ArcGIS (ESRI, Inc.) Software

Licensing and Product Summary

Brown University Site License

(status as of summer 2020)

A majority of the GIS applications listed below require a significant amount of training for successful use, confidence in spatial analytical results, and sharing web applications that are both meaningful and properly designed.

The Brown University Site License includes access to a substantial number of vendor-based training materials for all of the products listed below.

These training materials consist of both web-based, hands-on tutorials with accompanying data, videos, blogs, etc.

The catalog of training materials can be viewed here - https://www.esri.com/training/

Any course in the catalog listed as Free, or Requiring Maintenance, is available to anyone in the Brown community via an Brown ArcGIS Online Organization account, which can be requested from one of the Brown ESRI Site License Administrators (Lynn_Carlson@brown.edu, Jessica_Garcia@brown.edu), or through this form: https://arcg.is/0aL0n5

Training in the professional GIS Desktop applications (ArcMap/ArcCatalog and ArcGIS Pro) is offered via semester long courses (search GIS on cab.brown.edu) and short workshops (although the latter may not be adequate, depending on an individual's goals / research).

Consultation from course / workshop instructors who specialize in GIS to determine what is needed to perform any work involving these products is highly recommended.

Desktop Applications included in the ESRI Site License

A. ArcGIS Desktop version 10.x (Advanced Level – ArcMap and ArcCatalog)

- The traditional, legacy software application consisting of ArcMap and ArcCatalog. ESRI is no longer developing this application and ***it is actively being phased out*** (~ 2023 is current end of life for technical support).

- It is recommended that students, faculty, and staff new to GIS technologies learn ArcGIS Pro instead (see B below). However, ArcGIS Desktop 10.x will continue to be made available for end users with substantial experience with ArcMap / ArcCatalog until they are able to transition to ArcGIS Pro.

- o Note: if you are an end user with substantial experience with ArcMap / ArcCatalog, it is recommended you begin to transition to ArcGIS Pro as soon as possible. There are _substantial_ differences to the user interface, many more geoprocessing tools, and is designed for modern OS and hardware.

- ArcGIS Desktop version 10.x is installed on a Windows PC (_Mac is unsupported_).

- System requirements can be found here - https://desktop.arcgis.com/en/system-requirements/latest/arcgis-desktop-system-requirements.htm

- This software application requires a license file. The license times out on an annual basis in August and must be renewed.

- There are two licensing options.

    Option 1 - Concurrent Use Licensing

    - A license file and license manager software application are setup on a single networked computer that can be reached via an IP address by other computers where ArcMap/ArcCatalog are installed.

    - The License Manager software application is an executable that is independent of the core program and must be installed on the computer that will host the concurrent use license.

    - The concurrent license file is configured to allow a specific number of end users to be running the product at any one time.

    - CIS has a concurrent use license for the campus at large.

        - It is necessary to be networked via VPN if off-campus to start ArcMap / ArcCatalog

    - The Earth Lab (85 Waterman, Room 140) has a concurrent use license for the Earth Lab computers

    - Concurrent Use licenses are appropriate for networked desktop computers that are physically static – ie. in a computer lab or office.

    Option 2 - Single Use Licensing

    - A single license file is provided to an end user as a download/attachment by request.

    - Upon installation of the software application, the end user is prompted to locate the license file that has been downloaded to a local drive.

    - The computer must have a network connection to validate the license initially. Once the license has been validated, a network connection is no longer required.

- VPN is not required for off-campus use.

- Single Use licenses can be used on either laptops or desktops

- For situations in which the end user will not have internet access (field work in remote areas, behind secure firewalls, etc.), single use licenses are needed to use ArcMap/ArcCatalog.

- Updates

  o Released as new executables that must be installed from a local / network drive.

  o Because the 10.x product line (ArcMap/ArcCatalog) is no longer under development, updates will only consist of bug fixes.

- For Mac users: ArcGIS Desktop (ArcMap/ArcCatalog) is not built for iOS. While it can be run on Macs with a Windows partition, many users experience problems. Brown provides access to ArcMap/ArcCatalog via the RemoteApp environment, but end users have frequently reported poor performance and instability.

  Mac users may request access to ArcGIS Desktop (ArcMap / ArcCatalog) via remote login to Earth Lab computers. Email Lynn_Carlson@brown.edu

B. ArcGIS Pro version 2.x (Advanced Level)

- This is the most up-to-date professional-grade GIS software application. It replaces the ArcGIS Desktop version 10.x product line.

- This software application is installed on a Windows PC *(Mac is unsupported)*.

- System requirements should be reviewed prior to installation - https://pro.arcgis.com/en/pro-app/get-started/arcgis-pro-system-requirements.htm

- This software application requires a license file. The license times out on an annual basis in August and must be renewed.

- There are three licensing options.

  Option 1 - Concurrent Use Licensing

  - A license file and license manager software application are setup on a single networked computer that can be reached via an IP address by other computers.

  - The License Manager software application is an executable that is independent of the core program and must be installed on the computer that will host the concurrent use license.

- The concurrent license file is configured to allow a specific number of end users to be running the product at any one time.

- CIS has a concurrent use license for the campus at large
  - It is necessary to be networked via VPN if off-campus

- The Earth Lab has a concurrent use license for computers in the Earth Lab

- Concurrent Use licenses are appropriate for networked desktop computers that are physically static – ie. in a computer lab or office.

Option 2 - Named User Licensing

- An end user (the "named" user) is provided with a unique username and password within the Brown University ArcGIS Online Organization by the administrator (currently Lynn Carlson). At the time the username and password are established, the named user is given permission to use an instance of an ArcGIS Pro license from the University's allotment.

- When the end user starts ArcGIS Pro, they are prompted to login to the ArcGIS Online Organization using these unique credentials, and upon doing so, the application will start.

  - With these unique credentials, ArcGIS Pro will connect automatically to the end users cloud environment, give access to esri's curated, authoritative geospatial data repository known as the Living Atlas, and publicly shared content from other organizations / individuals around the world.

- Note: it is possible to setup the Brown University ArcGIS Online Organization to use Shibboleth. With this option, end users could use their standard Brown user name and password. This has not been set up at the time of this writing (Summer 2020).

Option 3 - Single Use Licensing

- A single license file is provided to an end user as a download/attachment.

- Upon installation of the software application, the end user is prompted to locate the license file that has been downloaded

- Single Use licenses are appropriate for laptop/desktop computers, particularly for situations in which the end user will not have internet access (field work in remote areas, behind secure firewalls, etc.).

- The computer must have a network connection to validate the license initially. Once the license has been validated, a network connection is no longer required.

- VPN is not required.

- Access to the ArcGIS Online Organization, the Living Atlas, and other online content is not available unless the user has and account and chooses to login.

- Updates to ArcGIS Pro

  o With a network connection and a named user license (see above), the software can be updated without having to download / install from an executable.

  o Alternatively, an executable for the update can be used.

- ArcGIS Pro is tightly integrated with ArcGIS Online (AGOL – see below) for using / sharing / hosting spatial content for analysis and use in other applications. It can however be used safely in a secure isolated environment when necessary with a standalone license.

- For Mac users: ArcGIS Pro is not built for iOS. While it can be run on Macs with a Windows partition, many users experience problems. Brown has not yet ported ArcGIS Pro to the RemoteApp environment, but like ArcMap/ArcCatalog, it may be unstable.

  Mac users may request access to ArcGIS Pro via remote login to Earth Lab computers. Email Lynn_Carlson@brown.edu

C. Desktop and Pro Extensions

- The functionality of both ArcGIS Desktop ver. 10.x and ArcGIS Pro 2.x can be augmented by various Extensions.

- Extensions are not separate executables. Access to extensions is controlled via the concurrent, single use, or named user license at the time it is created (see above).

- The Brown University Site License includes the following extensions:

  o Spatial Analyst
  o 3D Analyst
  o Network Analyst
  o Geostatistical Analyst
  o Image Analyst
  o Data Interoperability
  o Locate XT
  o Maritime Charting
  o Production Manager

- o Workflow Manager
- o Data Reviewer
- o Defense Mapping
- o Aviation Airports / Charting
- o Bathymetry
- o Location Referencing
- o Production Mapping
- o Publisher

- ▪ Each extension has specific functions tailored for different types of analyses / data. Visit esri.com for descriptions.

D. ArcGIS Enterprise

- ▪ This product is a Server product, not a Desktop product. It runs on Windows Server 2012, 2019, AWS, or Microsoft Azure.

- ▪ Its purpose, among other things, is to host commonly used geospatial data, custom geoprocessing tools, custom scripts across an organization, reducing / eliminating the need for each user to download and store data on individual computers (depending on their use case).

- ▪ Enterprise can also be used as an "in-house" version of ArcGIS Online (see below) in order to avoid / reduce the use of credits (see ArcGIS Online below) for such tasks as geocoding, drive time analyses, etc.

- ▪ Enterprise can also be extended and scaled to accommodate computationally intensive workflows such as real time tracking (GeoEvent), and Machine Learning.

- ▪ The Earth Lab Enterprise Server has yet to be fully deployed due to insufficient personnel.

E: City Engine

- • Advanced 3d software for modeling cities / urban environments in a true geospatial environment.

- • City Engine is available for Windows and Mac

- • This product is installed and licensed as a completely independent product.

- • City Engine is not a GIS. It can be viewed as a companion software application which uses spatial data files (building footprints, locations of infrastructure such as traffic lights, park benches, streets, etc) within the modeling environment.

Web GIS Applications included in the Brown Site License

A. Brown University ArcGIS Online Organization (AGOL)

- This is a Software as a Service **(SAAS)** application

- AGOL has multiple functions in addition to acting as a license server for ArcGIS Pro as per above.

- First and foremost, users are able to design maps and make them accessible to others through a web browser.

  - maps can be interactive (pan, zoom, popups, etc.) and shared at different levels (private, groups, organization, public).
  - maps can be incorporated into various other SAAS apps – ie. Story Maps – and customized using templates (Web App Builder, Experience Builder)

- AGOL also functions as cloud storage for geospatial data files, customized geoprocessing tools, python scripts, images, etc.

  - an analogy is Dropbox, or a Google Drive, but AGOL is specifically configured to accommodate spatial data files. Using Dropbox or Google drive for storing spatial data files is discouraged as latency issues can cause crashes / corrupted files.

- AGOL also provides a limited number of "standard" spatial analysis tools

  - these tools are designed for end users needing step by step workflows

  - Using these tools consume a portion of the University's allotment of "credits"

    - The number of credits consumed is variable depending on the tool and number of records in the data file being processed (e.g. buffering 20 points will consume fewer credits than buffering 500 points).

  - Available tools include:

    - Summarize data (aggregate points, join features, summarize nearby, summarize within, summarize center and dispersion)
    - Find Locations
    - Data enrichment
    - Analyze patterns (density, hot spot, outliers, interpolate)
    - Proximity (buffers, drive time, nearest, routes, origin destination matrix)
    - Manage Data (dissolve, extract, tesselate, merge, union)

- AGOL is an integral part of a complete GIS, although not all users will need the functionality it provides. On the other hand, some users may only need AGOL and not require the advanced functionality of ArcGIS Pro (or ArcMap/ArcCatalog).

- AGOL requires an individual user account. This is created by a Brown University ArcGIS Online Administrator (Lynn_Carlson@brown.edu, or Jessica_Garcia@brown.edu). A request can be made directly, or through this form: https://arcg.is/0aL0n5

  - Individual user accounts are customized with a set of permissions allowing / preventing access to various components of the AGOL web environment.

    - For example, a user not needing analysis tools will have their credit allotment set to zero.

  - A collection of users can be placed together in a group (for example, if several students are working on a project for a class, they might be placed in a group).

  - A user can be in one or more groups, or not assigned to any group

  - Users can be licensed for ArcGIS Pro and extensions (see "Named User" in B above), Insights, and other custom apps by the AGOL Administrator.

B. Survey123

- This is a Software as a Service **(SAAS)** application designed for:

  - creating customized forms / questionnaires in which the survey taker typically wishes to record location-based data in tandem with answering questions about each location

    - note: surveys made with this application do not *have to* record location.

- Survey123 can record locations using either a mobile device's internal GPS, or an external Bluetooth-enabled GPS device.

- Locations can also be recorded via a map(s) embedded in the survey questions allowing a survey taker to manually enter their location (or by address) when GPS is not available (e.g. a survey taker is using a desktop computer).

- Examples

  - an ornithologist collecting the locations of bird sightings during a field expedition, and simultaneously records species, dates/times, sound recordings, photographs, and makes other observations

  - an electric utility company has field inspectors updating the condition of poles. An inspector records the location of the pole, and records date/time of inspection, pole identification number, and condition from a dropdown list.

- Survey123 is accessed through a web browser, **or** a Desktop application named Survey123 Connect. The latter has more robust functionality, but has a higher learning curve. The web-based version is drag and drop. It is not possible to convert between the two (once a survey is made in the web version, it cannot be edited using the desktop version and vice-versa).

- A Brown University AGOL Account is required for either Survey123 or Survey123 Connect.

- Once published, a unique URL is generated for distribution to survey takers. If published as a Public survey, survey takers do not have to be members of the Brown ArcGIS Online organization. Surveys can also be kept private, or shared with specific groups which do require an AGOL account.

- The survey and the data collected are stored in the survey creator's AGOL content. Data can be downloaded as needed for analysis/manipulation in other software applications.

- Credits are consumed for this storage if a hosted feature layer is capturing locations.

C: ArcGIS Collector

- Collector is similar to Survey123 in that it is designed for collecting positional location data in the field.

- Collector is a mobile device application which interacts with spatial data and maps stored as content in AGOL.

- Data being collected by the app is pushed real-time to the developers AGOL account. If necessary, (under field conditions where there is no internet access) data can be stored on the device until an internet connection can be re-established.

- Collector records locations using either a mobile device's internal GPS, or an external Bluetooth-enabled GPS device.

- Collector differs from Survey123 in that it is map based (end users interact with a map) instead of form based (end users interact with a form)

- Collector is available as a free download for either iOS (Apple App Store) or Android (Google Play)

- While the app is free, it is not useable without an ArcGIS Online Account.

D. Insights for ArcGIS

- "ArcGIS Insights is analysis software that fuses location analytics with open data science and business intelligence workflows" (esri, inc).

- This Software as a Service **(SAAS)** application is a web-based drag and drop exploratory analytical tool that combines maps, charts, and tabular data.

- Data used in Insights is stored in and accessed from the end user's ArcGIS Online Account

- It allows the end user to explore data in a visual environment that is highly responsive.

- Spatial, statistical, predictive, and link analyses can be accomplished within this environment.

- A Brown University ArcGIS Online Account is required and licensed to the individual account.

E. Dashboards

- This Software as a Service (**SAAS)** application is for the creation of interactive, easy-to-read, web-based data visualizations on a single screen to convey information that is, typically, changing rapidly over time, or in real-time.

- Dashboards may have maps, charts, gauges, tables, record counts, and text allowing decision makers to monitor indicators, events, assets, internet of things (iot) devices, etc.

- Recently made famous by the John Hopkins Corona Virus Dashboard

- A Brown University ArcGIS Online Account is required to create Dashboards

- Data used to create the Dashboard items are stored in and accessed from the end user's ArcGIS Online Account.

- Dashboards can be shared to others within custom Groups in the Brown AGOL organization, or can be shared to the public at large. Upon sharing, a unique URL is generated for distribution.

F. Storymaps

- This Software as a Service **(SAAS)** application allows an end user to combine maps, narrative text, images, sound, and video into a complete, immersive story about any topic.

- Maps and data used within them are created and hosted in an individual's ArcGIS Online account and linked to / embedded into the storymap, along with other content.

- A storymap is built using drag and drop, copy/paste, hyperlink functionality.

- A Brown University ArcGIS Online Account is required

- There are currently two types of storymaps

  - *Classic Story Maps* consist of seven templates, each offering a different immersive experience.

    - E.g. the Story Map Tour template is designed to lead the reader of the story through a sequence of photos or videos linked to a map.

    - The Story Map Journal template allows a story to be organized into sections in a scrolling side panel

  - *ArcGIS Story Maps* is a "new" way of creating storymaps without using a template. The storymap is built using a wide variety of widgets having specific functions

- Note: Classic Story Maps are no longer being developed (ie. there will be no new templates). ESRI recommends using the "new" ArcGIS Story Maps application.

- The two types of storymaps (Classic and New) are not interchangeable although it is possible to use the same content in both types.

G: Other SAAS Applications

- Several other software as service applications are included with the Brown University Site License

- These applications are licensed through an ArcGIS Online Account. There is no executable to download or install because they are accessed through the web browser.

- Each of these applications have very specific purposes, but are tightly integrated with ArcGIS Online and ArcGIS Pro. Please visit the esri.com website for more information about each product.

  - Workforce
  - Hub
  - QuickCapture
  - Experience Builder
  - WebApp Builder
  - Sites
  - Community Analyst
  - GeoPlanner
  - Urban
  - ESRI Redistricting