

The System Administration Top 10 List

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- All of you, for listening and participating

System Administration

- Including everyone who supports, maintains and plans IT systems
 - Workstations and Servers
 - Software systems
 - Network
- Provide reliable, efficient, predictable, secure IT infrastructure and services to meet the needs of your organization

Always use the tools – Don't take shortcuts



Always use the tools – Don't take shortcuts

- Processes and procedures exist for a reason: consistency and accuracy
- Even better: automated tools
 - Consistency
 - Accuracy
 - All the details, first time, every time
 - No mistakes (or the same mistake all the time)
 - Avoid string of re-dos

Have a Plan



Have a Plan

- Know the direction your site is going for each technical concern, such as:
 - Security and passwords
 - Supported operating systems
 - Upgrade plans

Consult the Plan



Consult the Plan

- For each request for something new or different, consult the plan
 - Does this fit with the direction we are going?
 - If not, is it a step backwards?
 - Is it a step forward?
 - Is it something we need to plan for?
- If the request doesn't fit the plan – either find an alternative, or change the plan (if you must)

Knowing – and using – users' passwords



Knowing – and using – users' passwords

- There are better ways:
 - Mechanisms to masquerade as a user
 - Change the users' password to something you know, if you must use their account for testing/debugging
- Always consult the user first, and get permission
 - DON'T accept blanket permission
- Don't ask for their password

Knowing – and using – users' passwords

- Why is it bad?
 - Sends the wrong message to users' about security and the role of the system administrator
 - Is a sign of taking a convenient shortcut by the system administrator
 - Users often use the same password for more than one system... how many systems can you access with the one password?

Apply the Principle of Least Privilege to All Tasks



Apply the Principle of Least Privilege to All Tasks

- Don't routinely login at root or administrator
- Don't run all automated tasks as root/administrator
- If you can, create an appropriate user for each distinctly different task, and give it access only as needed

Take Notes / Keep a Log



Take Notes / Keep a Log

- Take notes on everything you do
 - Ticket systems can record minor tasks
 - Make sure to record the exact steps/commands used (cut-and-paste)
 - Wikis
 - accept almost any input format, including cut-and-paste plain text
 - Capture the information now, organize later
 - Lab notebook – when you are away from the computer

Have a Backup/Restore Plan



Have a Backup/Restore Plan

- Don't just “do” backups – Have a plan
 - Establish criteria and goals
 - What is being backed up?
 - How long are the backups preserved?
 - What isn't being backed up?
- If you don't have a plan, you can't tell if you are doing the right thing

Test your Backups and Restores



Test your Backups and Restores

- Practical tests: make sure the backups are readable, correct
- Audit: compare what is being backed up with what should be backed up
 - Make sure nothing is being skipped

Special Cases



Special Cases

- Unplanned special cases are just land mines planted for tomorrow
- If something doesn't fit your system, take a step back and ask “why?”
 - If the system needs rework or expansion, **FIX THE SYSTEM** (make the requested special case not special – before you do it)
 - If there is a reason the system doesn't support the request.. honor it!

Plan for Special Cases



Plan for Special Cases

- When planning or designing a system, be aware of the special cases – and find a way to incorporate them into the system
- If you don't plan for them, they will bite you
- If you do plan for them, everything goes smoother – the initial request, support, future changes

Plan for Special Cases

- Example: lists of users come from:
 - HR data (totally automated)
 - Course registration data (totally automated)
 - Requests from Professors (manual? Semi-automated?), such as colleagues in other departments and at other universities
 - If you don't plan for and fully support this case, you will have a lot of special case users

Revision Control



Revision Control

- Use some kind of revision control system
 - RCS, CVS, Subversion... something
- Use it consistently
 - So everyone expects it
 - So everything is covered

Test your Disaster Recovery Plan



Test your Disaster Recover Plan

- Site-wide disaster test
 - Isolated from network, limited resources
 - DR plans are a full talk (or more)
- Use the DR plan for every failure
 - Bad disk on a server? Use the DR plan, don't just wing it!
 - Exercise parts of DR plan
 - Helps to get failure recovery right
 - Revise the DR plan

Overloading Servers



Overloading Servers

- Put separate services on separate servers (if you can)
 - Avoid unexpected conflicts (libraries, upgrades, bandwidth, downtime...)
 - Isolate and minimize security exposure
 - One service can't “take down” another

Reinstall when Redeploying a Computer



Reinstall when Redeploying a Computer

- Install the OS from scratch when changing a computer from one use to another
 - Assures the correct software is installed
 - Tests the [automated] install and configuration processes
 - Avoids any “pollution” from previous use
- Change the name too!

Postmortem Reviews



Postmortem Reviews

- After every outage (planned or unplanned) and “big” event
- Review the event
 - What happened? Why?
 - How did we handle it? What did we do right? What did we do wrong?
 - How can we improve things for next time?
 - How can we prevent the problems?

Label Everything



Label Everything

- Servers (front and back!)
- Workstations
- Switches
- Data cables
- Power cables
- Racks
- Parts

I'll come back and fix it
tomorrow ...



I'll come back and fix it tomorrow ...

- Do it right the first time!
- We rarely get back to those things we said we'd "do right" later
- The short-term gain is rarely worth it
- Will the "good enough" solution last through the next reboot, software upgrade, server move, staff change?
- What happens when you are on vacation?

Use a Ticketing System



Use a Ticketing System

- Ticketing systems are not the silver bullet, but they give structure to the to-do list, request queue and the work done
- Pick one that fits your site and culture
- Use it for *everything*
- Put all the information in the ticket
 - References to other tickets, external information too

Documentation



Documentation

- Everyone wants good documentation... most of us don't have it
- Make it easy for the staff to add technical documentation
 - Wiki, How-to Pages
 - Focus on content, not form

Documentation

- Printed documents
 - During an outage, you may need them!
 - Phone Lists, Key suppliers
- Offsite copies of the docs?

Be Professional



Be Professional

- Continue Learning
- Take pride in your work
- Professional: characterized by or conforming to the technical or ethical standards of a profession
- Join LOPSA and NC*SA

Questions and Discussion

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