**ITSM**

OS Admin

UNIX/Linux Admin Exercises

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**Exercise 1 - User & Group Administration**

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| **Perform the following tasks** |
| 1. Log in the Linux machine as user “administrator” with password “Redferd4rd”, and switch to root privileges 2. Create a group called “OSAdmin” and then the following user accounts:  |  |  |  |  | | --- | --- | --- | --- | | User Name | Comment | Primary Group | Default Shell | | john.smith | John Smith | OSAdmin | /bin/bash | | steve.hu | Steve Hu | OSAdmin | /bin/bash | | lili.riman | Lili Riman | OSAdmin | /bin/bash |  1. Set their password to: 123Password 2. Make sure they can logon to the system |
| 1. Create a group called “HR” and make it the primary group for Steve and the secondary group for Lili.   Create a group “Sales” and make it the primary group for John |
| 1. Add John Smith to the necessary group to make him able to use the sudo. And try his account to confirm. |

**Exercise 2 - Permissions**

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| **Perform the following tasks** |
| 1. Log in the Linux machine as user “administrator” with password “Redferd4rd”, and switch to root privileges:    1. Create a directory called /StaffData.    2. Make sure that everybody can add files and directories, modify them, or even delete them. |
| 1. Login as Steve Hu and:    1. Create a directory called /StaffData/HRData.    2. Make sure that the HR group owns this directory.    3. Assign the necessary permissions that allow Steve and the HR group to add files, remove files, navigate through the directory.    4. Assign the necessary permissions that allow the rest of the users to list the directory contents and nothing else. |
| 1. Login as John Smith and:    1. Create a directory called /StaffData/SalesData    2. Make sure that the Sales group owns this directory    3. Assign the necessary permissions that allow John and the Sales group to add files, remove files, navigate through the directory    4. Assign the necessary permissions that prevent the rest of the users from being able to access or do anything on this directory |

**Exercise 3 - Special Permissions**

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| **Perform the following tasks** |
| 1. Login as administrator and use the root privileges to perform the following tasks:    1. Assign the necessary permissions on the HRData directory and its parent directory to guarantee that all the newly created files or directories under it will be owned by the HR group.    2. Assign the necessary permissions on the SalesData directory and its parent directory to guarantee that all the newly created files or directories under it will be owned by the Sales group.    3. Login as Lili, create 2 files (AttendRp1, AttendRp2) under the HRData directory and confirm that HR is the group owner of those files.    4. Login as John, create 2 files (SalesRp1, SalesRp2) under the SalesData directory and confirm that Sales is the group owner of those files. |
| 1. Login as administrator and use the root privileges to perform the following tasks:    1. Assign the necessary permissions on the HRData directory to guarantee that only root or the file owner can delete a file.    2. Assign the necessary permissions on the SalesData directory to guarantee that only root or the file owner can delete a file. *(Hint: Sticky bit)*    3. Login as Lili, create VacForm file in the HRData directory    4. Login as Steve and delete the VacForm, document your finding. |

**Exercise 4 – Processes**

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| **Perform the following tasks** |
| 1. Open up two Putty sessions. In one of them, run a command that will take a long time to execute, e.g.   ls -lR /  Run ‘top’ in your other session and observe.   1. Try the same thing with ps. 2. Try the same thing again. Use pgrep to find the PID of the ls you ran. 3. Try to kill this process from using different users |
| 1. Find a way to view the processes of a particular user |

**Exercise 5 – Scheduling Processes**

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| **Perform the following tasks** |
| * 1. Schedule a task to redirect-append the output of 'ps -e' to a file every minute. Leave it running and verify that it has worked. Now cancel the task.   2. Use the 'at' command to perform a one-off redirect of ps -e to a file. |

**Exercise 6 – Tools, sed & awk**

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| **Perform the following tasks** |

Using vi create the following file called ‘accounts’ containing the following lines:

1 John Smith Pin001 40000 01/07/1969 Leicester Sq

2 Carol Weatley Pin002 20500 10/06/1972 Piccadilly

3 Dan Harrison Pin003 19000 11/08/1975 Camden Town

4 Kate Smalling Pin004 13000 12/03/2000 Greenwich

5 Lloyd Donnald Pin005 25000 18/09/1973 Liverpool Street

1. Use the tr command to format the file squeezing all spaces into one. Save this as a separate file.

**Use the output file created in Question 1 for Questions 2-11**

1. Use the tr command to turn the delimiter from a space into a :
2. Use the sort command to sort all entries according to largest balance first.
3. Use the grep command to return the person who has an account in Camden.
4. Use the cut command to return the Name and the date of birth.
5. Use a combination of the cut and the tr command to return the name in capital letters.
6. Use the grep command to return all names who do not have an account in Liverpool street.
7. Use awk to display only the name and amount.
8. Use sed to replace the PIN number with XXXX.
9. Use awk to display the name and amount for the people with more than 20000 in their account.
10. Use awk to produce a report which displays the total amount invested in this fund.

Use sed and awk to do the following:-

1. Using /etc/hosts
2. Delete all lines that start with a #
3. Replace the 10 network with the 192 network
4. Remove all :
5. Using /etc/passwd
6. Display a list of users and their home directories
7. Display a list of users who log in using the Bourne shell (sh)
8. Using the output of ls –l /etc
9. Display a list of permissions and files/directories owned by the bin group
10. Display a list of files, file size and permissions for all files with a size greater than 500 blocks

**Exercise 7 – Scripting – Optional**

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| **Perform the following tasks** |
| * 1. Write a script that will output the name of each system user and the number of times they have ever logged in. Ensure that your script does not inadvertently count each user twice (this is easily done).   2. Filter out non-human users from your output such as 'root' and 'reboot'.   3. Display full names of your users instead of usernames (i.e. 'John Parkins' instead of 'jparkins')   4. Add an extra column to your output that shows the last time the user logged in as root. |