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"**

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Users

- Local
- Remote
- Generic Account Profiles
  - Guest
  - Administrator
  - Others

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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)

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Sharing Resources

- Files and folders
- Devices
- Important for ArcGIS Geoprocessing Servers
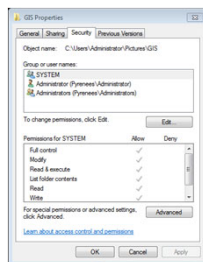
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Ownership

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

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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*

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Data Security

- Why is it important?
  - Aside from ethical reasons
  - There are compelling legal reasons
  - Idaho's CyberSecurity initiative

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Professional Hints and Tips

- Create passwords that are:
  - Strong, Unique, Random
  - Do not use the same username/password combo more than once
- Visit https://passwordmeter.com/
  - **What did you learn?**

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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"
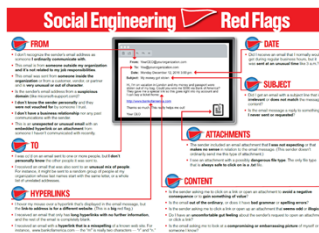
Professional Hints and Tips

- Increase **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)

RSA
The Security Division of EMC

Questions & Other Topics

INFORMATION

Mapped Drives

- Remote drives
- Same as "Connect to Folder" with ArcGIS
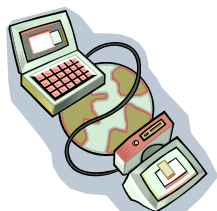
ROI

- Return on Investment

TCO

- Total Cost of Ownership

TCO: The Great Equalizer?
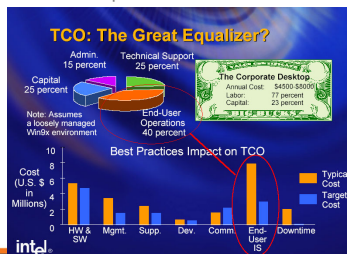
Policies

- 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 <u>perpetual records</u>

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

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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
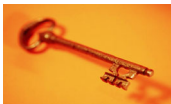 - **People**

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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*

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Your Assignment

- Follow the README text file in today's download
- Prepare for the first exam (mid-term)
- Grad students… proposal due Friday

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Professional Hints and Tips

- Reply or Reply to All?...
- Replying when you are unavailable

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Questions?

Get ready for the 2-minute write

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Preparation

REVIEW FOR EXAM ONE

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