CyberSecurity and System Administration
IT4GIS
Keith T. Weber, GISP
GIS Director
ISU-GIS Training and Research Center

Today’s Topics
• Users
• Privileges, Permissions, and Sharing
• User groups
• Other Topics:
  – Mapped drives
  – ROI
  – TCO
  – Data retention and deletion
• Think “Enterprise”

Users
• Local
• Remote
• Generic Account Profiles
  – Guest
  – Administrator
  – Others
Privileges, Permissions, and Sharing

- Privileges
- Rights
- Permissions and Sharing permissions

User Groups

- Administrators
- Guest
- Others:
  - User
  - Power User
  - Backup Operator, etc.

User “Needs”

- What is the user’s functional need?
- What is the user’s level of “sophistication” or “computer literacy”.
- What is the user’s job description.
- Do not confuse rank with authority
Assigning Privileges and Permissions

• Based on these considerations, add the user to the appropriate user group(s). This gives them Privileges
  – Basic = User
  – Advanced = Power User
  – Basic + Temporary = User + Guest
• Apply Permissions to their workspace
  – Administrator always has full control
  – The user (owner) always has full control
  – Everyone has read access only (if any)

Sharing Resources

• Files and folders
• Devices
• Important for ArcGIS Geoprocessing Servers

Ownership

• Who (one account) ultimately owns a file or folder
• Administrators can take ownership
Security

• We have talked about data integrity (information assurance) when we discussed servers.

• We now need to discuss data security (information security) in detail as it is an important topic in system administration.

Data Security

• Why is it important?
  – Aside from ethical reasons
  – There are compelling legal reasons
  – Idaho’s CyberSecurity initiative

Professional Hints and Tips

• Create passwords that are:
  – Strong, Unique, Random
  – Do not use the same username/password combo more than once

• Visit [http://www.passwordmeter.com](http://www.passwordmeter.com)

What did you learn?
Primary Target...

- Personal information
- So, how can we secure the desktop?
  - Disable anonymous log in
  - Use **Firewalls**
  - What is a firewall?
  - Employ Intrusion Prevention/ Intrusion Detection software/ hardware at the LAN (AKA IP-ID or IDS [Intrusion detection systems])

The Desktop

- Well-trained/educated workforce
- E-mail is an easy “IN”

Professional Hints and Tips

- Administrators should consider increasing **authentication** requirements
  - What is authentication?
  - Proving your credentials that then give you access to the system and network, where you have privileges and permissions
Authentication

• Single factor
• Two factor
• Three factor

Questions & Other Topics

Mapped Drives

• Remote drives
• Same as “Connect to Folder” with ArcGIS
ROI
- Return on Investment

TCO
- Total Cost of Ownership

Policies
- Writing and seeking approval for administrative policies or procedures
  - Data retention and deletion
  - Data sharing
Considerations

• Once you decide what must be kept, you must still consider:
  – Format of data in archive
  – Archiving media
  – Archiving frequency
  – Task delegation
• In Idaho, Geospatial Data are listed as perpetual records

Thinking Enterprise

• What is meant by the term “Enterprise”

An Enterprise...

• Is Amorphous
• Shrinks and swells with the scope of the question, problem, or task
• Works toward a common goal as a group
• Is connected
GIS and the Enterprise

• GIS is part of the enterprise
  – Tends to be a technical resource
  – Information supplier
  – Analyzer
  – Integrator

• GIS is NOT
  – THE enterprise
  – THE decision maker

A GIS Manager Must

• Keep the “goal” of the enterprise in mind
• Communicate the benefits and capabilities of GIS to decision makers
• Understand GIS, networks, servers, system administration, ROI, TCO, and
  – People

Key Concepts

• We have explored several important GIS and IT topics
• New terms of significance- Enterprise, ROI, and TCO
  – Keep these in mind throughout the semester along with effectiveness
Your Assignment

• Complete the exercise
• Review the GIS TReC Data Retention and Deletion Procedures and Data Sharing documents
• Prepare for the first exam (mid-term)
• Grad students… proposal due Friday

Questions?

Get ready for the 2-minute write

Preparation

REVIEW FOR EXAM ONE