

Introduction to ArcGIS Online

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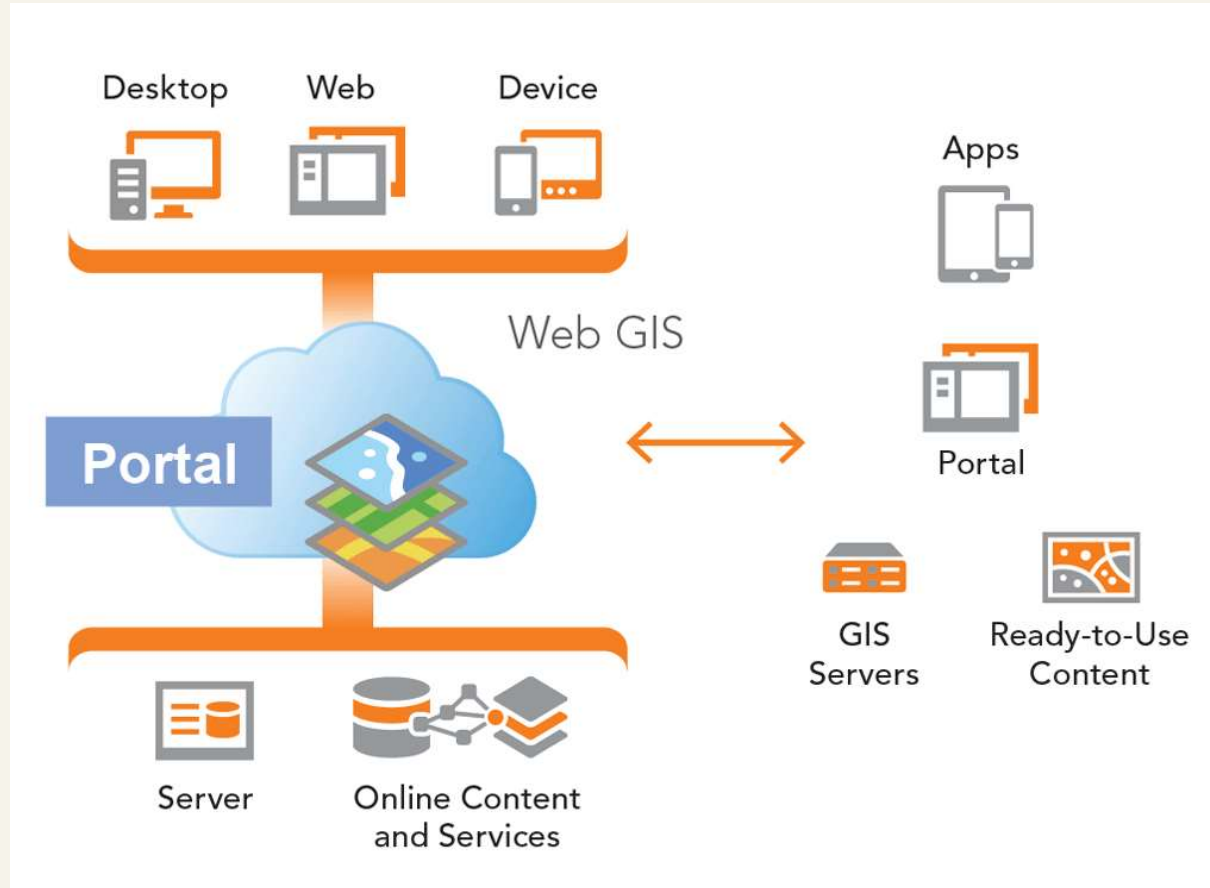
Webinar Overview

- First Principles: the Evolution of GIS
- Key concepts of ArcGIS Online
- How ArcGIS Online is Implemented at Virginia Tech

Key Concepts

1. The implementation of GIS has co-evolved with advances and trends in information technology generally and is now best understood as a **system of integrated systems**.
2. The new implementation patterns allow GIS managers to move from a **scarcity mindset** to an **abundance mindset**.
3. The new implementation patterns offer four key value adding points:
 1. Centralization of Identity Management
 2. Content Management and Data Discovery
 3. Self Service Mapping
 4. Broader Reach of Geospatial Data

Web GIS™



“ Web GIS is a **pattern** for delivering GIS capabilities. It is **at the center of Esri's strategic direction** for implementing GIS as a platform. The key concept behind web GIS is that **all members of an organization can easily access and use geographic information** within a collaborative environment. Analysts still provide technical GIS expertise in the traditional sense, **but other staff in the organization with little or no GIS knowledge can also benefit from and contribute to the organization's GIS platform.** Web GIS leverages existing GIS investments and **makes them discoverable and more accessible.** It provides a platform for integrating GIS with other business systems and **promotes cross-organizational collaboration.** Consequently, web GIS **extends the reach of GIS** to everyone in an organization, enabling better decision making.”

GIS Implemented as \longrightarrow GIS Functionality Delivered by... an Interoperating System of Systems

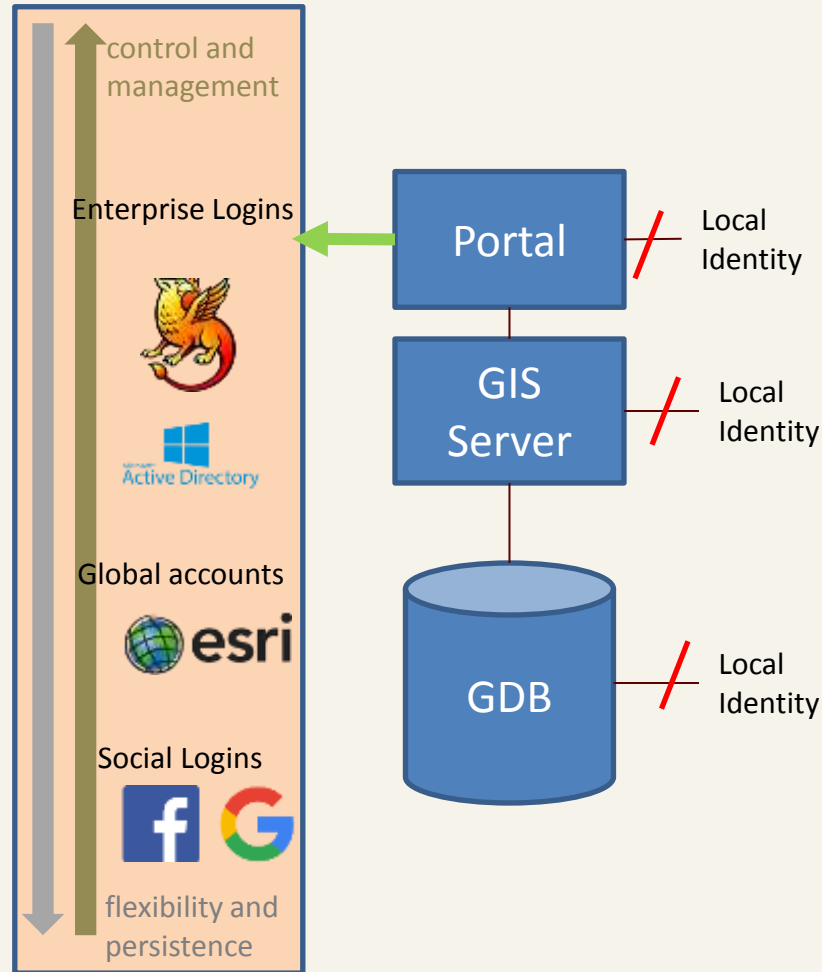
High level GIS functions (What)	Granular Technical Functions (How)	Software (Which)	Locations (Where)
<ul style="list-style-type: none"> • Capture • Store • Manipulate • Manage • Analyze • Present 	<ul style="list-style-type: none"> • Identity Management • Geospatial Data Storage • Web Services • Scripts and Tools • Multitemporal Data Harvest • Integrations with other Systems • Field Data Collection • ETL • Data Transformation • Spatial Analysis • Cartography 	<ul style="list-style-type: none"> • ESRI <ul style="list-style-type: none"> • ArcMap • ArcGIS Pro • ArcGIS Enterprise • ArcGIS Online/Portal • Web Maps • GeoEvent Processor • Image Server • App Ecosystem (collector etc) • Third Party <ul style="list-style-type: none"> • PostgreSQL • Shibboleth • Active Directory • FME • MicroStrategy • AssetWorks • CAD • ... and many more! 	<ul style="list-style-type: none"> • On-prem • Cloud <ul style="list-style-type: none"> • SaaS • PaaS • IaaS

4 Value-adding points of ArcGIS Online

- Centralization of Identity Management
- Content Management and Data Discovery
- Self Service Mapping
- Broader Reach of GIS data via Apps

Centralization of Identity Management

- Identity is a core component of distributed GIS
- Is necessary for integrations with other systems
- Enables explicit granular content ownership
- What is a named user?
 - Institutional Identity / ESRI identity / User-owned identity (e.g., social login)
 - No one right answer,
 - Need to balance control and flexibility
- Management considerations
 - What is the identity lifecycle? (provisioning, authN/Z, deprovisioning)
 - What artifacts persist during and after the identity lifecycle?
 - Who should own them?
 - How should they be discoverable/archived?
 - Content (maps, apps, data)
 - Training portfolio
- *In order for WebGIS to be pervasive across an institution and realize its full value adding potential, barriers to provisioning named users should be minimal.*



Edit Identity Provider

Specify the properties to establish your organization's Enterprise Identity Provider.

Name:

Your users will be able to join:
 Automatically Upon invitation from an administrator

Default License Level:
 1 2

Role they will be assigned:

Organization has 58,097 credits.

Set the credit allocation for each new user to the specified value:
 Set allocation to Organization's default limit

You have not specified any groups to which to assign users.

Metadata for the Enterprise Identity Provider will be supplied using:
 A URL A File Parameters specified here

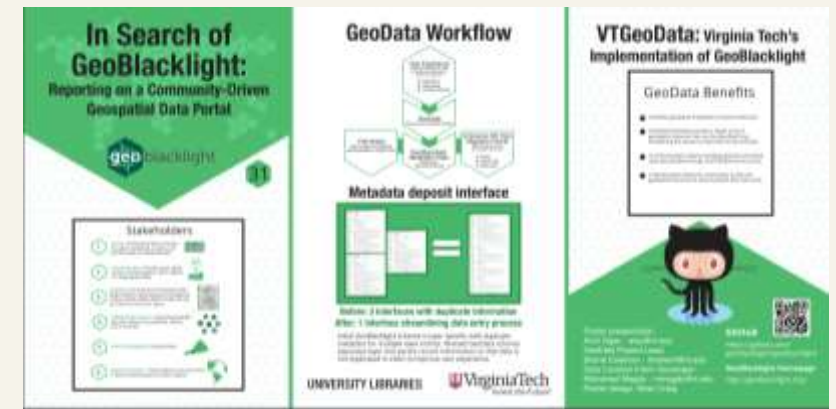
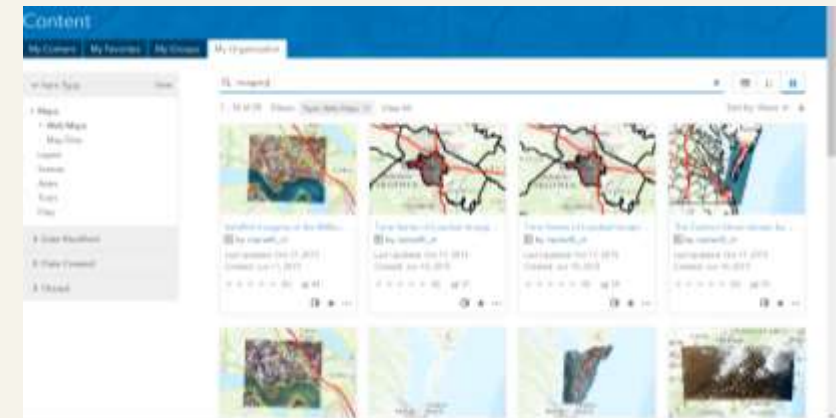
Login URL (Redirect):

Login URL (POST):

Certificate:

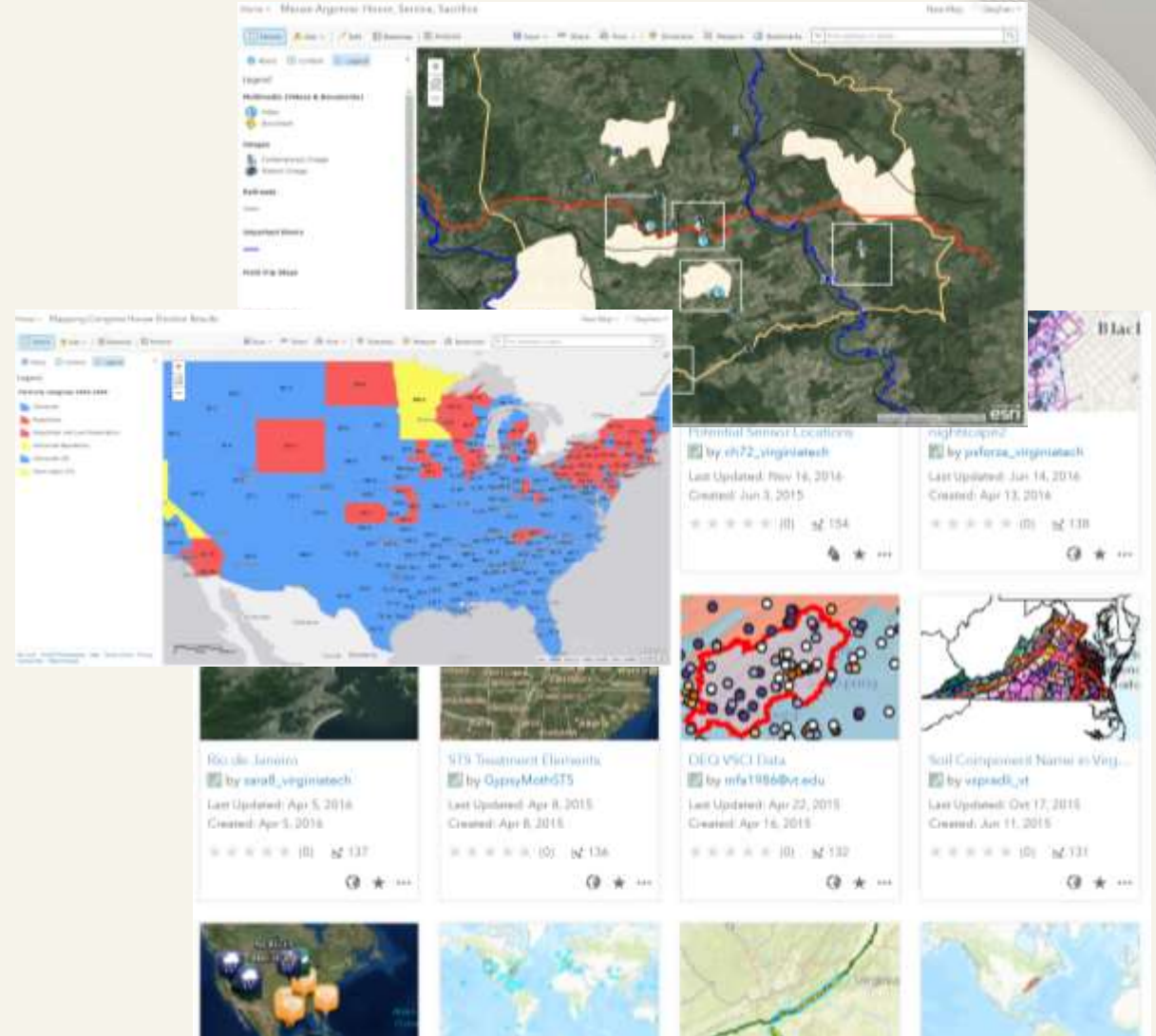
Content Management and Data Discovery

- WebGIS links together disparate resources in a common geospatial CMS – web services, hosted layers, etc.
- The unifying UI for a **system of integrated systems**
- **Abstracts underlying complexity**
- Metadata (both directory and formal) is essential
- Curation becomes a concern
- **Data governance becomes essential as data becomes discoverable!**
- AGOL as a data discovery platform can complement other metadata portals (GeoBlacklight, ESRI GeoPortal Server, etc)



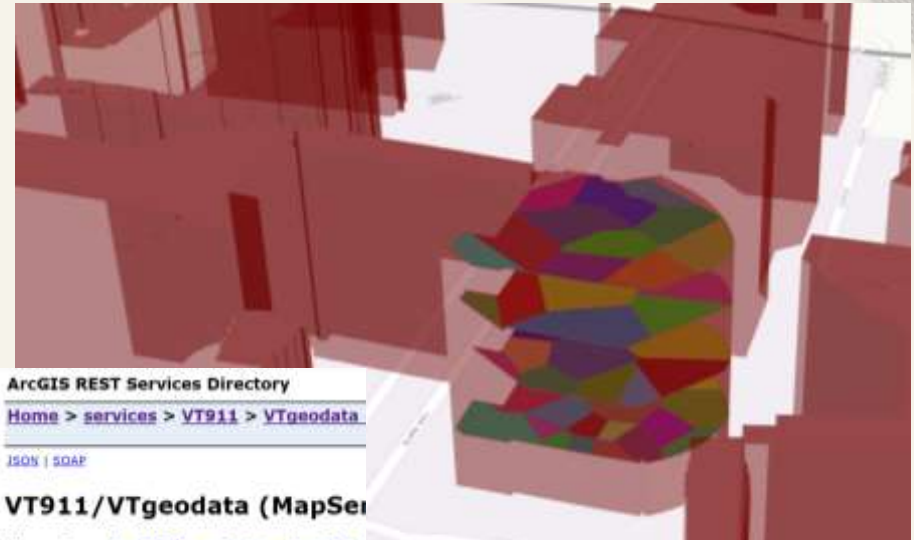
Self Service Mapping

- Full cartographic and analytical capabilities on the web is a game changer
- 80/20 rule of use cases
- Self-service app development
- Disruptive (changes the meaning and datacenter footprint of Enterprise GIS) and emancipating (frees up resources for more value adding work)
- Changes the scope of “who is a GIS user?” *Grows the pie*



Broader Reach of Geospatial Data

- Making visible and operational the notion of a “geography of everything”
- Views, database links, and taking stock of what is explicitly and implicitly geospatial
- Integration, ETL and data transformation bring spatial tools and methodologies to bear on datasets not previously mappable
- Examples
 - ESRI Maps for MicroStrategy
 - Regional 911 center
 - Interior Space AssetWorks Integration



ArcGIS REST Services Directory

[Home](#) > [services](#) > [VT911](#) > [VTgeodata](#)

[JSON](#) | [SOAP](#)

VT911/VTgeodata (MapSer

View In: [ArcGIS JavaScript](#) [ArcGIS.com](#)

View Footprint In: [ArcGIS.com Map](#)

Service Description:

Map Name: Layers

[Legend](#)

[All Layers and Tables](#)

Layers:

- [VT Addresses](#) (2)
- [VTRCL](#) (3)
- [Buildings](#) (4)
- [VT Police Beats](#) (6)



Emerging Themes

- Democratization of GIS
 - **Scarcity to abundance**
 - Growing the Pie
- Identifying our constituencies
 - Who is now a GIS “user”?
 - How best to manage their identities
- Architectural Changes
 - Abstraction of the stack
 - Modularity
 - System of systems
 - Unification of loosely coupled and vendor neutral architectures

1. **Centralization of Identity Management**
2. **Content Management and Data Discovery**
3. **Self Service Mapping**
4. **Broader Reach of Geospatial Data**

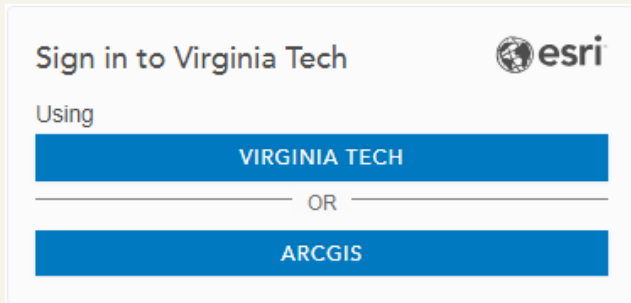
ArcGIS Online Today


- Software as a Service **Web GIS** by ESRI
- An abstracted implementation of the ArcGIS Enterprise without the infrastructure concerns
- It began as a “geospatial content management system”
- It has become a “**full stack GIS** in the cloud”
- New features are rolled out quarterly
- *This may be a viable substitute for desktop GIS for certain use cases.*

TERMINOLOGY

Accounts

All content in ArcGIS Online is owned by somebody.



Sign in to Virginia Tech 

Using

VIRGINIA TECH

OR

ARCGIS

- ArcGIS Account
 - Maintained in an ESRI identity provider
 - Associated with individuals
 - A personal ESRI account must be invited to an organization.
- Enterprise Logins
 - This is what we use at VT
 - This is your PID@vt.edu
 - Identity Federation
 - SSO

ArcGIS Online Account Types

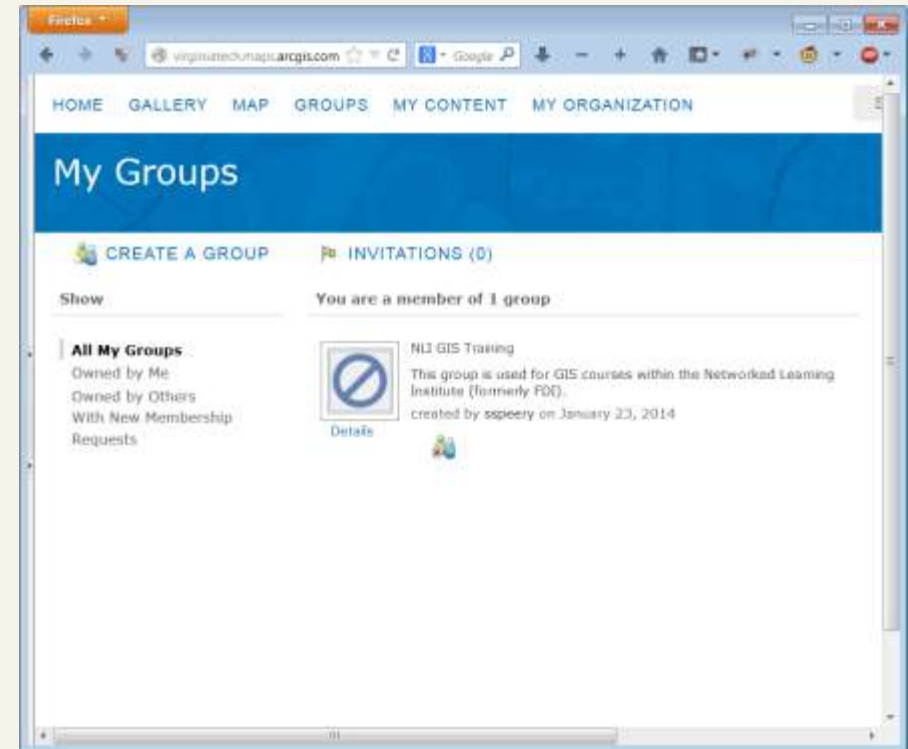
Type	Description
Public ArcGIS Account	Enables access to arcgis.com. Not associated with an organization. Free for non-commercial use.
Organizational ArcGIS Account	An ArcGIS account that is associated with an [organization].maps.arcgis.com idP may be ESRI, or your organization's identity store if Enterprise. Public accounts can be invited to membership in an organization. A public account can only be a member of one organization at a time.
Enterprise Login	An ArcGIS account whose credentials and authentication are provided by the organization. Accounts are structured <name>_<organization> idP may be ADFS, LDAP, SAML
Social Login	An ArcGIS account whose credentials and authentication are provided by federation with a third party social network (Facebook, Google, etc). Neither the org nor ESRI owns/controls the means of authentication.
ESRI Account	Essentially, grants access to GeoNet and My ESRI; duplicates an organization ArcGIS account if admin grants "ESRI Access" entitlement.
Developer Account	A special class of ArcGIS account; uses ESRI identity store, grants access to arcgis.com and developer resources (tiered pricing beginning at \$0)

Organization

- An organization is the “top level” of the AGOL CMS.
- Organization is one of four security contexts in AGOL:
 - Public
 - Organization
 - Group
 - Individual
- An organization defines the site URL
 - <http://virginiatech.maps.arcgis.com/home/>
- 1:1 mapping between your account and the organization
- Multiple organizations may make sense for certain use cases

Groups

- Groups provide a security context below the Organization level.
- Groups are “owned” objects like content (*Self-service: you can create your own and invite others*)
- To request membership in an existing group, you can click “join this group” to request an invite.
- Depending on how the group owner has set up the permissions, you may or may not be able to share content with that group.



Content

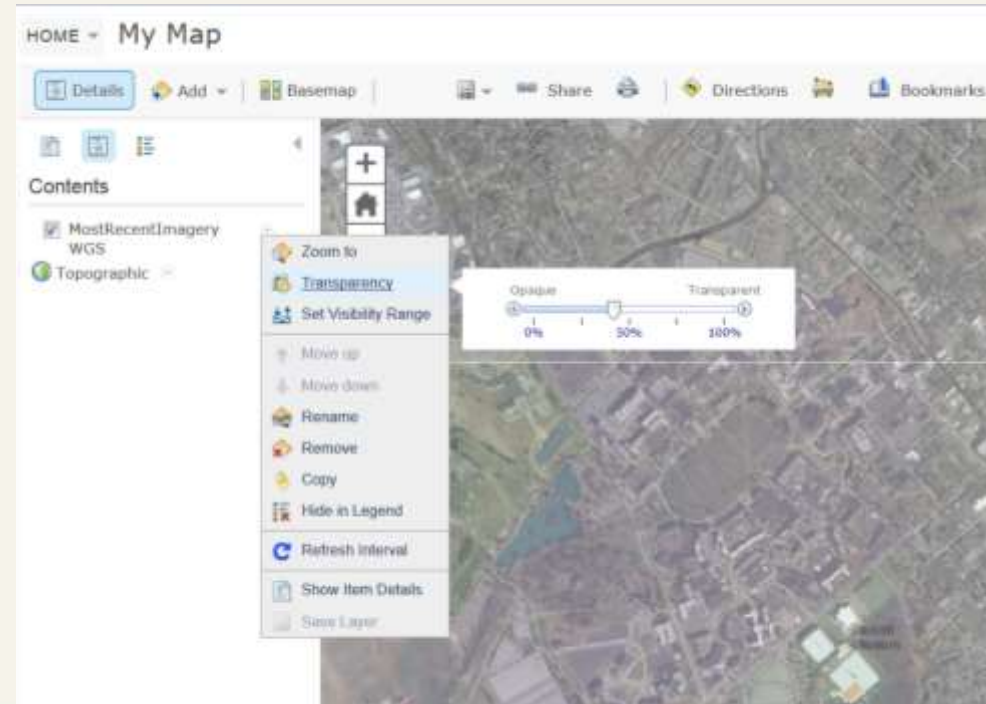
- ArcGIS Online supports a wide variety of content types (see <http://resources.arcgis.com/en/help/arcgisonline/index.html#//010q00000000m000000>) for all 54 of them)
 - Access content in place: web services, functioning apps, configurable apps, GP services
 - Upload content from local filesystem/GDB
- Publish maps from ArcGIS for Desktop
- Add items from ArcGIS Online Web Interface

Title	Type	Modified	Shared
Hostfilecent(rnagery_WGS)	Map Image	Feb 18, 2014	Group
Sample map: VMMP 2011 + ESRI ba...	Web Map	Feb 18, 2014	Group
Virginia Tech Interactive Campus Map	Web Mapping Application	Feb 18, 2014	Group

Maps

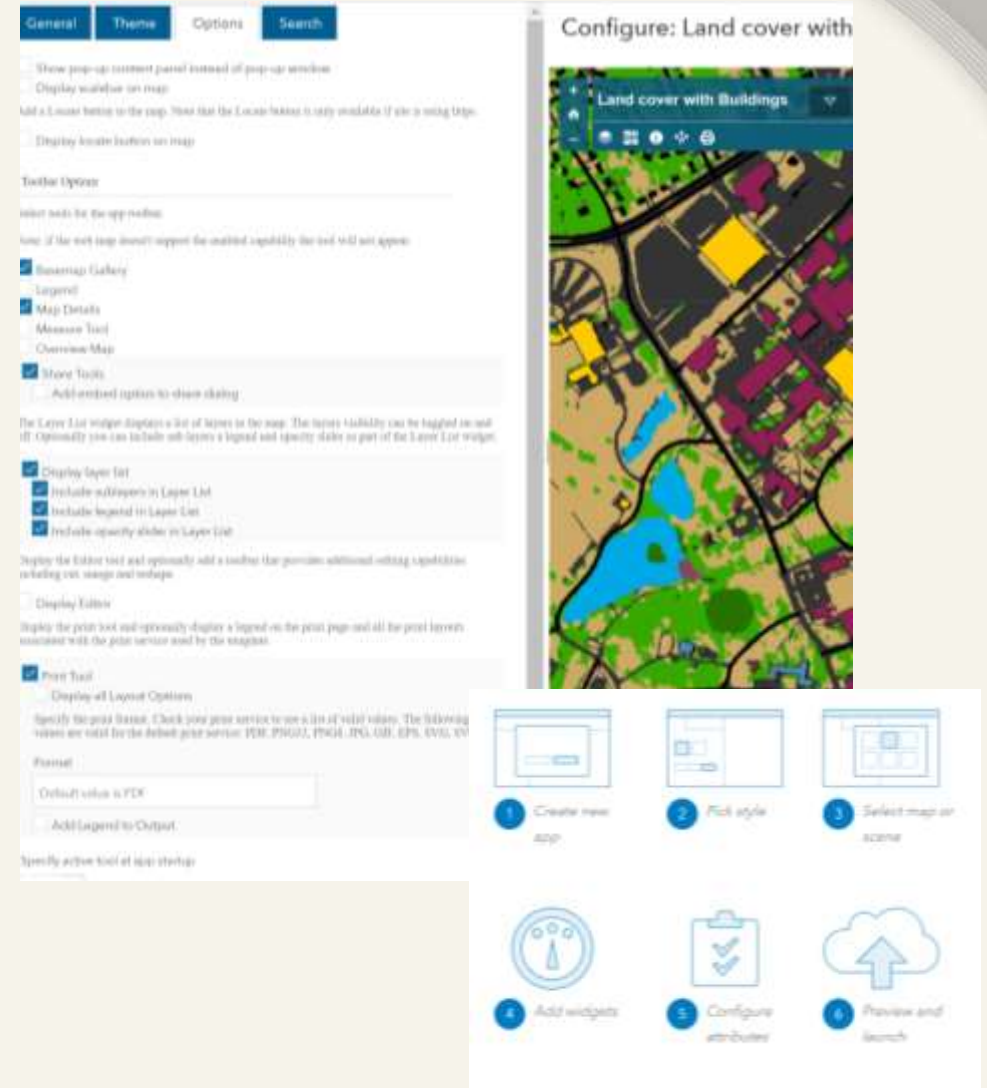
- Maps are representations of geospatial data, created within AGOL or a client from content inside the organization, outside, or a combination

- Here users bring together content and define cartography
- ... and optionally save the map as a persistent content type inside of My Content
- .. and optionally share that map with group/org/world
- “Smart Mapping” – advanced cartography on the web



Apps

- Focused, purpose built pieces of software that connect users to GIS data, maps, or tools
- The preferred way to interact with WebGIS
- Allows the developer to package “user experience” with content and its presentation

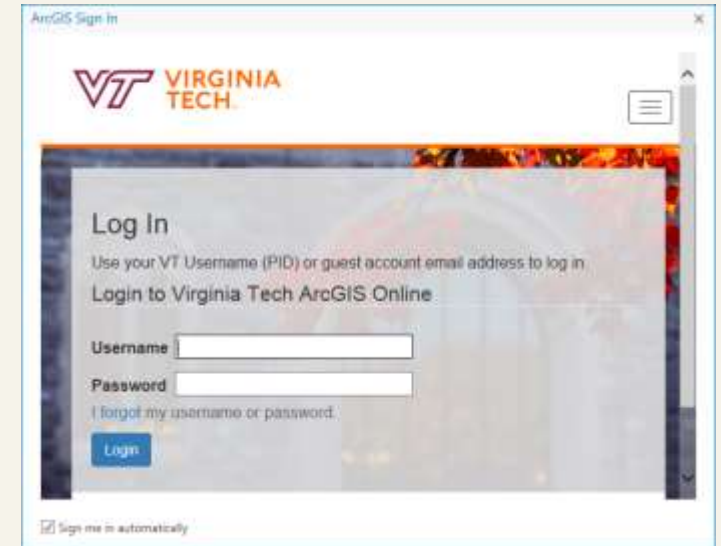
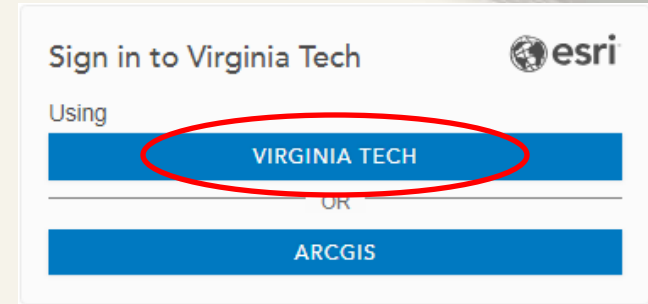


ArcGIS Online at Virginia Tech

- Login
- ArcGIS Pro Licensing
- Privileges and Credits
- User Lifecycle Management
- Terms of Use
- Requesting Help

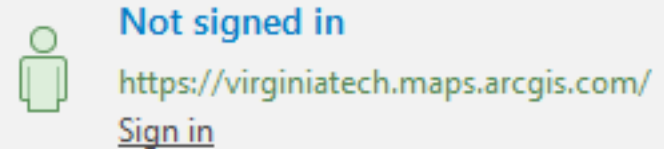
AGOL @ VT: Login

- <https://virginiatech.maps.arcgis.com>
- Login is single sign on (“enterprise login”)
- Select “Virginia Tech” option to redirect you to login.vt.edu
- Once you login for the first time, a named user is provisioned
- There is no need to request an invitation
- All Virginia Tech affiliates (*current faculty, staff, students are eligible)



ArcGIS Pro Licensing

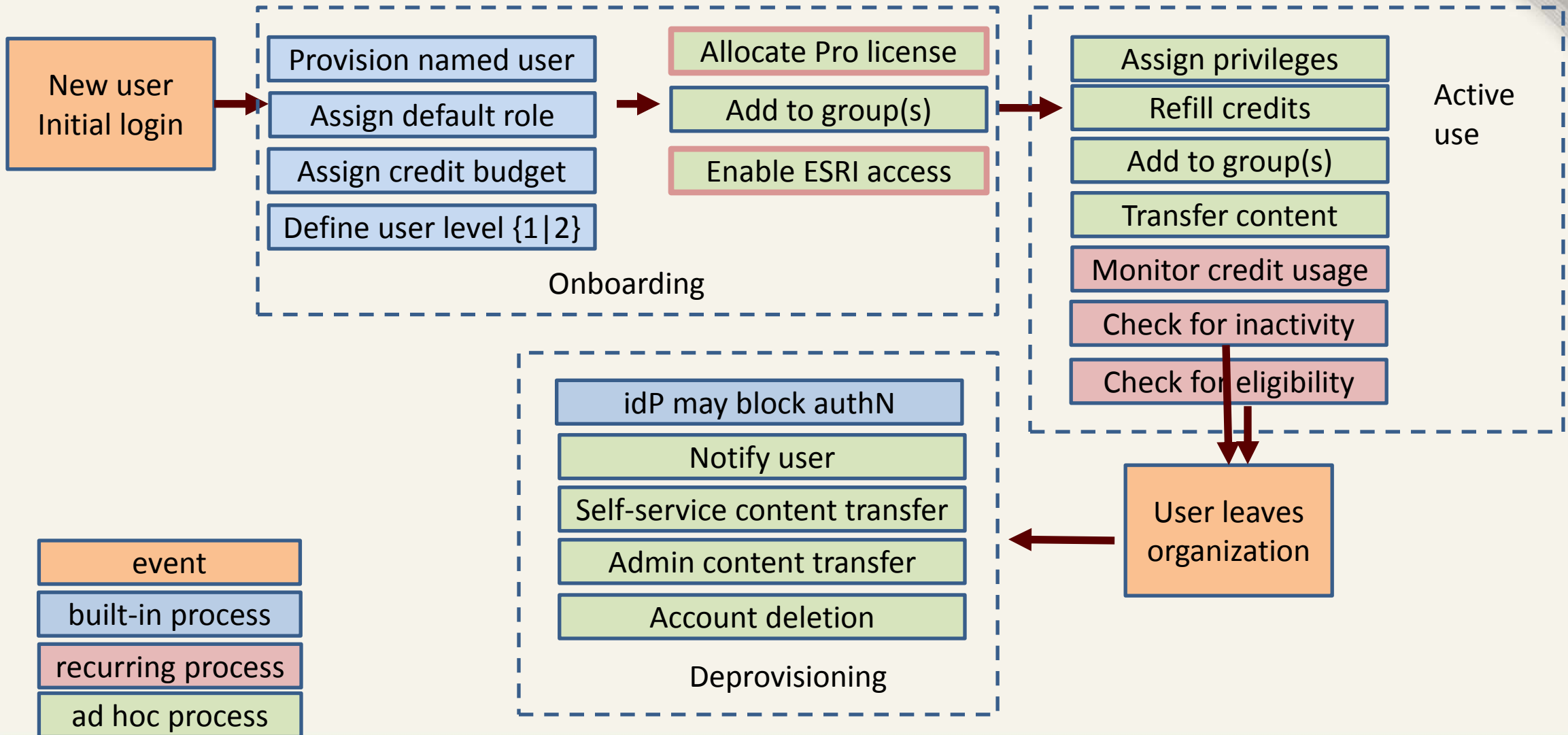
- **Effective late 2018, ArcGIS Pro licensing is automatic.**
- Within 2 minutes of logging into ArcGIS Online for the first time, you'll be assigned a Pro license.
- There is nothing you need to do to receive a license.
- Once you install ArcGIS Pro, simply sign into virginiatech.maps.arcgis.com from the "Sign In" link at the top right of the ArcGIS Pro interface.
- The login experience should be the same as the website.



Privileges and Credits

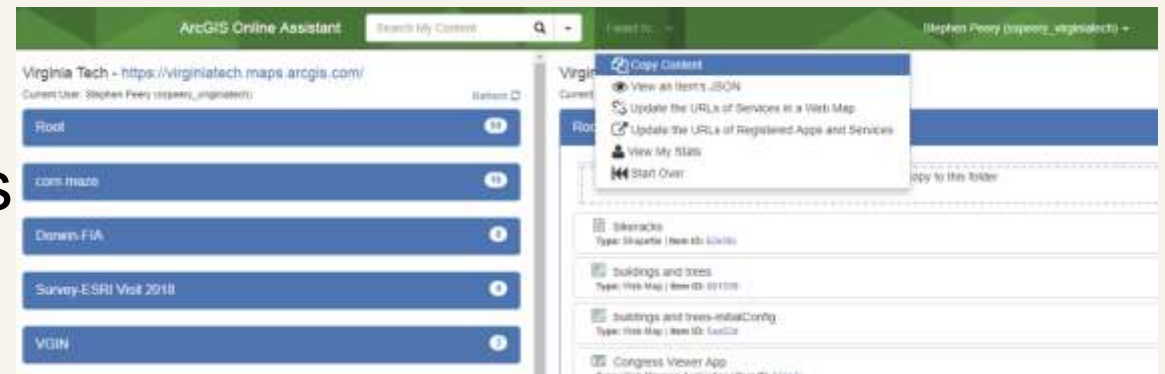
- All users of ArcGIS Online are given the “Creator” user type and [“Publisher” user role](#).
- This means you’ll be able to publish your own content, consume ESRI premium content, perform analysis, and leverage most of the capabilities of the platform.
- ESRI uses “service credits” to recover costs of computationally intensive operations. Some tasks in AGOL consume credits. For a list of them, see [Service Credits Overview](#)
- All VT users are given an initial quota of 50 credits. More credits can be [requested via ServiceNow](#), and we have never turned down a request.
- *Virginia Tech has a very, very large allocation of service credits, so credits should not be an impediment to your work!*

User Lifecycle



Touch points and actions during user lifecycle

1. On-boarding (automatic)
2. Active Use
 1. Add Credits / Privileges
 2. Creating and Sharing content
 3. Creating and Managing groups
 4. Special setup for large classes
3. Deprovisioning
 1. Case 1: Self-service migration (<https://ago-assistant.esri.com/>)
 2. Case 2: Migration to another account via Admin ([Request in ServiceNow](#))
 3. Case 3: Content can be deleted



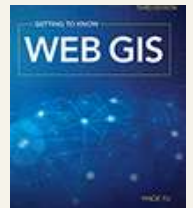
Terms of Use

- Virginia Tech pays an annual site license for all ESRI products. There is nothing that you need to pay, and this entitles you to use almost all ESRI products, with certain limitations:
- In general, the following would be permitted:
 - Teaching activities for which students are the primary beneficiary
 - Research activities for which the results of the study benefit society, not a third party.
 - Most forms of outreach
 - Administrative use of ESRI products are permitted unless expressly prohibited
- The following would not be permitted:
 - “Contract” work for the exclusive benefit of a third party
 - Independent consulting not affiliated with Virginia Tech
 - Use of specific ESRI products not licensed for administrative use
- Ask us if there are questions!

[ArcGIS Online Permitted Uses Document](#)

Resources

- ESRI web-based training is FREE for all VT faculty/staff/students
<https://www.esri.com/training/catalog/search/>
- ESRI instructor-led training is available at a significant discount
- Virginia Tech Enterprise GIS landing page in IT service Catalog
https://vt4help.servicenow.com/sp?id=sc_category&sys_id=a42c2fa20f130a00005de498b1050e54
- Books
 - Fu, Pinde (2018). Getting to know web GIS. Redlands, CA, ESRI Press.
 - [The ArcGIS Book](#) (online resource)



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