

Supporting countries to use geospatial data and technologies to achieve SDG 3

# Starter kit -

# ArcGIS Solution Coronavirus Case Dashboard

# Version 1.1 (06.05.2020)



In collaboration with and with the support of:



# **Revision History**

Version	Revision Date	Comment	Ву
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# **Table of Contents**

1.	Backgro	und	5
2.	Introduc	ction	5
3.	ArcGIS S	Solution for Coronavirus Response	5
4.	Coronav	virus Case Dashboard	6
4	.1 Das	hboard components	6
	4.1.1	Coronavirus Case Dashboard template	7
	4.1.2	Feature layer	7
	4.1.3	Coronavirus Case Dashboard Web map	8
4	.2 Hov	w to operationalize the dashboard	8
	4.2.1	Prepare your data	9
	4.2.2	Update the feature layer with your data	.11
	4.2.3	Edit the Coronavirus Case Dashboard web map	.19
	4.2.4	Configure the dashboard	.22
	4.2.5	Share your dashboard	.25
	4.2.6	Update your dashboard with new data	.25
5.	Other re	esources	.29
Anr	nex 1 – Co	omplete list of fields in the Cases table	30

# **Purpose and audience**

The purpose of this document is to guide new users on how to operationalize the Coronavirus Case Dashboard.

The audience for this document are ArcGIS Online users/subscribers who would like to operationalize the Coronavirus Case Dashboard in order to respond to the on-going COVID-19 pandemic.

### **Abbreviations**

AeHIN	Asia eHealth Information Network
AGOL	ArcGIS Online
COVID-19	Coronavirus disease
Esri	Environmental Systems Research Institute
GIS	Geographic Information System
GOARN	Global Outbreak Alert and Response Network
HGLC	Health GeoLab Collaborative
PHEIC	Public Health Emergency of International Concern
SDG	Sustainable Development Goal
WHO	World Health Organization

### 1. Background

The Health GeoLab Collaborative (HGLC)<sup>1</sup> is a collective of institutions and individuals sharing the same vision - for low- and middle-income countries in Asia and the Pacific to fully benefit from the power of geospatial data and technologies to reach the health-related SDG 3 - and ready to engage their respective skills, experience, and resources to achieve it.

The HGLC has been established and builds on the work done as well as the network and documents developed through the activities of the AeHIN GIS Lab over the 2016-2017 period.

The HGLC uses the 4Ts (Training, Tooling, Testing and Teaming) approach to strengthen incountry capacity. The present starter kit has been developed as part of this approach and with the objective to be used by the largest number of users possible.

This starter kit is a living document made to evolve based on the inputs received from the users. Please therefore don't hesitate to contact us at <u>info@healthgeolab.net</u> if you have any suggestions for improvement.

Should you use this document as part of your activities and would like to have your organization recognized as one of document's users, please contact us at the email address provided above.

### 2. Introduction

For a few months now, the Coronavirus disease (COVID-19) pandemic has swept all over the world with the World Health Organization declaring it a Public Health Emergency of International Concern (PHEIC). Public health institutions and other organization are looking for ways to better monitor the situation in their respective communities and respond accordingly.

As a way to help, Esri is offering public health institutions and other organizations fighting COVID-19 a complimentary six-month ArcGIS Online subscription which gives access to the ArcGIS Hub Coronavirus Response template and the ArcGIS Solution for Coronavirus Response.<sup>2</sup>

The present kit focuses on one of the apps in the ArcGIS Solution for Coronavirus Response which is the Coronavirus Case Dashboard.

# 3. ArcGIS Solution for Coronavirus Response

The ArcGIS Solution for Coronavirus Response is a collection of maps and apps that can be used by public health and other emergency response agencies to understand the impact of COVID-19 and share authoritative information about the pandemic with the community.

<sup>&</sup>lt;sup>1</sup> <u>http://healthgeolab.net</u>

<sup>&</sup>lt;sup>2</sup> <u>https://coronavirus-resources.esri.com/</u>

To deploy the ArcGIS Solution for Coronavirus Response, follow these steps:

- 1. On your browser, go to this link: <u>https://links.esri.com/solutions/app/CoronavirusResponse/</u>
- 2. When prompted, log in to your ArcGIS Online account.
- 3. You will be directed to the ArcGIS Solution for Coronavirus Response page. Click *Get now*. (Figure 1)

	Coronavirus Response	×
Coronavirus Butiness Continuity     21 April 2020	Coronavirus Response is a collection of maps and that can be used by Public Health agencies to und the impact of the coronavirus (COVID-19) and sha authoritative information about the pandemic with community.	derstand are
	When you deploy Coronavirus Response in your ArcGIS Organization, you will get a ArcGIS applications used to monitor coronavirus cases, track the impact on public gr places (for example, schools, government buildings, common places), inventory test and share this information with the public.	athering
	Public Health agencies can configure and share the entire collection of coronavirus n maps and applications; or configure and share an individual map or application that their specific needs.	
	Learn More	et Now

Figure 1

Once deployed, different items will appear inside the Coronavirus Response folder in the Content page of your AGOL account which include applications, maps, feature layers, and documents. The complete list of the items included in the ArcGIS Solution for Coronavirus Response can be seen in this page.<sup>3</sup>

These maps and apps present templates of solutions that are typically needed to monitor and respond to the COVID-19 situation in a community. You can configure, use, and share the entire collection or only those maps and apps that are needed by your organization.

# 4. Coronavirus Case Dashboard

The Coronavirus Case Dashboard is the application that is of most interest to organizations/institutions wanting to show the COVID-19 situation in their community.

The following sections discuss the different components of the Coronavirus Case Dashboard and how to operationalize it.

#### 4.1 Dashboard components

The Coronavirus Case Dashboard utilizes different components to be operationalized. These components can be found in the Coronavirus Response folder in the Content page of your AGOL account. The following sections discuss these components in detail.

<sup>&</sup>lt;sup>3</sup> <u>https://solutions.arcgis.com/local-government/help/coronavirus-response/</u>

#### 4.1.1 Coronavirus Case Dashboard template

The Coronavirus Case Dashboard is a dashboard template presenting the COVID-19 cases and testing information of an area. (Figure 2) Across the top of the dashboard are the commonly sought for metrics such as active and total cases, recoveries, deaths, negative tests, and number of hospitalized.

The dashboard presents the breakdown of the cases such as the confirmed cases, deaths, and hospitalization by age and gender; the sources of exposure; the cases, testing, and hospitalization over time; and the distribution of cases by location accompanied by a map.

This application can be configured according to the needs of your organization and the data availability as some of the information needed for the dashboard may not be collected by or accessible to your organization.



Figure 2

You can learn more about ArcGIS dashboards in general from this ArcGIS documentation.<sup>4</sup>

#### 4.1.2 Feature layer

The dashboard pulls the information it displays from the CoronavirusCases feature layer. This feature layer has two sublayers – Reporting Areas and Cases.

The Reporting Areas are the geographic boundary (or boundaries) of the areas of which you are presenting the COVID-19 situation. A reporting area can be any administrative or operational division as used in your data collection such as village, municipality, province, health zone, etc.

This sublayer has two fields: Name and Aggregate Area. The Name field stores the name of the reporting area. The Aggregate Field is used when you would like to present the information by differing jurisdiction or division. For example, you would like to show the COVID-19 situation for the whole province as well as the breakdown for the different municipalities within that province. In this case, the boundary of each location would be

<sup>&</sup>lt;sup>4</sup> <u>https://doc.arcgis.com/en/dashboards/get-started/what-is-a-dashboard.htm</u>

added to the Reporting Areas feature layer and the Aggregate Area field would be populated with Yes for the Province. (Figure 3)

Name	<ul> <li>Aggregate Area</li> </ul>	
Province	Yes	
Municipality C	No	
Municipality A	No	
Municipality D	No	
Municipality B	No	



The Cases sublayer is a table that contains the COVID-19 data such as active cases, recoveries, deaths, positive and negative test results, total test, sources of exposure, hospitalizations, and breakdown by age and gender. The complete list of fields in the Cases table is presented in Annex 1. However, as mentioned before, it is possible that not all of the data for these fields are available or accessible to your organization.

A row in the Cases table represents one date-based report. For example, many public health agencies including Ministries of Health are reporting COVID-19 data daily. Each day's numbers would have a corresponding row in the Cases table. Alternatively, the data can be aggregated to represent a few days, a week, a month, etc.

#### 4.1.3 Coronavirus Case Dashboard Web map

While the dashboard pulls the information from the CoronavirusCases feature layer, the Coronavirus Case Dashboard web map is needed as a container for this source as well as to visualize the COVID-19 data.

Included in the web map is the CoronavirusCases\_current feature layer view shown as the Active Cases and Current Cases map layers. As a feature layer view, this contains the same data as the CoronavirusCases feature layer but has already been configured to show only the total active cases. More information on feature layer view can be found in this page.<sup>5</sup>

It will be discussed in the next section how you can modify the symbology of the layers to better showcase your data in the web map.

#### 4.2 How to operationalize the dashboard

Operationalizing the Coronavirus Case dashboard is done through 4 main steps:

- 1. Prepare your data
- 2. Update the CoronavirusCases feature layer with your data
- 3. Edit the Coronavirus Case Dashboard web map
- 4. Configure the dashboard
- 5. Share your dashboard

<sup>&</sup>lt;sup>5</sup> https://www.arcgis.com/apps/Cascade/index.html?appid=1884d94a00074098add274c84c8209e2

The following sections describe these steps in detail.

#### 4.2.1 Prepare your data

In order to quickly operationalize the Coronavirus Case Dashboard, it is best to have the COVID-19 data ready and available.

It is important that there is a corresponding boundary for each of the reporting area in the Cases table. By default, the matching is done through the values in the Name fields of the Reporting Areas and Cases sublayers. However, using the actual name of the reporting area may create problems particularly if there are duplicate names (areas with the same name). It is then advisable to use a unique code for each area (taken from a master list, if possible) as the value to match to avoid this problem. Example of unique codes from a master list is the Philippines Standard Geographic Code (PSGC) for each administrative division in the country.<sup>6</sup> Additional letters such as "PH" (for Philippines) can be added at the beginning of each code to prevent the removal of the leading "0" as can happen in spreadsheet programs.

#### 4.2.1.1 Reporting Areas

For the Reporting Areas, you must have a polygon shapefile or file geodatabase corresponding to the boundaries of the areas which your COVID-19 data represents.

Your shapefile or file geodatabase must have the following fields in the attribute table:

- "Name" to contain the name of the reporting areas
- "RA\_ID" to contain the unique code of each reporting area
- "Aggre\_area" to indicate whether the reporting area is an Aggregate Area or not (Yes or No).

Note: The Aggregate Area field is shortened into "Aggre\_area" to accommodate the 10-character limit for field names for those using shapefile.

If you have only one reporting area, you can indicate No in the Aggregate Area field or leave it empty.

You can edit the attribute table in ArcMap<sup>7</sup>, ArcGIS Online<sup>8</sup>, or ArcGIS Pro<sup>9</sup>. However, editing the attribute table when you have a large number of reporting areas can be time consuming. As an alternative, you may join the shapefile to an Excel table containing the unique codes which you can do in ArcMap<sup>10</sup>, ArcGIS Online<sup>11</sup>, and ArcGIS Pro<sup>12</sup>.

<sup>&</sup>lt;sup>6</sup> <u>https://psa.gov.ph/classification/psgc/?q=psgc/municipalities&page=1</u>

<sup>&</sup>lt;sup>7</sup> <u>https://desktop.arcgis.com/en/arcmap/latest/manage-data/tables/editing-a-value-in-a-table-cell.htm</u>

<sup>&</sup>lt;sup>8</sup> <u>https://doc.arcgis.com/en/arcgis-online/manage-data/work-with-tables.htm</u>

<sup>&</sup>lt;sup>9</sup> <u>https://pro.arcgis.com/en/pro-app/help/editing/edit-feature-attributes.htm</u>

<sup>&</sup>lt;sup>10</sup> <u>https://desktop.arcgis.com/en/arcmap/latest/manage-data/tables/joining-attributes-in-one-table-to-another.htm</u>

<sup>&</sup>lt;sup>11</sup> https://doc.arcgis.com/en/arcgis-online/analyze/join-features.htm

<sup>&</sup>lt;sup>12</sup> https://pro.arcgis.com/en/pro-app/help/data/tables/joins-and-relates.htm

Once you have your final shapefile or file geodatabase, save it in a compressed (.zip) file with the date when it is created.

#### 4.2.1.2 Cases table

You would normally have your COVID-19 situation data in a tabular form. What is needed to be done is to transfer the data to the form required by the dashboard.

For the Cases table, follow these steps:

- 1. Make sure you are logged in to your AGOL account.
- 2. In the Coronavirus Response folder in the Content page, look for the *CoronavirusCasesSources* CSV table. Download the table by clicking the 3 dots along its name and choosing *Download*. (Figure 4)

Content		My Content	My Favorites	My Groups	My Organizat		ng Atlas
↑ Add Item	Q Search Coronavirus Resp	oonse			🖩 Table 🗏	Date Modified	†  Filter
Folders Et	1 - 52 of 52 in Coronavirus Response	Ð					
Q, Filter folders	Title					Modified	•
All My Content	CoronavirusCaseSources	CSV		ô	4		
ĥ	Coronavirus Case Dashbo	ard Web Map		View ite	em details		
🖻 Coronavirus Response	CoronavirusCases		ayer (hosted)	Downlo	ad D		
	🔲 🗃 Coronavirus Response	Solution		ô	\$		
Filters	Dashboard	Dashboar	d	å	☆		
<ul> <li>Categories</li> <li>No Categories Yet</li> </ul>	Dashboard	e Dashboar	d	ô	☆		
Categories allow members to							

Figure 4

- 3. Open the downloaded table in a spreadsheet program such as Microsoft Excel.
- 4. Insert a field that will contain the unique codes of the reporting areas by right clicking on Column B and choosing *Insert*. (Figure 5)



Figure 5

5. In the new field that appears, type "RA\_ID" as the field title. (Figure 6)



- 6. The reporting area name goes in the "name" field while the unique code of each area goes in the "RA\_ID" field.
- 7. As mentioned in the previous section, each row represents one date-based report. This can be the actual date for the report or, for aggregated data, this can be the latest update date. The "reportdt" field is a date/time field and should be populated in UTC format. (For example, if the data is for 22 April 2020, 12:00:00 Philippine Standard Time, the value in the "reportdt" field should be 04/22/2020 04:00:00.)
- Populate the rest of the table with the available data for each reporting area. Refer to Annex 1 to understand what data each field is asking for.
   Note: It is possible that you do not have the data for all the fields. If this is the case, just leave these fields blank.
- 9. Save your file with the file name containing the date when it is created or the update date of your data.

#### 4.2.2 Update the feature layer with your data

Once you have your data ready, you can update the CoronavirusCases feature layer in AGOL.

#### 4.2.2.1 CoronavirusCases feature layer

Before you upload your data on the reporting areas and cases table, you must do the following to the CoronavirusCases feature layer to ensure that the unique code of the reporting areas is used as the matching value between the shapefile and table:

- 1. Make sure you are logged in to your AGOL account.
- 2. Inside the Coronavirus Response folder in the Content page, look for the CoronavirusCases feature layer. Click the 3 dots along its name and choose *View item details*. (Or click the feature layer name.) (Figure 7)

Content	M	ly Content My Favorites	My Groups My Organiza	ation Living Atlas
Add Item	Q Search Coronavirus Response		I Table	Date Modified
folders Et	1 - 52 of 52 in Coronavirus Response			
Q, Filter folders	Title			Modified
All My Content	CoronavirusCases	Feature Layer (hosted)	ů x	
ĥ	Coronavirus Response	Solution	View item details	
🖻 Coronavirus Response			Open in Map Viewer	
	Coronavirus Case Dashboard	Dashboard	Add to new map	
ilters	Dashboard	Dashboard	Open in Map Viewer BET	Δ.
<ul> <li>Categories</li> </ul>	Community Impact Mobile	Dashboard	Add to new map with full editing control	
No Categories Yet	Dashboard		Open in Scene Viewer	
Categories allow members to organize items consistently and	Community Impact Dashboard	Dashboard	open in ArcMap	
provide a simple way to browse content in the organization.	School Closings	Web Mapping Application	Open in ArcGIS Pro	

3. Go to the Data tab. Choose *Reporting Areas* as the Layer and click the *Fields* button. (Figure 8)

Home Gallery M	Map Scene	Notebook	Groups	Content	Organization		QĹ		
CoronavirusCases					Overview	Data		Usage	Settings
Layer: Reporting Areas 🗘								Table	e Fields
+ Add	٩	Search Fields					I Tabl	e 📑 Order in Table	e     Filter

Figure 8

- 4. Click the + Add button. (Figure 8)
- 5. In the panel that opens, enter the following values: (Figure 9)
  - a. Field name: RA\_ID
  - b. Display name: Reporting Area ID
  - c. Type: String
  - d. Length: 256 (default)
  - e. Allow Null Value: Uncheck

Field Name:	RA_ID	
Display Name:	Reporting Area ID	
Туре:	String	•
Length:	256	
Default Value: (Optional)		
Allow Null Values:		

Figure 9

- 6. Click *Add New Field*. The new field will be added at the bottom of the list.
- 7. Click the display name *Reporting Area ID*. You will be directed to the settings of that field.
- 8. In the Settings for Unique, click *Edit*. (Figure 10)

CoronavirusCases		Overview	Data	Visualization	Usage Settings
ayer: Reporting Areas 🛊					Table Fields
Q. Search Fields	Reporting Area ID 🥒				×
DBJECTID Name Aggregate Area SlobalID CreationDate Creator	Description A brief summary of the item is not available Field Value Type @ Field Value type is not available. Settings	le:		т	Create List Delete Details yrpe: String ame: RA_ID
iditOate iditor ihape_Area ihape_Length	Allows Null Values Editable Default Value	No Yes None			
leporting Area ID	Length Unique	256 No		🖉 Edit	

Figure 10

9. Check the box beside "Field contains unique values." Click *Save*. (Figure 11) The setting for Unique will change to Yes.

Allows Null Values	No	
Editable	Yes	
Default Value	None	
Length	256	
Unique	No	
Field contains unique values. Checking field for unique values may		



10. Add the same field for the Cases table. Choose *Cases* as the Layer and make sure the *Fields* button is selected. (Figure 12)

CoronavirusCases	Overview	Data		Usage	Settings
Layer: Cases 🗢				Table	Fields
+ Add Q Search Fields			🖬 Table	🗏 Order in Table	Filter

Figure 12

- 11. Click +Add. (Figure 12)
- 12. In the panel that opens, enter the following values:
  - a. Field name: RA\_ID
  - b. Display name: Reporting Area ID

- c. Type: String
- d. Length: 256 (default)
- e. Allow Null Value: Uncheck
- 13. Click *Add New Field*. The new field will be added at the bottom of the list.
- 14. Go to the Visualization tab. (Figure 13)





16. Ensure that *Reporting Area ID* {*RA\_ID*} is in the box "These field attributes will display:" Click *OK*. (Figure 15)



Figure 15

17. Click Save Layer. (Figure 16)

CoronavirusCases	Overview	Data	Visualization	Usage	Settings
			s	ave Layer	Save As New Layer
Figur					

The Reporting Area ID field will now appear in the Table for the Reporting Areas and Cases sublayer. (Figure 17)

CoronavirusCases		Overview	Data		Usage	Settings
Layer: Reporting Areas 🗘					Та	ble Fields
Double-click a value in the table to change it.				Data Last Upd	ated: Apr 26, 2	2020, 9:14:01 PN
Reporting Areas (Features: 0, Selected: 0)						≡
Name	Aggregate Area		Reporting	Area ID		
No Data Found						
	Figu	re 17				

#### 4.2.2.2 Reporting Areas

There are several ways to update the Reporting Areas sublayer with your data<sup>13</sup>:

- Load data from a shapefile or file geodatabase on ArcGIS Online<sup>14</sup>
- Copy and paste features using the clipboard in ArcGIS Pro<sup>15</sup>
- Use the Append tool in ArcGIS Pro

To load your data using ArcGIS Online:

1. Making sure that you are in the Item details page of the CoronavirusCases feature layer, go to the Data tab. Choose *Reporting Areas* as the Layer and click the *Table* button. (Figure 18)

CoronavirusCases		Overview	Data		Usage	Settings
Layer: Reporting Areas 🗢					Tai	ble Fields
Double-click a value in the table to change it.				Data Last Updat	ed: Apr 26, 20	20, 10:10:10 PM
Reporting Areas (Features: 0, Selected: 0)						=
Name	Aggregate Area		Reporting	g Area ID		
No Data Found						

- Figure 18
- 2. Click the menu button (3 lines) at the top right corner of the table and choose *Append Data to Layer*. (Figure 19)

<sup>&</sup>lt;sup>13</sup> <u>https://solutions.arcgis.com/local-government/help/coronavirus-response/get-started/load-data/</u>

<sup>&</sup>lt;sup>14</sup> <u>https://doc.arcgis.com/en/arcgis-online/manage-data/manage-hosted-feature-layers.htm#APPEND</u>

<sup>&</sup>lt;sup>15</sup> https://pro.arcgis.com/en/pro-app/help/editing/copy-and-paste-using-the-clipboard.htm



Figure 19

- 3. In the panel that opens, click *Browse* and navigate to the location of your compressed shapefile or file geodatabase.
- 4. Choose whether the content of your compressed file is a shapefile or file geodatabase. Click *Upload and Continue*. (Figure 20)

Append Data 🛿	×
Upload the file that contains the data with which to a layer.	»ppend or update you
Supported file types:	
Comma separated values (.csv)	
• Excel (.xls or .xlsx)	
<ul> <li>GeoJSON (.geojson)</li> </ul>	
<ul> <li>Compressed (.zip) shapefile or file geodatabase</li> </ul>	
Filename:	
Filename: D:\Compressed_Shapefile_13042020.zip	Browse
Filename: D:\Compressed_Shapefile_13042020.zip Contents:	Browse
D:\Compressed_Shapefile_13042020.zip	Browse
D:\Compressed_Shapefile_13042020.zip Contents:	Browse

Figure 20

5. As this is the first time you are uploading your data, uncheck the box beside "Update existing features". Click *Show field matching*. (Figure 21)



Figure 21

6. Match the field "aggregatearea" in the feature layer to "aggre\_area" in your compressed file. The "name" and "RA\_ID" fields are automatically matched because each has the same field name in the shapefile and in the Reporting Areas sublayer. Click Apply Updates. (Figure 22)

Update existing features:	
	e to update existing features by matching a field ntifier. If this option is left unchecked, all new features.
Update existing feature	es
	Hide field matching
Fields	Match Field
aggregatearea	aggre_area 🗘
name	name
RA ID	RA_ID

Figure 22

The Reporting Areas table should now show your data.

#### 4.2.2.3 Cases table

To upload your data to the Cases sublayer, follow these steps:

1. Making sure that you are in the Item details page of the CoronavirusCases feature layer, go to the Data tab. Choose *Cases* as the Layer and click the *Table* button. (Figure 23)

Coronavi	rusCases				Overview	Data	Visualization Usaç	je Settings
Layer: Cas	es 💠							Table Fields
Double-click a	value in the table to cha	nge it.					Data Last Updated: Apr	26, 2020, 10:34:27 PM
Cases (Featur	es: 0, Selected: 0)							Ξ
Name	Date Reported	Positive	Negative	Pending	Total tests	Deaths	Recovered	Active Case:
No Da	ata Found							

Figure 23

2. Click the menu button (3 lines) at the top right corner of the table and choose *Append Data to Layer*. (Figure 24)



Figure 24

3. In the pane that opens, click *Browse* and navigate to the location of the CoronavirusCasesSources CSV table on your computer. Click *Upload and Continue*. (Figure 25)



Figure 25

4. As this is the first time you are uploading your data, uncheck the box beside "Update existing features". Click *Show field matching*. (Figure 26)



Figure 26

5. Notice that all the fields which you have populated are automatically matched with the corresponding fields in the Cases table. Click *Apply Updates*. (Figure 27)

Update existing feature	and the second
Fields	I matching Match Field
active	active
casesageother	<none></none>
casesagerange1	casesagerange1
casesagerange10	<none></none>
casesagerange2	casesagerange2
casesagerange3	casesagerange3

Figure 27

The Cases table should now show your data. (The Reporting Area ID is the last field in the table.)

#### 4.2.3 Edit the Coronavirus Case Dashboard web map

You can now edit the Coronavirus Case Dashboard web map to visualize your COVID-19 data.

#### 4.2.3.1 Zoom in to your reporting areas

1. In the Coronavirus Response folder in the Content page of your AGOL account, look for the Coronavirus Case Dashboard Web Map. Click the 3 dots along its name and choose *Open in Map Viewer*. (Figure 28)

Content		My Content	My Favorites	My Gro	ups My Orga	anization Liv	ving Atlas
7 Add Item	Q Search Coronavirus Res	oonse			I Table	🗐 Date Modified	Filter
Folders 🖆	1 - 52 of 52 in Coronavirus Response	9					
Q Filter folders	Title					Modified	
All My Content	🔲 🎩 Coronavirus Case Dashbo	ard Web Map		ô		A ···	
ĥ	CoronavirusCases	Feature	ayer (hosted)	ô	View item details		
🟱 Coronavirus Response			yer (nosted)		Open in Map Viewer		
	🔲 👼 Coronavirus Response	Solution		ô	Open in Map Viewer	BETA	
	Coronavirus Case Dashbo	ard Dashboar	d	ů	Open in ArcMap		
Filters	🔲 🏨 Coronavirus Case Mobile	Dashboar	d	â	Open in ArcGIS Pro		
✓ Categories	Dashboard				Create Presentation		
No Categories Yet	Dashboard	a Dashboar	d	ů		☆ …	

Figure 28

The web map will open and you will see the image below. At the moment, the map is centered on the location of Taiwan. (Figure 29)

Home 🔍 Coronavirus Case Dashboard 🧪

New Map ♡ Create Presentation

🗐 Details 🌁 Add 👻 🛛 🔠 Basemap 🛛 🕅 Ar	nalysis 🛛 🖶 Save 🗸 📾 Share 🚔 Print 🗸   🚸 Directions 🚔 Measure 🏦 Bookmarks 🛛 Find address or place	
Details MAd      HBasemap	Sanning Fuzhou	
	Jiepang Shantou Lufeng Shanwei Kaohsiung	

Figure 29

2. To zoom in to the location of your reporting areas, hover your mouse pointer over the Active Cases map layer to see the options below it. Click the 3 dots at the end which says *More Options* and choose *Zoom to*. (Figure 30)



Figure 30

Your map will now be zoomed in to the location of your reporting areas. You may
use the Zoom In or Zoom Out button (or the wheel of your mouse) to better position
the reporting areas to be the focus of the map. Click the *Save* button to save your
map and regularly do so after you make significant changes in your web map. (Figure
31)



Figure 31

#### 4.2.3.2 Symbolize your map data

You may modify the symbology or the way you represent the layers on your map depending on the data you want to communicate to those who will view your map. In AGOL, this is known as the style of your layer.

The visibility of the layer being shown in the map depends on which layer has a check mark on the box beside its name. Only the Active Cases layer is visible in the map at the moment which means you need to modify the symbology of only this layer. However, if you want to instead show the Current Cases then check the box beside it and uncheck the box for Active Cases. You may also choose to show both layers but will have to modify both their symbologies in such a way that the viewers will understand the information being communicated.

You can learn more about how to change the symbology of the layers in your map from this ArcGIS Online Help page.<sup>16</sup>

#### 4.2.3.3 Configure pop-ups

A pop-up is a small box with information that appears on your map when you click on a feature. By default, this shows all the content in the attribute table for the feature you selected. This can be configured to show a list of field attributes, a description from one field, a custom attribute display, or no attribute information but a title or an image. You can learn more about how to configure pop-ups from this ArcGIS Online Help page.<sup>17</sup>

The layers in the Coronavirus Case Dashboard web map have their pop-ups already configured to show the active and confirmed cases, deaths, recoveries, and the last date

<sup>&</sup>lt;sup>16</sup> <u>https://doc.arcgis.com/en/arcgis-online/create-maps/change-style.htm</u>

<sup>&</sup>lt;sup>17</sup> <u>https://doc.arcgis.com/en/arcgis-online/create-maps/configure-pop-ups.htm</u>

and time of update in a reporting area. You may, however, choose to change this by configuring the pop-up.

Once you are satisfied with how your web map looks, save it once again by clicking the *Save* button.

#### 4.2.4 Configure the dashboard

Your dashboard is ready to be configured and deployed now that you have the data source (feature layer and web map) ready and done.

#### *4.2.4.1 Opening your dashboard for editing:*

1. In the Content page of your AGOL account, look for the Coronavirus Case Dashboard *Dashboard*. Click the 3 dots along its name and choose *Edit Dashboard*. (Figure 32)

Content		My Content	My Favorites	My Groups	My Organization	Living Atlas
↑ Add Item	Q Search Coronavirus Re	esponse			🖩 Table 🗏 Date	Modified
Folders 🖆	1 - 52 of 52 in Coronavirus Respo	nse				
Q Filter folders	Title					Modified 🔹
All My Content	🔲 🤒 Coronavirus Case Dash	board Dashboar	d	ů	±	
â	Coronavirus Case Dash	board Web Map		View iter	n details	
🖻 Coronavirus Response			ayer (hosted)	View Dat	shboard	
			ayor (nostod)	Edit Das	14	
	🔲 👼 Coronavirus Response	Solution		ô	立…	
Filters V Categories	Dashboard	le Dashboar	d	ů	☆ …	
No Categories Yet	Community Impact Mol	oile Dashboar	d	ô	\$	
Categories allow members to organize items consistently and provide a simple way to browse	Community Impact Das	hboard Dashboar	d	ô	☆ …	

Figure 32

Because the dashboard is already configured to draw data from your web map, once your dashboard opens, you will see that it already contains the information for the different elements depending on what fields in Cases table you were able to populate. (Figure 33)

Home 🗢 🙀 Coronavirus Case Dashboard		
👻 Coronavirus Case Dashboard		CABUYAO CITY 🗢
Active Cases <b>± 3,638 ± 3,837</b> <sup>41377</sup> Caus	Recovered         Deaths         Image: Constraint of the second s	Negative C Hospitalized C No Value
94.8% Active 85.7% Tested Positive Source of Exposure	3.5% Recovered 1.6% Deceased	13.3% Tested Negative % Hospitalized
No Data	4 Apr 22 Active ORecovered ODeaths	Eubuyan Santo Domingo Casile Laguerta Barangay 3 (Pob. Location
Source of Exposure Diver Time	Cases 🥒 Testing Hospitalizations Daily Change	Active Recovered Deaths
Cases by Gender	Cases by Age	General Triss Naic Naic Naic Naic San Pablo CALAB/ + 1 -
	Cases by Age 🖉 Deaths by Age Hospitalizations by Age	Esri, HERE, Garmin, FAO,

Figure 33

#### 4.2.4.2 Deleting unnecessary elements in the dashboard

If you were not able to completely populate all the fields in the Cases table, some elements of the dashboard will show "No Data" or will be blank for elements showing changes over time. In this case, you have to determine whether these fields will be populated in the future or not.

If you will collect the data for a field in the future, you can leave the corresponding section blank at the moment and this will be populated later when you update your data. If you will not collect the data for a field in the future then the corresponding section can be deleted.

To delete a dashboard element:

1. Check if the element you want is visible. If the element is part of a stack, make sure that it is the selected/active tab. In this dashboard, the tab which has the pencil icon and darker color is the active tab. (Figure 34)



Figure 34

2. Bring your mouse pointer to the dashboard element you want to delete. You will see rectangle/s on the upper left corner of the element. (one or two depending on whether the element is on its own or part of a stack). (Figure 35)



Figure 35

3. Hover on the rectangle and you will see the available options for the element. Click on the trash bin icon to delete the element. (Figure 36)



4. When prompted if you want to delete the element, click *Delete*. (Figure 37)

Delete Element	$\times$
Are you sure you want to delete the element?	
Delete	Cancel
Figure 37	

5. Save the change you made to the dashboard by clicking the Save icon on the upper right section of the dashboard. Remember that the Save icon turns blue if there are





6. Repeat steps 1-5 to delete other unnecessary elements.

any unsaved changes in the dashboard. (Figure 38)

#### 4.2.4.3 Modifying the dashboard layout

Deleting some elements may cause the layout of the dashboard to change. While you may opt to just keep the changes, you can also rearrange the position of the elements.

You can learn more about dashboard layout from this page.<sup>18</sup>

#### 4.2.4.4 Configuring the dashboard and its elements

You can customize the dashboard to better align with the look or theme being used by your organization by configuring its elements.

<sup>&</sup>lt;sup>18</sup> <u>https://doc.arcgis.com/en/dashboards/get-started/dashboard-layout.htm</u>

You can change the title, logo, text, font style, color theme, etc.

You can learn more about configuring dashboard elements from this page.<sup>19</sup>

#### 4.2.5 Share your dashboard

Once you are satisfied with your dashboard, you can start sharing it with your whole organization, specific groups, or with everyone (public).

Sharing the dashboard with specific groups allows you to control who can view or manage the items associated with the dashboard. You can learn more about ArcGIS Online Groups from this page.<sup>20</sup>

To share the dashboard, you can follow the steps from this  $page^{21}$ .

#### 4.2.6 Update your dashboard with new data

You will want to update your dashboard to reflect the new data you have collected on the COVID-19 situation in your community.

#### 4.2.6.1 Reporting Areas

You must update your Reporting Areas sublayer if you have new reporting areas or the boundaries of your reporting areas have changed.

For new reporting areas, you can have a shapefile or file geodatabase:

- with the polygons of only new reporting areas, or
- combining the polygons of new reporting areas with the polygons of the original reporting areas.

Either way, prepare your data using the guidelines in Section 2.4.1.1.

If you have a shapefile or file geodatabase with the polygons of only new reporting areas, you may upload it using the same steps in Section 2.4.2.2.

If you have a shapefile or file geodatabase combining the polygons of new reporting areas with the polygons of the original reporting areas or containing new boundaries of the old reporting areas, follow these steps to update the Reporting Areas sublayer:

1. Make sure you are logged in to your AGOL account.

<sup>&</sup>lt;sup>19</sup> <u>https://doc.arcgis.com/en/dashboards/get-started/configure-an-element.htm</u>

<sup>&</sup>lt;sup>20</sup> <u>https://doc.arcgis.com/en/arcgis-online/share-maps/groups.htm</u>

<sup>&</sup>lt;sup>21</sup> <u>https://doc.arcgis.com/en/arcgis-online/share-maps/share-items.htm</u>

2. Inside the Coronavirus Response folder in the Content page, look for the CoronavirusCases feature layer. Click the 3 dots along its name and choose *View item details*. (Or click the feature layer name.) (Figure 39)

Content	M	y Content My Favorites	My Groups My Organizat	ion Living Atlas
Add Item	Q Search Coronavirus Response		III Table 🖷	Date Modified     Filte
olders 🖻	1 - 52 of 52 in Coronavirus Response			
Q Filter folders	Title			Modified
🗎 All My Content	CoronavirusCases	Feature Layer (hosted)	ô 🛪 ·	
ĥ	Coronavirus Response	Solution	View item details	
🖻 Coronavirus Response		Solution	Open in Map Viewer	
	Coronavirus Case Dashboard	Dashboard	Add to new map	
ilters	Coronavirus Case Mobile Dashboard	Dashboard	Open in Map Viewer BETA	
<ul> <li>Categories</li> </ul>	ille Community Impact Mobile	Dashboard	Add to new map with full editing control	
No Categories Yet	Dashboard	Dasinooard	Open in Scene Viewer	
Categories allow members to organize items consistently and	🔲 🔟 Community Impact Dashboard	Dashboard	Open in ArcMap	
provide a simple way to browse content in the organization.	School Closings	Web Mapping Application	Open in ArcGIS Pro	

3. Click on Update Data > Append Data to Layer. (Figure 40)

CoronavirusCases		Overview	Data	Visualization	Usage	Settings
🖉 Edit Thumbnail	Edit Thumbnail     A feature layer used to store the number of COVID-19 cases.		🖉 Edit	Оре	en in Map Viewer	~
r07	A leature layer used to stole the number of COVID-19 cases.     B Feature Layer (hosted) by ERIC		p Loit	C	Open in Scene Vi	ewer
	Feature Layer (hosted) by ERIC     Created: Apr 26, 2020 Updated: Apr 27, 2020 View Count: 14			Ope	en in ArcGIS Desl	ktop v
☆ Add to Favorites					Publish v	
			/ Edit		Create View Lay	ver
Description	×		/ Edit		Export Data	,
A feature layer used to stor	e the number of COVID-19 cases.				Update Data	~
Layers					Append Dat	a to Layer 🛛 🍃



- 4. In the panel that opens, click *Browse* and navigate to the location of your compressed shapefile or file geodatabase.
- 5. Choose whether the content of your compressed file is a shapefile or file geodatabase. Click *Upload and Continue*. (Figure 41)

Append Data 👔	×
Upload the file that contains the data with v layer.	which to append or update you
Supported file types:	
• Comma separated values (.csv)	
• Excel (.xls or .xlsx)	
<ul> <li>GeoJSON (.geojson)</li> </ul>	
<ul> <li>Compressed (.zip) shapefile or file geod.</li> </ul>	atabase
Filename:	
D:\Compressed_Shapefile_27042020.	zip Browse
Contents:	
Shapefile 🗢	
	Upload and Continue Cancel

Figure 41

6. Choose *Reporting Areas* as the layer you wish to append the data into. (Figure 42)

Choose the layer that you wish to append data into: Reporting Areas	
Update existing features:	
	matching a field
that contains a unique identifier. If this option is left unche	
Optionally, you can choose to update existing features by that contains a unique identifier. If this option is left unche updates will be created as new features. Update existing features Select the fields used to match the layer's unique identi uploaded data.	ecked, all

Figure 42

- 7. Make sure the box beside "Update existing features" is checked. Select "RA\_ID" as the fields to match the layer's unique identifier to the uploaded data. (Figure 42)
- 8. Scroll down and check the box beside "Update geometry for features." (Figure 43)

Update exist	ing features:			
that contains		tifier. If this opti	ing features by ma on is left unchecke	0
🗹 Update e	xisting feature	IS.		
Select the uploaded		match the layer	s unique identifier	to the
	Matches	s to: RA_ID	\$	
RA_ID				
	features witho	ut a match		
☐ Ignore		out a match existing feature	:5	
☐ Ignore	e geometry for	existing feature		
☐ Ignore	e geometry for			~

Figure 43

- 9. Click *Show field matching*. (Figure 43)
- 10. Match the field "aggregatearea" in the feature layer to "aggre\_area" in your compressed file. The "name" field is automatically matched because it has the same field name in the shapefile and in the Reporting Areas sublayer. Click *Apply Updates*. (Figure 44)

Append Data 😗		>
Update existing feat	ures	
Select the fields used uploaded data.	to match the layer's unique identifier to the	
RA_ID 🗘 Matc	hes to: RA_ID 💠	
Ignore features wit	thout a match	- 1
Update geometry	for existing features	
	Hide field matching	
Fields	Match Field	
aggregatearea	aggre_area 🗘	
name	name	
	Apply Updates	Cancel
	Figure 44	

Your Reporting Areas sublayer is now updated.

#### 4.2.6.2 Cases table

You must update your Cases sublayer if you have collected data for new reporting areas or new data for the original list of reporting areas on the COVID-19 cases in your community.

To update the Cases sublayer, it is best to have a blank copy of the CoronavirusCasesSources CSV table and populate it with the new data. Save this new file to include the date of the latest update (e.g., if the new data update is for 27 April 2020, save your file as CoronavirusCasesSources\_27042020.csv)

You can then upload the table with the new cases using the steps in Section 4.2.2.3.

Once you have updated your data, you may revisit relevant parts of Section 2.4.3 to ensure that your web map is centered on your reporting area and that the symbologies are appropriate for you new data.

Check that your dashboard is still shared with the appropriate individuals or groups.

### 5. Other resources

You may visit these links to know if an organization is eligible to receive the complimentary ArcGIS Online subscription from Esri:

- For WHO Member States and Global Outbreak Alert and Response Network (GOARN) partners (until 31 December 2020): <u>https://www.esri.com/about/newsroom/announcements/esri-to-provide-mapping-resources-to-who-member-states/</u>
- For organizations fighting COVID-19 (six-month subscription): <u>https://www.esri.com/about/newsroom/announcements/esri-provides-free-mapping-software-for-organizations-fighting-covid-19/</u>

You can learn more about the ArcGIS Solution for Coronavirus Response by visiting the following links:

- Home page: <u>https://solutions.arcgis.com/local-government/help/coronavirus-response/</u>
- Discuss the New Coronavirus Response Solution webinar: <u>https://bit.ly/3cOVbDn</u>
- Getting to Know the Coronavirus Response Solution Dashboards: <u>https://bit.ly/356WBGW</u>

To jump-start your response to COVID-19, you can learn more about launching your own COVID-19 Response Hub Site through these blogs:

- How to Launch a Coronavirus Response Website Today: <u>https://bit.ly/3aAioYE</u>
- In a GIF: Deploy a coronavirus website in 45 seconds: <u>https://bit.ly/3bJE6L5</u>

For your technical questions on the best practices to respond to COVID-19, you may join the discussion at Esri's GeoNet GIS Coronavirus Community:

https://community.esri.com/community/coronavirus-disease-2019-covid-19.

# Annex 1 – Complete list of fields in the Cases table

This is the complete list of fields in the *CoronavirusCasesSources* CSV table that is used to update the Cases sublayer of the CoronavirusCases feature layer.

Display Name	Field Name	Туре
OBJECTID	OBJECTID	ObjectID
Name	name	String
Date Reported	reportdt	Date
Positive	positive	Integer
Negative	negative	Integer
Pending	pending	Integer
Total tests	totaltests	Integer
Deaths	deaths	Integer
Recovered	recovered	Integer
Active Cases	active	Integer
Male case count	casesmale	Integer
Female case count	casesfemale	Integer
Cases Sex Other or Not Available	casessexother	Integer
0-9 case count	casesagerange1	Integer
10-19 case count	casesagerange2	Integer
20-29 case count	casesagerange3	Integer
30-39 case count	casesagerange4	Integer
40-49 case count	casesagerange5	Integer
50-59 case count	casesagerange6	Integer
60-69 case count	casesagerange7	Integer
70-79 case count	casesagerange8	Integer
80-89 case count	casesagerange9	Integer
99 and above case count	casesagerange10	Integer
Cases Age Other or Not Available	casesageother	Integer
Male deaths count	deathsmale	Integer
Female deaths count	deathsfemale	Integer
Deaths Sex Other or Not Available	deathssexother	Integer
0-9 deaths count	deathsagerange1	Integer
10-19 deaths count	deathsagerange2	Integer
20-29 deaths count	deathsagerange3	Integer

30-39 deaths count	deathsagerange4	Integer
40-49 deaths count	deathsagerange5	Integer
50-59 deaths count	deathsagerange6	Integer
60-69 deaths count	deathsagerange7	Integer
70-79 deaths count	deathsagerange8	Integer
80-89 deaths count	deathsagerange9	Integer
99 and above deaths count	deathsagerange10	Integer
Deaths Age Other or Not Available	deathsageother	Integer
Hospitalized	hospitalized	Integer
Not Hospitalized	nothospitalized	Integer
Hospitalized Other or Not Available	hospitalizedother	Integer
Male hospitalized count	hospitalizedmale	Integer
Female hospitalized count	hospitalizedfemale	Integer
Hospitalized Sex Other or Not Available	hospitalizedsexother	Integer
0-9 hospitalized count	hospitalizedagerange1	Integer
10-19 hospitalized count	hospitalizedagerange2	Integer
20-29 hospitalized count	hospitalizedagerange3	Integer
30-39 hospitalized count	hospitalizedagerange4	Integer
40-49 hospitalized count	hospitalizedagerange5	Integer
50-59 hospitalized count	hospitalizedagerange6	Integer
60-69 hospitalized count	hospitalizedagerange7	Integer
70-79 hospitalized count	hospitalizedagerange8	Integer
80-89 hospitalized count	hospitalizedagerange9	Integer
99 and above hospitalized count	hospitalizedagerange10	Integer
Hospitalized Age Other or Not Available	hospitalizedageother	Integer
New Cases	positiveincrease	Integer
New Tests	totaltestsincrease	Integer
New Deaths	deathsincrease	Integer
New Hospitalizations	hospitalizedincrease	Integer
Close Contact	sourceclosecontact	Integer
Possible Travel	sourcepossibletravel	Integer
Under Investigation	sourceunderinvestigation	Integer
Travel	sourceTravel	Integer

Community Spread	sourcecommunity	Integer
Source Other or Not Available	sourceother	Integer
GlobalID	GlobalID	GlobalID
CreationDate	CreationDate	Date
Creator	Creator	String
EditDate	EditDate	Date
Editor	Editor	String