



PROFESSIONAL SERVICES TECH NOTE #035

The Maintenance Process

The Concept

In some ways, the job of storage administrator should be like the systems you manage – reliable and consistent in performance. There are always risks in making changes, but you should never be one of those risks. Having a standardized process for managing maintenance is one way to reduce risk. Here are the steps Professional Services use and suggest to our customers.

1. **Research.** What does this change impact and what are NetApp's implementation guidelines?
2. **Create a checklist.** A good checklist ensures repeatability; especially in a team environment. At a minimum, creating a checklist forces you to think through the process instead of flying by the seat of your pants.
3. **Make a time estimate.** Figure out how long each step will take, where you may have to wait on others to do their work, the time to verify everything still works, and how long it will take if you have to rollback the changes. Then add a cushion for unforeseen events (or follow Scotty's advice and multiply by 3).
4. **Pick a date and time.** Having a regularly scheduled maintenance window which everyone knows about will significantly decrease your coordination efforts. Otherwise, find a date and time when the system workload and impact on users will be the lowest. Be sure to account for disaster recovery time. Friday nights and Saturday mornings always provide plenty of time to fix any issues before work resumes Monday morning.
5. **Notify affected users.** Notification reduces friction with your end users. Often times they will notify you of processes or issues you were not aware of which may affect the maintenance process. Be sure to notify them when work is done so they can begin working again.
6. **Submit a change request.** Even if your company does not have a formal change request process at least send an email with your checklist attached. This will keep your managers and team in the loop. Again, communication reduces friction.
7. **Open a Technical Support case.** By opening a case before you start working you will not have to lose 20 minutes to get assistance while your systems are down. You can even submit your checklist to a Technical Support Engineer for suggestions.
8. **Use the *config dump* command.** Backup the system configuration before you start and when you finish. It will make rolling back changes that much easier and faster.
9. **Use the *logger* command.** At a minimum, add comments to the system log when you start and finish the maintenance. This will make troubleshooting easier when you can prove or disprove whether an issue existed before or after the maintenance.
10. **Save the console output to a file.** This is CYA insurance when something goes wrong. Forensic evidence of what you did, or did not do, and how the system responded. It is also helpful in correcting your checklist.
11. **Trigger AutoSupports.** Send an ASUP message at the start and end of your maintenance.
12. **Keep a change log.** This does not have to be anything elaborate. You can use a document, spreadsheet or a Wiki to track changes you and your team make to the system. Format it like a shell script revision history -- record the date, annotate what was changed, and who made the change(s).

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