

CyberSecurity and System Administration

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

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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



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User Groups

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

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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*

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Assigning Privileges and Permissions

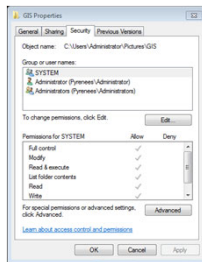
- Based on these considerations, add the user to the appropriate user group(s). This gives them *Privileges*
 - Basic = User
 - Advanced = Power User
 - Basic + Temporary = User + Guest
- Apply *Permissions* to their workspace
 - Administrator always has full control
 - The user (owner) always has full 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 <http://www.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])



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The Desktop

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

Social Engineering Red Flags

- FROM:** Check for misspellings, typos, and unusual email addresses. Verify the sender's name and email address. Be suspicious of "no-reply" or "noreply" addresses.
- DATE:** Check for unusual times or dates. Be suspicious of emails received from unknown senders.
- SUBJECT:** Check for unusual or vague subject lines. Be suspicious of subject lines that contain sensitive information.
- ATTACHMENTS:** Check for unusual file types or extensions. Be suspicious of attachments from unknown senders.
- CONTENT:** Check for unusual or suspicious content. Be suspicious of content that contains sensitive information or requests for confidential information.

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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

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Authentication

- Single factor (1FA)
- Two factor (2FA)
- Three factor (3FA)



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Questions & Other Topics

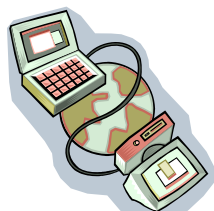


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Mapped Drives

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



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ROI

- Return on Investment

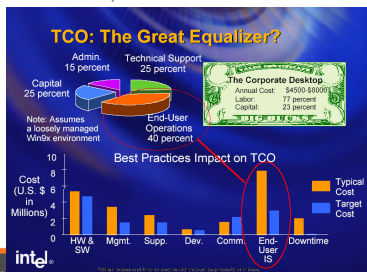


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TCO

- Total Cost of Ownership



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Policies

- Writing and seeking approval for administrative policies or procedures
 - Data Retention and Deletion
 - Data Sharing

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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

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Thinking Enterprise

- What is meant by the term “Enterprise”



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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

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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

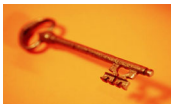


- Keep the "goal" of the enterprise in mind
- Communicate the benefits and capabilities of GIS to decision makers
- Understand GIS, networks, servers, system administration, ROI, TCO, and

–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

- 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

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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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