| Cybersecurity |
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| Module 5 Challenge Submission File |

## Archiving and Logging Data

Make a copy of this document to work in, and then for each step, add the solution command below the prompt. Save and submit this completed file as your Challenge deliverable.

### Step 1: Create, Extract, Compress, and Manage tar Backup Archives

1. Command to **extract** the TarDocs.tar archive to the current directory:

| tar -xvf TarDocs.tar |
| --- |

1. Command to **create** the Javaless\_Doc.tar archive from the TarDocs/ directory, while excluding the TarDocs/Documents/Java directory:

| tar -cvf ~/Projects/Javeless\_Docs.tar --exclude= “~/Projects/TarDocs/Documents/Java” ~/Projects/TarDocs/Documents/ |
| --- |

1. Command to ensure Java/ is not in the new Javaless\_Docs.tar archive:

| tar tvf Javeless\_Docs.tar |grep -in Java |
| --- |

#### Bonus

1. Command to create an incremental archive called logs\_backup\_tar.gz with only changed files to snapshot.file for the /var/log directory:

| [Enter answer here] |
| --- |

#### Critical Analysis Question

1. Why wouldn't you use the options -x and -c at the same time with tar?

### Step 2: Create, Manage, and Automate Cron Jobs

1. Cron job for backing up the /var/log/auth.log file:

| 0 6 \* \* 3 cvvzf /auth\_backup.tgz /var/log/auth/log |
| --- |

### Step 3: Write Basic Bash Scripts

1. Brace expansion command to create the four subdirectories:

| tar -cvf ~/Projects/Javeless\_Docs.tar --exclude ~/Projects/TarDocs/Documents/Java/ ~/Projects/TarDocs/Documents/ |
| --- |

1. Paste your system.sh script edits:

| #!/bin/bash  free -h > ~/backups/freemem/free\_mem.txt  du -h > ~/backups/diskuse/disk\_usage.txt  lsof > ~/backups/openlist/open\_list.txt  df -h > ~/backups/freedisk/free\_disk.txt |
| --- |

1. Command to make the system.sh script executable:

| Chmod +x system.sh |
| --- |

#### Optional

1. Commands to test the script and confirm its execution:

| Cat free\_mem.txt  Cat disk\_usage.txt  Cat open\_list.txt  Cat free\_disk.txt |
| --- |

#### Bonus

1. Command to copy system to system-wide cron directory:

| [Enter answer here] |
| --- |

### Step 4. Manage Log File Sizes

1. Run sudo nano /etc/logrotate.conf to edit the logrotate configuration file.

Configure a log rotation scheme that backs up authentication messages to the /var/log/auth.log.

* 1. Add your config file edits:

| /var/log/auth.log {  Missingok  Weekly  Rotate 7  Notifempty  Compress  Delaycompress  } |
| --- |

### Bonus: Check for Policy and File Violations

1. Command to verify `auditd` is active:

| [Enter answer here] |
| --- |

1. Command to set number of retained logs and maximum log file size:

| [Enter answer here] |
| --- |

Add the edits made to the configuration file:

| [Enter answer here] |
| --- |

1. Command using auditd to set rules for /etc/shadow, /etc/passwd, and /var/log/auth.log:

| [Enter answer here] |
| --- |

Add the edits made to the rules file below:

| [Enter answer here] |
| --- |

1. Command to restart auditd:

| [Enter answer here] |
| --- |

1. Command to list all auditd rules:

| [Enter answer here] |
| --- |

1. Command to produce an audit report:

| [Enter answer here] |
| --- |

1. Create a user with sudo useradd attacker and produce an audit report that lists account modifications:

| [Enter answer here] |
| --- |

1. Command to use auditd to watch /var/log/cron:

| [Enter answer here] |
| --- |

1. Command to verify auditd rules:

| [Enter answer here] |
| --- |

#### 

### Bonus (Research Activity): Perform Various Log Filtering Techniques

1. Command to return journalctl messages with priorities from emergency to error:

| [Enter answer here] |
| --- |

1. Command to check the disk usage of the system journal unit since the most recent boot:

| [Enter answer here] |
| --- |

1. Command to remove all archived journal files except the most recent two:

| [Enter answer here] |
| --- |

1. Command to filter all log messages with priority levels between zero and two, and save output to /home/sysadmin/Priority\_High.txt:

| [Enter answer here] |
| --- |

1. Command to automate the last command in a daily cron job. Add the edits made to the crontab file below:

| [Your solution cron edits here] |
| --- |

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