Network Analysis at Clemson University

Due to licensing restrictions, network analysis at Clemson University is performed differently depending on your area of interest. Follow the instructions below based on the geographic location of your interest.

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1. Network Analysis in North America

Our current <u>StreetMap Premium</u> license allows you to perform network analysis without consuming your <u>credits</u> within the following countries in North America: American Samoa, Canada, Guam, Mexico, Northern Mariana Islands, Puerto Rico, Saint Pierre and Miquelon, the United States, and the U.S. Virgin Islands region.

You will do this by connecting to our network location for StreetMap Premium. Below are instructions on how to achieve this, depending on your preference: using ArcGIS Pro on your machine or a local Clemson-owned computer.

Please note that through ArcGIS Online Map Viewer, we can only use the routing service available on ArcGIS Online, which consumes <u>credits</u>.

1.1. Using ArcGIS Pro

You need to use the network data hosted on the portal site of Clemson Center for Geospatial Technologies (CCGT). See below how to connect to the network data.

1.1.1 In ArcGIS Pro, open a profile drop-down menu on the top-right corner. Click on Manage Portals.

| AP Command Search (Alt+Q) | Gakumin - Clemson University GK |
|----------------------------------------------------------------------------------------|-------------------------------------------------------|
| Imagery Help | Clemson University https://www.arcgis.com/ |
| Data Suitability Visibility Explorato Engineering Modeler Analysis 3D Analysi Wo | Gakumin Kato gkato@clemson.edu_Clemson Sign out |
| Bay | Manage Portalsnp |
| Open the portals tab to manage portal conn | ections. ctive Portal * |

1.1.2 On the Portals window, click on Add Portal. In the Add Portal window, enter the URL of CCGT's portal: https//webgis.coe.clemson.edu/portal. Click OK.

https://webgis.coe.clemson.edu/portal

| e | Portals |] |
|-----------------|---------------------------------------------|----------------------------------------------------------------------------------------|
| ew | http://www.erei.com/ | |
|)pen | Available : Not signed in | |
| nfo | | Add Portal |
| Save Project | | |
| Save Project As | | Enter the URL of your portal |
| | 1 | https://webgis.coe.clemson.edu/portal |
| Portais |] | Examples: |
| Licensing | | ArcGIS Enterprise - https://webadaptornos ArcGIS Online - https://www.arcgis.com or |
| Options | | |
| Package Manager | Sign in using browner | - |
| Add-In Manager | Add Portal Refrech | |
| Help | | |
| About | cean more about managing portal connections | |



1.1.4 In the Portals window, confirm that the CCGT's Portal URL is added. Click on the three dots of the Portal URL and click on Sign in.

| Θ | Portals | | |
|-----------------|---------------------------|-------------------------------------|----|
| New Open | Available : Not signed in | | |
| Info | Available : Not signed in | Sign in Set As Active Portal | |
| Save Project | | Edit Portal Connection | |
| Save Project As | | Refresh Remove Portal Connection | on |
| Portals | | | |
| Licensing | | | |

1.1.5 In the ArcGIS Sign in window, click on Clemson Center for Geospatial Technologies. This will take you to a new window where you will be using your standard Clemson login. Enter your Clemson username and password and click on Login.

| ArcGIS Sign In | × | ArcGIS Sign In | × |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------|-------------------------------------------|
| ArcGIS Pro wants to access your Clemson Center for Geospatial Technologies acco Sign in to Clemson Center for Geospatial Technologies ArcGIS login Clemson Center for Geospatial Technologies | unt information | Username Password Eorgot password? | |
| ✓ Sign in automatically | Sign In Using Browser | Need bein? Visit the CCIT Sunnort | Sign In Using Browser |

1.1.6 Confirm that you are signed in to CCGT portal. Go back to ArcGIS Pro's interface by clicking on the back arrow on the top left corner.

| e | Portals | |
|-----------------|-----------------------------------------------------------------------------------------|-----|
| New | | |
| Open | GK https://webgis.coe.clemson.edu/portal/ Available : Signed in as gkato@clemson.edu | ••• |
| Info | GK https://www.arcgis.com/ Available : Signed in as gkato@clemson.edu_Clemson | *** |
| | | |
| Save Project As | | |
| Portals | | |



1.1.7 Go to the Analysis tab and open the Network Analysis drop-down menu.

If you see the hosted network dataset of CCGT's portal (<u>https://webgis.coe.clemson.edu/portal</u>) at Network Data Source, you are all set to perform network analysis in North America using the hosted network data on CCGT's portal.



If you see ArcGIS Online (<u>https://www.arcgis.com/</u>) at Network Data Source, you need to change its data source to use CCGT's portal to save credits. To do so, click on Data Source.



On Select Network Data Source window, select CCGT's portal: <u>https://webgis.coe.clemson.edu/portal</u>. Click on OK. If you see the hosted network dataset of CCGT's portal (<u>https://webgis.coe.clemson.edu/portal</u>) at Network Data Source, you are all set to perform network analysis in North America using the hosted network data on CCGT's portal.

| Select Network Data Source | | : | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|------|-------|--------------------|---------------------------------|-----------------------------------------------------------|-----------------------------------------------|------------------------------------------------|------------------------|-----------------------|--------------------------|----------------------------|-------------|--------|
| https://www.arcgis.com/ Signed in as gksto@cemson.edu_Clemson organization: Cemson University 1) Solving network analysis layers created with this network data source consumes ArcGIS credition | . Credits | | | | | | | | | | | | | | |
| are not consumed by creating a network analysis layer, but are incurred later, at solve time. https://webgis.coe.clemson.edu/portal/ Signed in as gkato@clemson.edu Organization: Clemson Center for Geospatial Technologies Signed in as gkato@clemson.edu | | | | | | | | | | | | | | | |
| | | | Ana | lysis | View | Edit | Imager | y Shar | e Plar | net Imagery | Help | - | | | |
| | | | Tool | s | Pairwise Buffer | Summ | arize iin ⊽ | Feature Analysis ~ | Raster Analysis ~ | Data Engineering | Suitabilit Modeler | y Visibility Analysis | Exploratory 3D Analysis | Vetwork Geo | U V |
| | | | | 5 | | | | | | | | | | All ~ | 1 |
| | Cancel | | × | | lap × | Network http Sigr Org. | Data Source s://webgis ed in as gka anization: C | ce .coe.clemso ato@clemso lemson Cen | o n.edu/port on.edu ter for Geosj | al/ patial Technolo | ngies | | | Data Source | |
| | Concer | | | | 1 6 2 | | | | | | | | | Data Source | 11 |

If you wish to learn about Network Analyst, please refer to Esri's tutorial.



1.2. Using a local lab computer (HIPPA-compliant tasks)

The GIS labs have dedicated machines where <u>ArcGIS StreetMap Premium</u> data are locally installed. These computers would be ideal for <u>HIPPA</u>-compliant tasks in that network analysis can be done locally, not over the Internet. In addition, performing network analysis through these local machines would provide a better performance when you need to work with large datasets.

- Barre Hall, Room 109 (Workstation ID: barrb109-01)
- Cooper Library, Room 412 (Workstation ID: coop412-02)
- Lee Hall, Room 212 (Workstation ID: lee212-05)
- Lehotskey Hall, Room 231 (Workstation ID: leho231-01)

Please follow the steps below to perform Network Analysis in ArcGIS Pro using the local StreetMap Premium data.

1.2.1 In ArcGIS Pro, click on Analysis tab, and on the tool ribbon, click on the Network Analysis drop-down menu. Click on Data Source

| | | | | | test_NetworkAna | lyst_SMP | P Co | mmand Sear | ch (Alt+Q) | | Gaku | min - C |
|-------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|--------------------|-------------|------------------------------------|------------|------------------|------------------------|------------------------|------------------------------|-----------------------|-------------|
| t | Analysis | View | Edit | Imagery | Share | Planet Ima | gery | Help | | | | |
| dy To ools ~ | Tools p | Pairwise Buffer | Summariz Within | ^ × ⊽ | Feature Raste Analysis - Analys | r Eng | Data ineering | Suitability Modeler | Visibility Analysis | Exploratory 3D Analysis ~ | Network Analysis v | Geost Wi |
| | ы | | | | | | | | | | All v | |
| ✓ ₽ × Network Data Source | | | | | | | | | | | ~ | |
| P Image: Signed in as guestrouting Organization: Clemson Center for Geospatial Technologies' Portal Site Data | | | | | | | Source | No. | | | | |

1.2.2. The Select Network Data Source dialog box appears. Click on the Browse button to browse to Routing_ND network dataset installed in local lab computers.

| Select Network Data Source | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------|
| https://www.arcgis.com/ Signed in as glatal@cemsondu_Clemson Organization Clemson University | | |
| O Solving network analysis layers created with this network data source consumes ArcGIS credits. Credits are not consumed by creatin are incurred later, at solve time. | ig a network analysis l | ayer, but |
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| Browse | | |
| Learn more about network data sources | ОК | Cancel |



1.2.3. You can find the network dataset in the following directory. The example below shows the latest network dataset published in Q2, 2023. Select Routing_ND, and click on OK.

 C:\StreetMap_Premium_NorthAmerica\NA_2023R2_Routing_FGDB.7z\FGDB\StreetMap_Data\NA_ Routing.gdb\Routing\Routing_ND

| | | | | | | | \times |
|--------------------------------------------------------------------------------------------------------------------|-----------------|-----------|-----------------|-----------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------|
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| Organize 🗸 New Item 🗸 | _ | | | | | | EII |
| ▷ 🚔 Project | Name | Type | Date Modifie | Size | Path | | |
| ▲ Computer | Routing_ND | File Geod | | | C:\StreetMap_Premium_NorthAmerica\NA_2023R2_Routing_FGDB.7z\FGDB\StreetMap_Data\NA_Routing | .gdb\Routing\Routing_ND | |
| Quick access | | | | | | | - |
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1.2.3 Confirm that the selected network dataset is set as the default in the Network Analysis drop-down menu.



You are all set to perform network analysis using the locally installed ArcGIS StreetMap Premium data – North America.

If you wish to learn about Network Analyst, please refer to Esri's tutorial.



2. Network Analysis outside of North America

If you need to perform network analysis in countries not included in the previous list, you will need to use the routing service available on ArcGIS Online. This service consumes <u>credits</u>. For example, it consumes 0.005 credits per simple route on ArcGIS Online. Each Clemson user account has a total of 3,000 credits.

For more information on credit consumption through the network analysis, please visit Esri's ArcGIS Online <u>Resources page</u> and ArcGIS Pro <u>Resources page</u>.

To confirm geographical coverage of the routing service on ArcGIS Online, please visit at Esri's website.

Below are the instructions on how to use the routing service available on ArcGIS Online.

2.1. Using ArcGIS Pro

You need to connect to the routing service available on ArcGIS Online through ArcGIS Pro.

2.1.1 In ArcGIS Pro, go to Analysis tab and open drop-down menu of Network Analysis. Confirm that the routing service on ArcGIS Online is set as Data Source.



You are all set to perform network analysis outside of North America using the routing service on ArcGIS Online.

If you wish to learn about Network Analyst, please refer to Esri's tutorial.

2.2. Using ArcGIS Online

2.2.1 Go to arcgis.com and click Sign in. Then, click on "Your ArcGIS organization's URL" at the next window.

2.2.2 You will be asked to enter Your ArcGIS organization's URL. In the box that appears, type *Clemson* and click Continue. Click on "Clemson University".





2.2.3 This will take you to a new window where you will be using your standard Clemson login. Enter your Clemson username and password and click on Login.

2.2.4 If you see the window below, that means you have successfully signed in your ArcGIS Online account.



2.2.5 Click on Map tab to open Map Viewer. You will find network analysis tools under Use proximity category in Analysis.



You are all set to perform network analysis outside of North America using the routing service on ArcGIS Online through Map Viewer.

If you wish to learn about Network Analysis tools of ArcGIS Online, please visit at Esri's <u>Resources page</u>.

