European Commission’s DG CONNECT, Unit H3 – eHealth, Well-Being and Ageing and carried out by empirica Communication and Technology Research. Study team contact: contacttracing@empirica.com, European Commission contact: CNECT-H3@ec.Europa.eu.
Digital contact tracing for COVID-19 in Europe

The COVIDAlert app is used by the Maltese government to combat the COVID-19 pandemic. The app was launched on 18 September 2020 and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the COVIDAlert app has been downloaded more than 115,000 times.¹

Key facts at a glance

- **Mobile**: Link (decommissioned)
- **Launch**: 18 September 2020
- **App status**: Suspended on 6 July 2022
- **Cross-border tracing warning**: Yes (March 2021 – July 2022)
- **Source code**: Link

Main organisations involved

- **Data controller**: Superintendent of Public Health
- **Software developer**: Malta Information Technology
- **Others**: Maltese government, Ministry of Health, Malta Digital Innovation Authority

Key app functionalities

- Notify contacts when positive
- Symptom tracker
- In-app COVID-19 related statistics
- Navigate to external resources
- Call button to a call centre

Data protection

- Data Protection Authority: Office of the Information and Data Protection Commissioner
- Data Protection Impact Assessment¹: Link unavailable

Cross-border tracing and warning

In the period March 2021 – July 2022 the COVIDAlert app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures.

Available information about use and uptake²

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads:</td>
<td>115,695</td>
</tr>
<tr>
<td>App downloads as a share (%) of the population:</td>
<td>22 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes issued:</td>
<td>737</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered:</td>
<td>458</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users:</td>
<td>0.7 % (issued codes)</td>
</tr>
<tr>
<td>Proportion of positive tests among app users that are entered into the app (positive tests uploaded):</td>
<td>0.4 % (entered codes)</td>
</tr>
<tr>
<td>Proportion of diagnosed cases among app users who have previously received an exposure notification through the app:</td>
<td>62 %</td>
</tr>
</tbody>
</table>

¹: Check performed on 31 August 2022
²: Based on the analysis performed in this study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests 18.09.2020 – 06.07.2022.
CoronaMelder is the Dutch app developed as part of the country’s efforts to combat the COVID-19 pandemic. The app was launched on 10 October 2020 and has since been put on hold. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the CoronaMelder app has been downloaded more than 5.8 million times.1

Key facts at a glance

- App architecture
  - Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

- Cross-border tracing and warning
  - In the period December 2020 – April 2022 the CoronaMelder app was part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. More than 1.7 million keys from the Netherlands have been uploaded to the EFGS.

- Available information about use and uptake
  - App downloads: 5.9 million
  - App downloads as a share (%) of the population: 33%
  - Peak number of active users: 3 million
  - Percentage of population who actively used the app (peak): 19%
  - Number of COVID-19 codes entered: 455,083
  - Proportion of all positive tests that occur among app users: 5.7% (entered codes)
  - Ratio of exposure notifications received to positive test results entered: 0.8 – 1.4
  - Proportion of diagnosed cases among app users who have previously received an exposure notification through the app: 7.5%
  - Proportion of app users who have previously received an exposure notification through the app and weren’t notified by manual contact tracing at the time of booking a test: 77%

Main organisations involved

- Data controller
  - Municipal Health Service (GGD)

- Others
  - Ministry of Health, Welfare and Sports (VWS)
  - Working groups of the National Institute for Public Health and Environment (RIVM) and the GGD

Key app functionalities

- Notify contacts when positive
- Call button to a call centre

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1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study of the end of August 2022 and on Ebbers et al., Evaluation CoronaMelder. An overview after 9 months. 28 May 2021. Timeframe of data collection: 10.10.2020 – 22.04.2022
In the period December 2020 - August 2022 Norway offered its citizens a digital contact tracing app in its efforts to combat the COVID-19 pandemic. The Smittestopp app could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. The app has been downloaded more than 1.3 million times.¹

Key facts at a glance

- **App downloads:** 1.3 million
- **App downloads as a share (%) of the population:** 24%
- **Number of COVID-19 codes entered:** 48,351
- **Proportion of all positive tests that occur among app users:** 3.5% (entered codes)

Main organisations involved

- **Data controller:** Norwegian Institute of Public Health
- **Software developer:** Netcompany
- **Others:** Horsk Helsenett

Key app functionalities

- Notify contacts when positive
- In-app COVID-19 related statistics
- Navigate to external resources

1: Check performed on 31 August 2022

This fact sheet has been developed as part of the study “Lessons learned, best practices and epidemiological impact of the common European approach on digital contact tracing to combat and exit the COVID-19 pandemic,” commissioned by the European Commission’s DG CONNECT, Unit H3 – eHealth, Well-Being and Ageing and carried out by empirica Communication and Technology Research. Study team contact: contacttracing@empirica.com; European Commission contact: CNECT-H3@ec.Europa.eu.
The Polish app ProteGO-Safe was used in the period June 2020 – March 2022 to help Poland combat the COVID-19 pandemic. The app could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the ProteGO-Safe app has been downloaded more than 2.9 million times.1

Key facts at a glance

- **App downloads**: 3 million
- **App downloads as a share (%) of the population**: 8%

Main organisations involved

- **Data controller**
  - Chief Sanitary Inspector
- **Others**
  - Ministry of Digital Affairs
  - GovTech Polska
  - Chief Sanitary Inspectorate
- **Additional partners**
  - See app website

Key app functionalities

- Notify contacts when positive
- Symptom tracker
- Diary/journal
- In-app COVID-19 related statistics
- Travel restrictions
- Navigate to external resources

1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022.
Digital contact tracing for COVID-19 in Europe

Portugal developed the StayAway COVID app to combat the COVID-19 pandemic. The app was launched on 1 September 2020 and has since been suspended. It could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the StayAway COVID app has been downloaded more than 3.2 million times.¹

Key facts at a glance

- **Launch**: 1 September 2020
- **Status**: Suspended

Main organisations involved

- **Data controller**: Directorate-General of Health (DGS)
- **Institute of Computer Systems Engineering, Technology and Science (Inesc Tec)**
- **Institute of Public Health of the University of Porto**
- **Keyruptive**
- **Ubsider**
- **The Telecomunications Institute**
- **The Robotics and System Engineering Laboratory**
- **Others**

Key app functionalities

- **Notify contacts when positive**
- **Navigate to external resources**

App architecture

Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

Data protection

Data Protection Authority: Portuguese Data Protection Authority (CNPD)

Cross-border tracing and warning

Portugal did not connect to the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications (keys) in case of detected exposures. Portugal cited technical and societal aspects (i.e. the lack of societal confidence in the app’s efficiency and effectiveness) as the main reasons for not connecting.

Available information about use and uptake²

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads:</td>
<td>3.2 million</td>
</tr>
<tr>
<td>App downloads as a share (%) of the population:</td>
<td>31 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes issued:</td>
<td>14,741</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered:</td>
<td>3,137</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users:</td>
<td>1.9 % (issued codes)</td>
</tr>
<tr>
<td>Proportion of positive tests among app users that are entered into the app (positive tests uploaded):</td>
<td>21.3 %</td>
</tr>
</tbody>
</table>

¹: Check performed on 31 August 2022
²: Based on the analysis performed in this study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 16.04.2020 – 31.09.2021
Slovenia developed the #OstaniZdrav app to combat the COVID-19 pandemic. The app was launched on 17 August 2020. It can be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the #OstaniZdrav app has been downloaded more than 475,000 times.¹

### Key facts at a glance

<table>
<thead>
<tr>
<th>Data controller</th>
<th>Ministry of Public Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software developer</td>
<td>PC7</td>
</tr>
<tr>
<td>Others</td>
<td>National Institute of Public Health</td>
</tr>
</tbody>
</table>

### Main organisations involved

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notify contacts when positive</td>
<td>Link to external resources</td>
</tr>
<tr>
<td>Navigate to external resources</td>
<td>Diary/journal</td>
</tr>
<tr>
<td>Manage vaccine and test certificates</td>
<td>Create QR codes for events</td>
</tr>
<tr>
<td>Check-in with QR code and check-in history</td>
<td></td>
</tr>
</tbody>
</table>

### Available information about use and uptake²

- **App downloads:** 475,687
- **App downloads as a share (%) of the population:** 23%
- **Peak number of active users:** 107,380
- **Percentage of population who actively used the app (peak):** 6.1%
- **Number of COVID-19 codes entered:** 24,906
- **Proportion of all positive tests that occur among app users:** 3.3% (entered codes)

¹: Check performed on 31 August 2022
²: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 07.04.2021 – 30.07.2022
### Digital contact tracing for COVID-19 in Europe

**Radar COVID**

The Radar Covid app was developed for the Spanish population to combat the COVID-19 pandemic. The app was launched on 21 August 2020 and is currently active. The app, which can be installed on citizens’ smartphones, captures anonymised interactions between smartphones based on Bluetooth technology and issues warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Radar Covid app has been downloaded more than 8.5 million times.

### Key facts at a glance

**Data controller**
- Ministry of Health and the Autonomous Communities

**Others**
- General Secretariat of Digital Administration
- Secretary of State for Digitalisation and Artificial Intelligence
- Ministry of Economic Affairs and Digital Transformation

**Key app functionalities**
- Notify contacts when positive
- Diary/journal
- Navigate to external resources

**App architecture**
- Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

**Data protection**
- Data Protection Authority: Spanish Data Protection Authority (AEPD)
- Data Protection Impact Assessment:
  - Available information about use and uptake:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads</td>
<td>8.5 million</td>
</tr>
<tr>
<td>App downloads as a share (%) of the population</td>
<td>18 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes issued</td>
<td>3,324,839</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered</td>
<td>123,996</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users:</td>
<td>25.9 % (issued codes)</td>
</tr>
<tr>
<td>Proportion of positive tests among app users that are entered into the app</td>
<td>3.7 %</td>
</tr>
</tbody>
</table>

1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 21.08.2020 – 29.07.2022

*This fact sheet has been developed as part of the study “Lessons learned, best practices and epidemiological impact of the common European approach on digital contact tracing to combat and exit the COVID-19 pandemic,” commissioned by the European Commission’s DG CONNECT, Unit H3 – eHealth, Well-Being and Ageing and carried out by empirica Communication and Technology Research. Study team contact: contacttracing@empirica.com; European Commission contact: CNECT-H3@ec.europa.eu.*
In the period June 2020 - March 2022 Switzerland offered its citizens a digital contact tracing app in its efforts to combat the COVID-19 pandemic. The SwissCovid App could be installed on citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. The SwissCovid App has been downloaded more than 3.8 million times.¹

Key facts at a glance

- **Web:** Link
- **Launch:** 25 June 2020
- **App status:** Suspended
- **Cross-border tracing warning:** Partly
- **Source code:** Link

Main organisations involved

- **Data controller:** Federal Office of Public Health (FOPH)
- **Operating system provider:** Federal Office for Information Technology, Systems and Telecommunication (FOITT)
- **Others:** Federal Institute of Technology in Zurich (ETH), Federal Institute of Technology in Lausanne (EPFL)
- **Additional partners:** See app website

Key app functionalities

- Notify contacts when positive
- In-app COVID-19 related statistics
- Navigate to external resources
- Call button to a call centre
- Check-in with QR code and check-in history
- Create QR codes for events

App downloads: 3.8 million
App downloads as a share (% of the population): 44 %
Peak number of active users: 2.3 million
Percentage of population who actively used the app (peak): 26.2 %
Number of COVID-19 codes entered: 204,862
Proportion of all positive tests that occur among app users: 5.9 % (entered codes)
Ratio of exposure notifications received to positive test results entered: 2.5 – 4
Total number of exposure notifications generated: 172,474,208
Proportion of diagnosed cases among app users who have previously received an exposure notification through the app: 19 % (Alpha) – 41 % (Omicron)
Median time between exposure and receipt of exposure notification through the app: 2 days

Cross-border tracing and warning

The SwissCovid App was not part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications in case of detected exposures. Despite great interest from non-EU countries, the scope of application of the EFGS was limited to EU and Member States. However, Switzerland and Germany worked together on making their two apps interoperable.

Available information about use and uptake³

<table>
<thead>
<tr>
<th>Information</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>App downloads:</td>
<td>3.8 million</td>
</tr>
<tr>
<td>App downloads as a share (% of the population)</td>
<td>44 %</td>
</tr>
<tr>
<td>Peak number of active users:</td>
<td>2.3 million</td>
</tr>
<tr>
<td>Percentage of population who actively used the app (peak):</td>
<td>26.2 %</td>
</tr>
<tr>
<td>Number of COVID-19 codes entered:</td>
<td>204,862</td>
</tr>
<tr>
<td>Proportion of all positive tests that occur among app users:</td>
<td>5.9 % (entered codes)</td>
</tr>
<tr>
<td>Ratio of exposure notifications received to positive test results entered:</td>
<td>2.5 – 4</td>
</tr>
<tr>
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<td>172,474,208</td>
</tr>
<tr>
<td>Proportion of diagnosed cases among app users who have previously received an exposure notification through the app:</td>
<td>19 % (Alpha) – 41 % (Omicron)</td>
</tr>
<tr>
<td>Median time between exposure and receipt of exposure notification through the app:</td>
<td>2 days</td>
</tr>
</tbody>
</table>

¹: Check performed on 31 August 2022. The app is interoperable with the German Corona-Warn-App but not connected to the EFGS
²: Last accessed on 31 March 2022
³: Based on the analysis performed in the study of the end of August 2022 and on publications by Daniore et al., 2021: https://publichealth.jmir.org/2021/12/e30004 and Ballouz et al., 2022: https://publichealth.jmir.org/2022/5/e35653. Timeframe of data collection for number of COVID-19 codes and positive tests: 25.06.2020 – 31.03.2022.
The digital contact tracing app NHS COVID-19 was developed in support of combating the COVID-19 pandemic in England and Wales. The app was launched on 24 September 2020. It can be installed on English and Welsh citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the NHS COVID-19 app has been downloaded more than 31 million times.¹

The NHS COVID-19 app was not part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications in case of detected exposures. Despite great interest from non-EU countries, the scope of application of the EFGS was limited to EU Member States. However, the app is interoperable with the apps developed for Northern Ireland (StopCOVID NI) and Scotland (Protect Scotland).

Cross-border tracing and warning

The NHS COVID-19 app was not part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications in case of detected exposures. Despite great interest from non-EU countries, the scope of application of the EFGS was limited to EU Member States. However, the app is interoperable with the apps developed for Northern Ireland (StopCOVID NI) and Scotland (Protect Scotland).

Available information about use and uptake³

App downloads: 31 million
App downloads as a share (%) of the population: 52 %

¹: Check performed on 31 August 2022
²: Last accessed on 31 March 2022
³: Based on the analysis performed in the study at the end of August 2022.
The digital contact tracing app StopCOVID NI was developed in support of combating the COVID-19 pandemic in Northern Ireland. The app was launched on 30 July 2020. It can be installed on Northern Ireland’s citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus.¹

**Key facts at a glance**

- **Launch**: 30 July 2020
- **Status**: Active
- **Source code**: Link

**Main organisations involved**

- **Data controller**: Health and Social Care Northern Ireland, Department of Health
- **Software developer**: NearForm
- **Others**: Expleo, Department of Health

**Key app functionalities**

- **Notify contacts when positive**
- **Self-isolation countdown**
- **Self-isolation certificate**

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1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
The digital contact tracing app Protect Scotland was developed in support of combating the COVID-19 pandemic in Scotland. The app was launched on 10 September 2020 and has since been suspended. It could be installed on Scottish citizens’ smartphones to capture anonymised interactions between smartphones based on Bluetooth technology and issue warnings about close contacts with persons who have tested positive for the coronavirus. Since its launch, the Protect Scotland app has been downloaded more than 2.3 million times.1

Key facts at a glance

- **Launch:** 10 September 2020
- **App status:** Suspended on 29 April 2022
- **Cross-border tracing warning:** Partially
- **Source code:** Link

Main organisations involved

- **Data controller:** Scottish Government
- **Software developer:** NearForm
- **Others:** Public Health Scotland, NES Digital Service (part of NHS Education for Scotland), Amazon Web Services, NHS National Services Scotland, Gov.UK Notify, Cello Signal Ltd, Scottish Local Authorities

Key app functionalities

- Notify contacts when positive
- Self-isolation certificate

**App architecture**

Decentralised: the anonymised interactions (keys) are uploaded to a central server, but the assessment of risk interactions (matching of keys of users with a confirmed infection) happens on the user’s smartphone only.

**Data protection**

Data Protection Authority: Scottish Government

Data Protection Impact Assessment²: Download

**Cross-border tracing and warning**

The Protect Scotland app was not part of the European Federation Gateway Service (EFGS), which enables apps from different Member States to talk to each other and exchange cross-border notifications in case of detected exposures. Despite great interest from non-EU countries, the scope of application of the EFGS was limited to EU Member States. However, the app is interoperable with the apps developed for England and Wales (NHS COVID-19 app) and Northern Ireland (StopCOVID NI).

**Available information about use and uptake³**

- **App downloads:** 2.3 million
- **App downloads as a share (%) of the population:** 43 %
- **Number of COVID-19 codes issued:** 407,081
- **Number of COVID-19 codes entered:** 68,355
- **Proportion of all positive tests that occur among app users:** 57.9 % (issued codes), 9.7 % (entered codes)
- **Proportion of positive tests among app users that are entered into the app (positive tests uploaded):** 16.8 %

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1: Check performed on 31 August 2022
2: Last accessed on 31 March 2022
3: Based on the analysis performed in the study at the end of August 2022. Timeframe of data collection for COVID-19 codes and positive tests: 10.09.2020 – 25.11.2021

This fact sheet has been developed as part of the study “Lessons learned, best practices and epidemiological impact of the common European approach on digital contact tracing to combat and exit the COVID-19 pandemic,” commissioned by the European Commission’s DG CONNECT, Unit H3 – eHealth, Well-Being and Ageing and carried out by empirica Communication and Technology Research. Study team contact: contacttracing@empirica.com; European Commission contact: CNECT-H3@ec.Europa.eu