



Infrastructure Essentials Toolkit

Broadband
Grant
Opportunity
Analysis

Getting Started Guide



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Introduction

This guide describes how to install and launch the Infrastructure Essentials Toolkit. One can be up and running at a basic level in 15 minutes.

Users are encouraged to read this “Getting Started Guide” in its entirety and to watch tutorial videos as they are released. For additional documentation, new announcements, and training see:

<https://cbrstoolkit.com/pages/initiatives>

Quick Start

To getting started:

1. *Download the Infrastructure Essentials Toolkit.* You will receive an e-mail with a link immediately following your purchase.
2. *Unzip the File.* Unzip the contents and place the contents in a convenient location on your computer.
3. *Download and Install QGIS.* The Visual Toolkit is an application built upon an open-source world class GIS tool. You need to download and install a copy. It’s free and is available to support every major operating system (Windows, macOS, Linux, BSD).



Recommendation: download the “Long Term Release” standalone installer, 64-bit version. Long Term Release means that is extremely stable. Virtually every computer today runs a 64-bit operating system. It leverages the hardware capabilities of your computer.

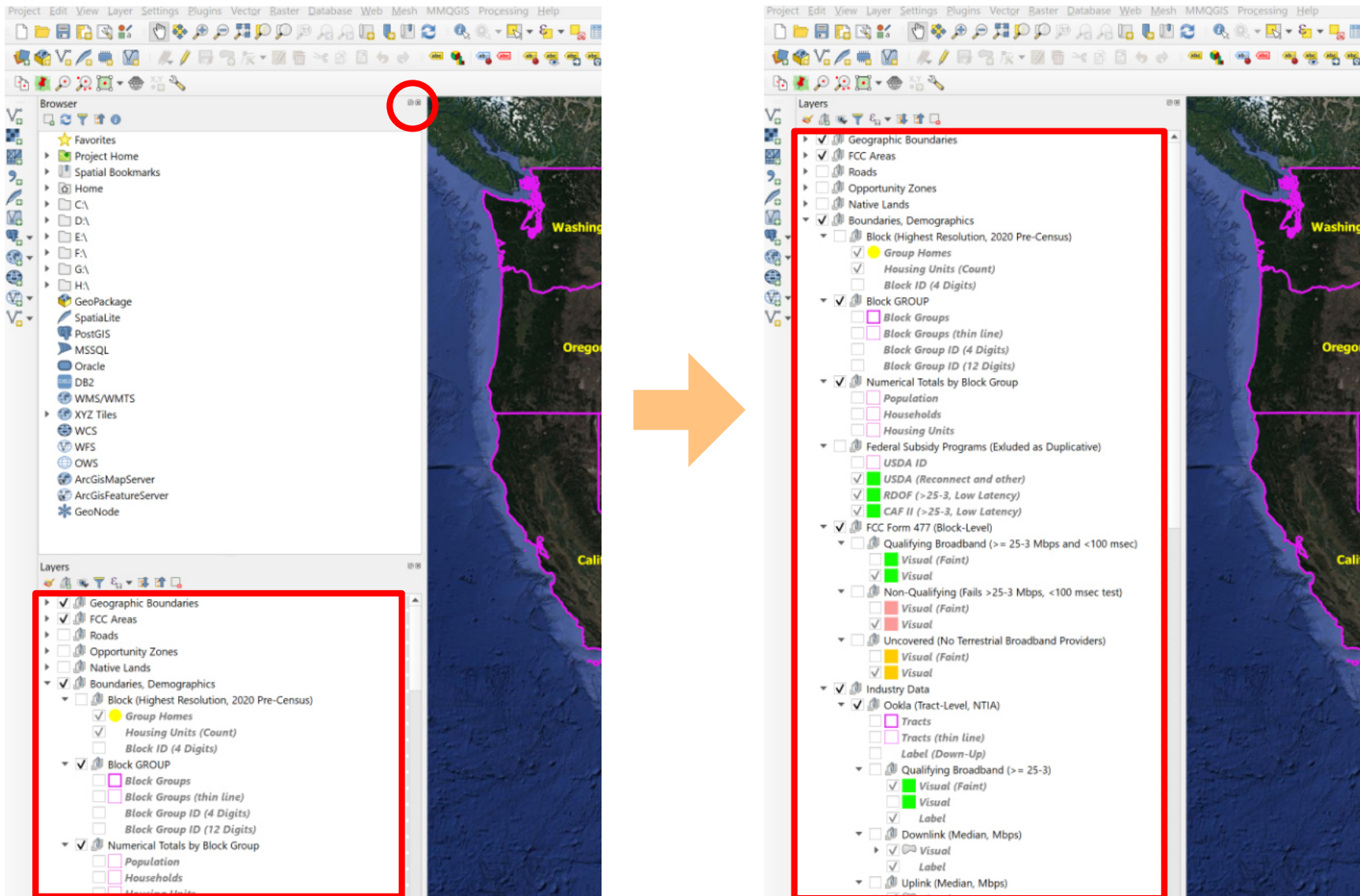
<https://www.qgis.org/en/site/forusers/download>

4. *Close Panels.* When you install QGIS it opens two panels by default, “Browser” and “Layers”. It is recommended that you close the “Browser” panel (see Figure 1). It is not needed and it consumes valuable screen real estate. If you want to see it again you can easily enable it from the “View” pull-down menu.
5. *Launch the Application.* Go to the Visual Toolkit folder within your unzipped Toolkit and double-click on *Infrastructure Essentials Toolkit.qgz* to launch the Visual Toolkit.

There’s More

- *Spreadsheets.* The “Excel Spreadsheets” folder includes a vast amount of data, largely mirroring the content of the Visual Toolkit.
- *Web Site Links.* The folder Web Site Links includes links to important updates. It is likely that the Toolkit documentation will be updated and that the Toolkit functionality will be enhanced over time. This folder also includes links that

Figure 1: Reducing Clutter by Closing Unnecessary Panels in QGIS



describer third party data in greater detail.

- *Still Need Help?* The Toolkit team is happy to answer quick questions by e-mail (support@CBRSToolkit.com) or more complicated questions via a Zoom meeting.

Frequently Asked Questions

How do versions of the Toolkit differ?

The Infrastructure Essentials Toolkit is a suite of analytical tools designed to help an organization identify which geographies are likely to qualify for one the currently available infrastructure-oriented NTIA grant programs. The Broadband Infrastructure Program (\$300 million) and the Tribal Broadband Connectivity Program (\$1 billion) have each released NOFOs. The toolkit answers the questions of “Which areas are eligible?” and “Which areas are potentially profitable?” by enabling the reader to quickly estimate densities and homes passed. It also includes and visualizes a large collection of measured data, made available by the NTIA and by other organizations. The data is important in enabling a grant applicant to argue that an area shown as “served” by FCC Form 477 data is, in fact, not served and deserves grant funding.

The Broadband Infrastructure Program, the Tribal Broadband Connectivity Program, and the Connecting Minority Communities

Pilot Program are funded by the Consolidated Appropriations Act, 2021, which was signed into law on December 27th, 2020. The Act, which includes an omnibus spending bill, authorized \$ 2.3 trillion in expenditures.

Several other toolkits exist with complementary functionality and data sets:



- *Tribal and Minority Community Toolkit.* This suite of analytical tools, now in its second major release, navigates through the complex rules associated with Connecting Minority Communities Pilot Program. It also includes coverage data (although less than the Infrastructure Essentials Toolkit) for native lands.
 - *CBRS Toolkit.* The CBRS Toolkit, launched in preparation for the CBRS spectrum auction, is a broad-based analytical tool with extensive demographic, economic, and competitive data sets. It equips the user to develop either mobile broadband or fixed broadband business cases. The CBRS Toolkit is available in *state* and *national* versions.
- *RDOF Toolkit.* The RDOF Toolkit, launched in preparation for the RDOF reverse auction, enabled participants to assess eligible uncovered census blocks across the United States and to carefully evaluate the potential of each.
- *RDOF Location Analyzer.* The RDOF Location Analyzer provides a robust commercial database of residences and

businesses to help auction participants assess buildout requirements and understand the relationship between different categories of prospective customers.

How does the Visual Toolkit (the GIS functionality) of the Infrastructure Essentials Toolkit relate to the Excel Spreadsheets?

A sophisticated user will eventually use both. The Visual Toolkit allows the user to zoom in and zoom out and navigate to different geographies and turn on an off different data layers. Every area (county, tract, block group, etc.) has a unique numerical code.

A user can look up a single code and get a complete data set for that area (including information not displayed visually). Alternatively, the user can select an area using QGIS (that might include hundreds of tiny polygons) then save that list of areas to an Excel file then use the list to extract the corresponding data (by copying and pasting or via a lookup) from the Excel spreadsheet.

A business plan involving deployments in multiple cities might include selected geographies in each city and a corresponding P&L for each city.

Troubleshooting

How do I zoom?

The easiest way - by far - is to use a physical mouse with a zoom wheel. If you have a laptop with a mouse pad and don't happen

to have a mouse with a zoom wheel you will find that a small investment in this important hardware accessory will make your life much easier, as you use the Toolkit and use GIS applications. Without a zoom wheel one can zoom in using the magnifying glass with a plus or minus sign (buttons along the top) but using a mouse with a physical zoom wheel is much easier.

The tool produces lots of beautiful pictures but does not display any numbers.

If you click on the triangle icon next to each set of data you will see a check box that enables the data labels. If you check it each polygon will have an associated numerical value. You should enable data layers when you are zoomed into a small area. As you zoom out labels for small geographic areas are likely to become unreadable. Ideally one would turn on labels appropriate to the zoom level.

When I turn on additional layers of data it gets cluttered.

The Toolkit includes multiple layers of data. In addition, most users are likely to turn on some labels. Each layer is translucent, primarily to enable the user to see hints of the map below the data layer. The Toolkit is designed to display a single layer at a time. The simple solution is to turn off any existing data layers when you turn on a new one.



When I click the checkbox next to a data layer nothing happens.

The data layers are contained in “groups” (a.k.a. folders) to help users find everything in the Toolkit. A data layer will display only if each of its parent “groups” is enabled. If nothing is happening check to make sure that each of the parent “groups” is enabled with a check mark.

I’m lost! How do I know what geography I’m viewing?

The Toolkit includes a number of features to provide context. These include state, county, tract, block group, and other polygons. Most of these can be displayed with numbers and/or names. You can also turn on roads or roads with labels. Finally, you can change the underlying map in the “Maps” section near the bottom to a map that includes local names and places of interest. Each map blocks the maps that are below it, so if you wish to try a different map make sure you turn off the default map.

I already had QGIS installed. Its not launching the Toolkit.

The Toolkit expects the current release of QGIS (Long Term Release version 3.10) or later.

Download and install the current “Long Term Release”. The Toolkit should then launch properly.

I downloaded the Toolkit and decided to rearrange all the file folders. Now I get a bunch of error messages when I launch the application.

It is critically important that “GIS Data” is in the same folder as the application icons and that the contents of “GIS Data” are not rearranged. The Toolkit needs to find and load each of these files.