CyberSecurity and System Administration
IT4GIS
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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 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
  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 (1FA)
- Two factor (2FA)
- Three factor (3FA)

**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 still need to consider:
  – Format of data in the 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

Professional Hints and Tips

• Reply or Reply to All?…
• Replying when you are unavailable

Questions?

Get ready for the 2-minute write