



# Sysadmin Essentials: Scheduling Backups with Cron








Cybersecurity  
Linux 3 Day 2



# Today's Objectives

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By the end of class, you will be able to:

-  View a user crontab file
  -  Create and install a crontab file.
  -  Create simple commands that will run as cron jobs using a simulator.
  -  Check the status of a cron job.
  -  Manage crontab files (list, creat, remove)
  -  View log messages in the system log file.
  -  Create and view simple logging messages using the logger.
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# Introduction to Cron

# Cron daemons and cron jobs

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A cron daemon is a standard UNIX program that runs user specific programs at periodically scheduled times.



Runs continuously in the background.



Normally launched when a computer is first booted.



The cron daemons run **cron jobs**.



Cron jobs are lists of tasks located in a **cron table**.

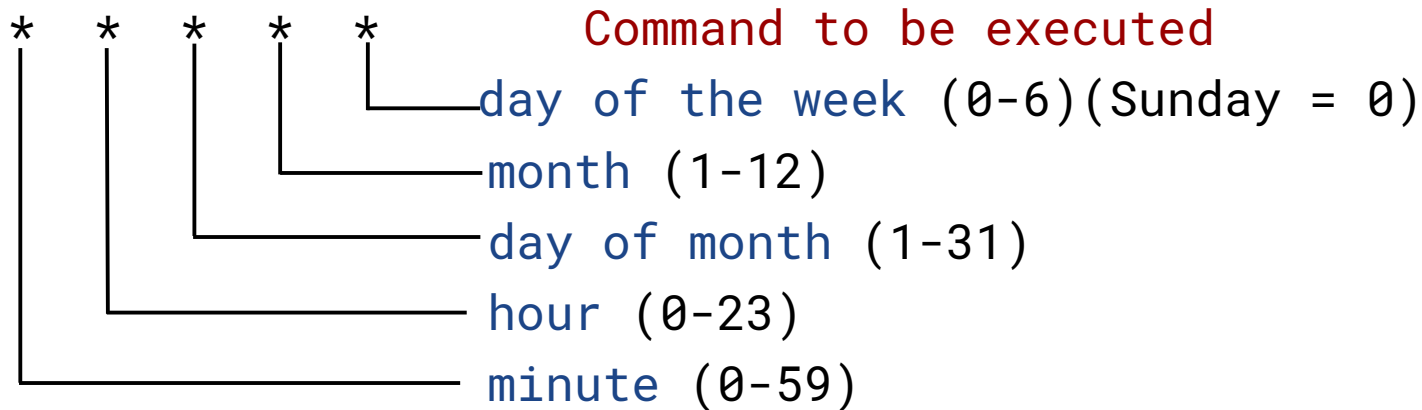


A **crontab** contains a list of tasks to execute (scripts or applications on a periodic schedule).

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# Cron jobs

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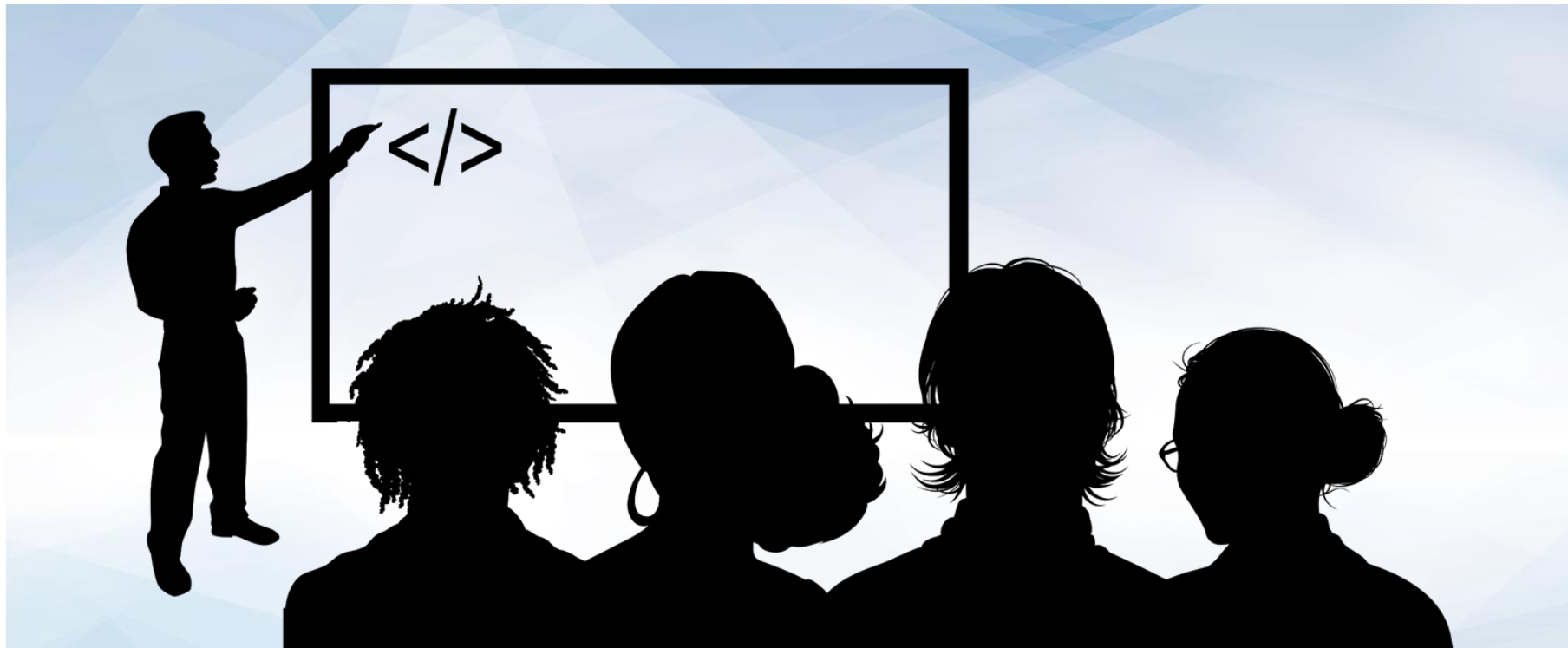


Cron jobs has six fields:

The first five fields are the time to schedule a job.

The sixth field executes the command.

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# Instructor Demonstration

First Steps with Cron

# Cron Syntax Example 1

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```
0 0 1 */3 * tar -cf quarterly.tar ~/accounts
```

This cron job will run on:

The first day of every third month and create an archive `quarterly.tar` file of the `/home/accounts` directory.

# Cron Syntax Example 1

---

```
0 0 1 */3 * tar -cf quarterly.tar ~/accounts
```

This cron job will run on:

The first day of the third month and create an archive `quarterly.tar` file of the `/home/accounts` directory

1. The `minute` field is not assigned a value.
  2. The `hour` field is not assigned a value.
  3. The `dayofthemoth` field is assigned a 1, to run on the first day.
  4. The `month of the year` field is assigned a 3, to run on the third month.
  5. The `dayoftheweek` field is not assigned a value.
  6. The `command` field contains the tar command.
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# Cron Syntax Example 2

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```
0 */4 * * * rsync -avz /home/slynux/data  
slyunx@192.168.1.5:/home/backups/data
```

This cron job will run on:

**Every Four hours** and create a compressed rsync backup of the  
`/home/slynux/data` directory on the remote machine in the `/home/slynux/data`

# Cron Syntax Example 2

---

```
0 */4 * * * rsync -avz /home/slynux/data  
slyunx@192.168.1.5:/home/backups/data
```

This cron job will run on:

Every Four hours and create a compressed rsync backup of the  
`/home/slynux/data` directory on the remote machine in the `/home/slynux/data`

1. The `minute` field is 0.
  2. The `hour` field indicates every four hours.
  3. The `dayofthemoth` field is not assigned a value.
  4. The `month of the year` field is not assigned a value.
  5. The `dayoftheweek` field is not assigned a value.
  6. The `command` field contains the rsync command.
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# Cron Syntax Example 3

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```
/opt/backup.sh >/dev/null 2>&1
```

This cron job will run on:

The `backup.sh` script in the **first minute of every week** without sending messages.

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# Cron Syntax Example 3

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```
/opt/backup.sh >/dev/null 2>&1
```

This cron job will run on:

The `backup.sh script` at the of each week (assume `Sunday, EOW`) without sending messages.

The `backup.sh script` at the end of the week `of every Month` without sending messages.

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## Activity: Writing Cron Jobs

In this activity, you will use a text editor to practice writing cron jobs.

Activities/01\_Stu\_WritingCronJobs/Unsolved/Stu\_WritingCronJobs

**Suggested Time:**  
12 Minutes



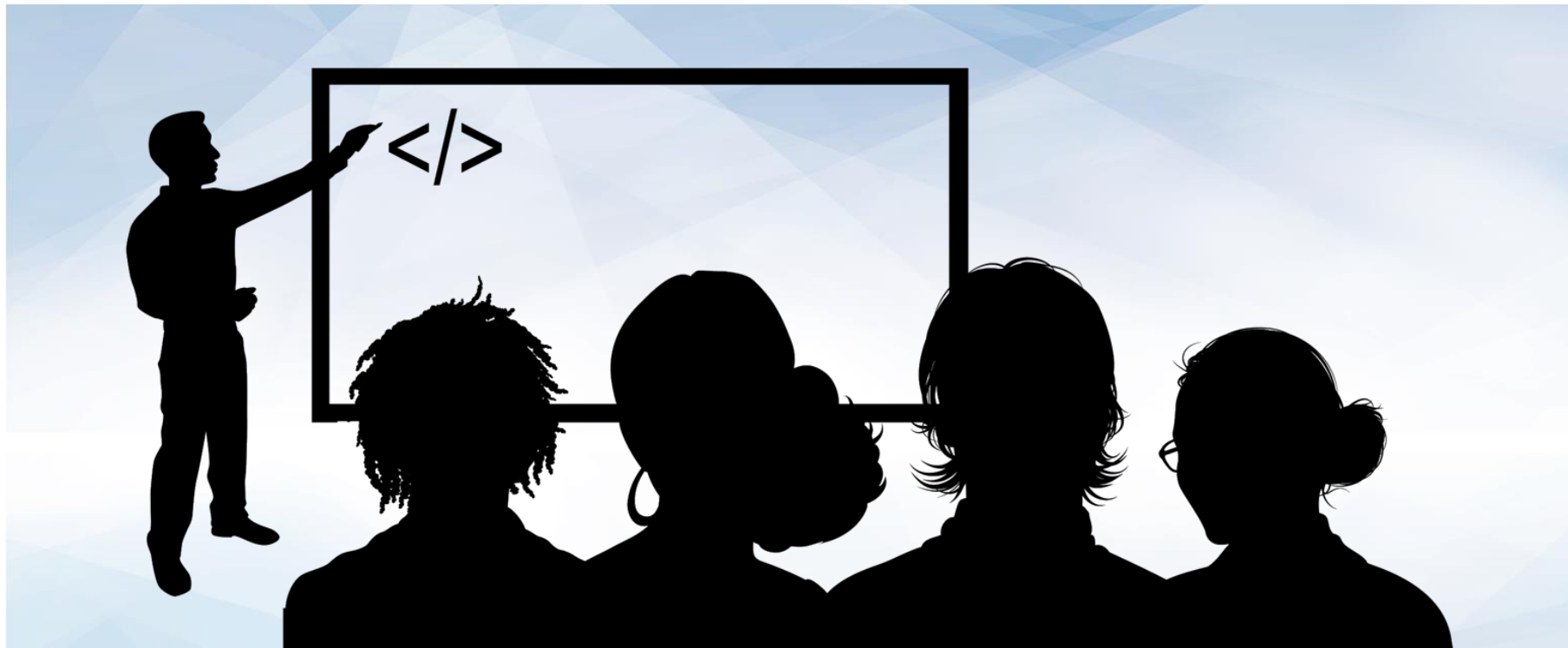


# Times Up! Let's Review.

Writing Cron Jobs



Add a Cron Job to the Cron Table



# Instructor Demonstration

Adding a Cron Job to the Cron Table





## Activity: First Steps with Cron

In this activity, you will create a new crontab file & add and schedule two tasks.

Activities/02\_Stu\_FirstStepsCron/Unsolved/Stu\_FirstStepsCron

**Suggested Time:**  
20 Minutes












# Times Up! Let's Review.

Adding a Cron Job

# Today's Objectives

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-  View a user crontab file
  -  Create and install a crontab file.
  -  Create simple commands that will run as cron jobs using a simulator.
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# Logging

# What is Logging?

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Everything that happens on a system in Linux is logged in some manner.



Every cron job that has been run in the last session generated a log entry



Logs take up a lot of space, so they must be periodically backed up.

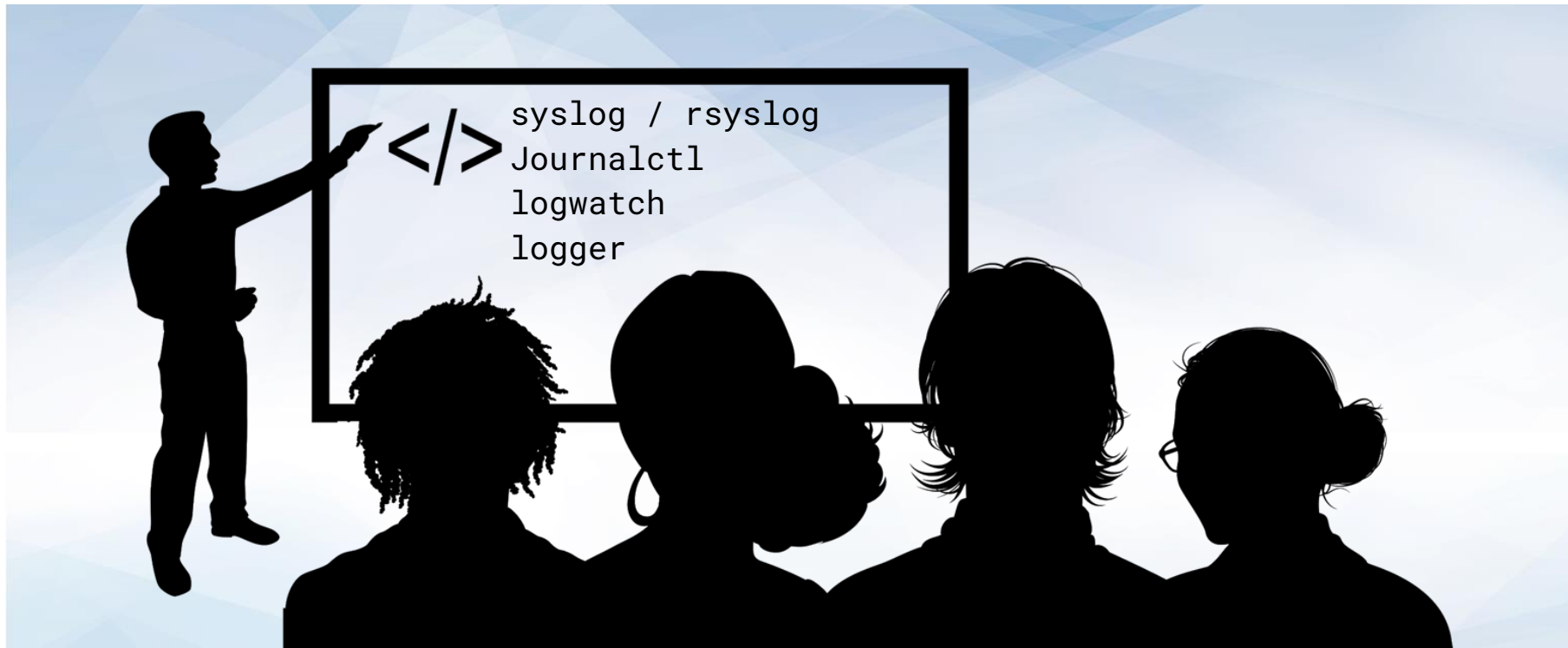


Many programs, such as logrotate and rsyslog can perform automatic rotation, compression, remote backup, and removal of log files.



Logs are the first resource used to troubleshoot a system / application issue.

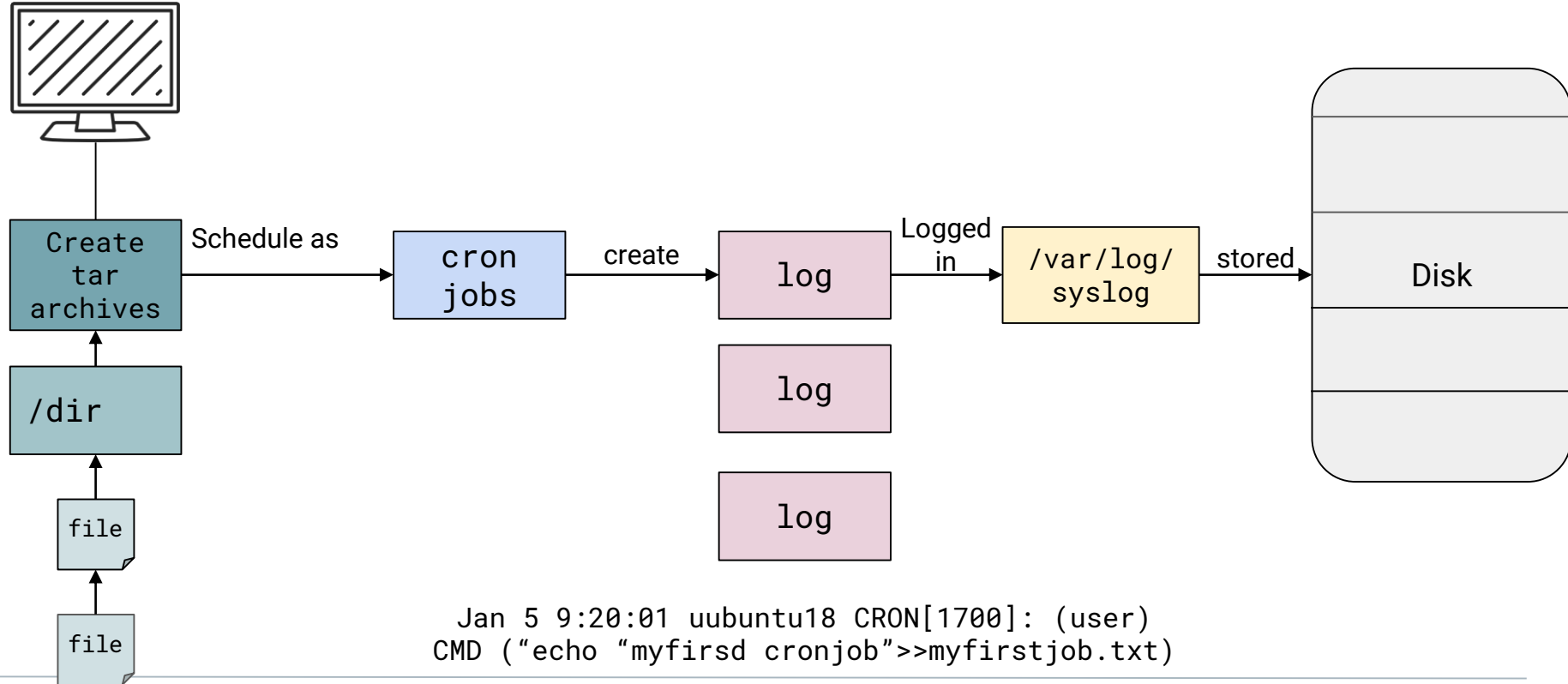
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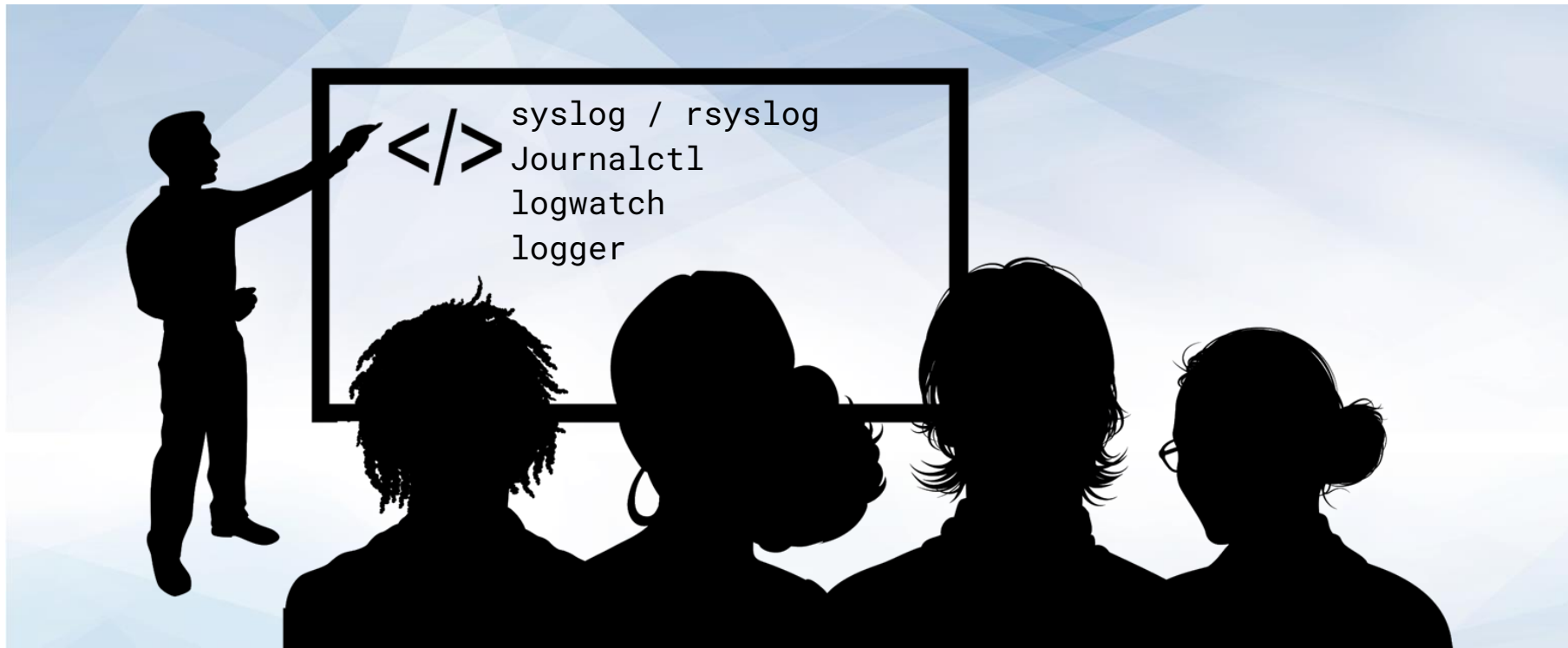


# Instructor Demonstration

## Introduction to Log Files

# Viewing the Contents of Logs

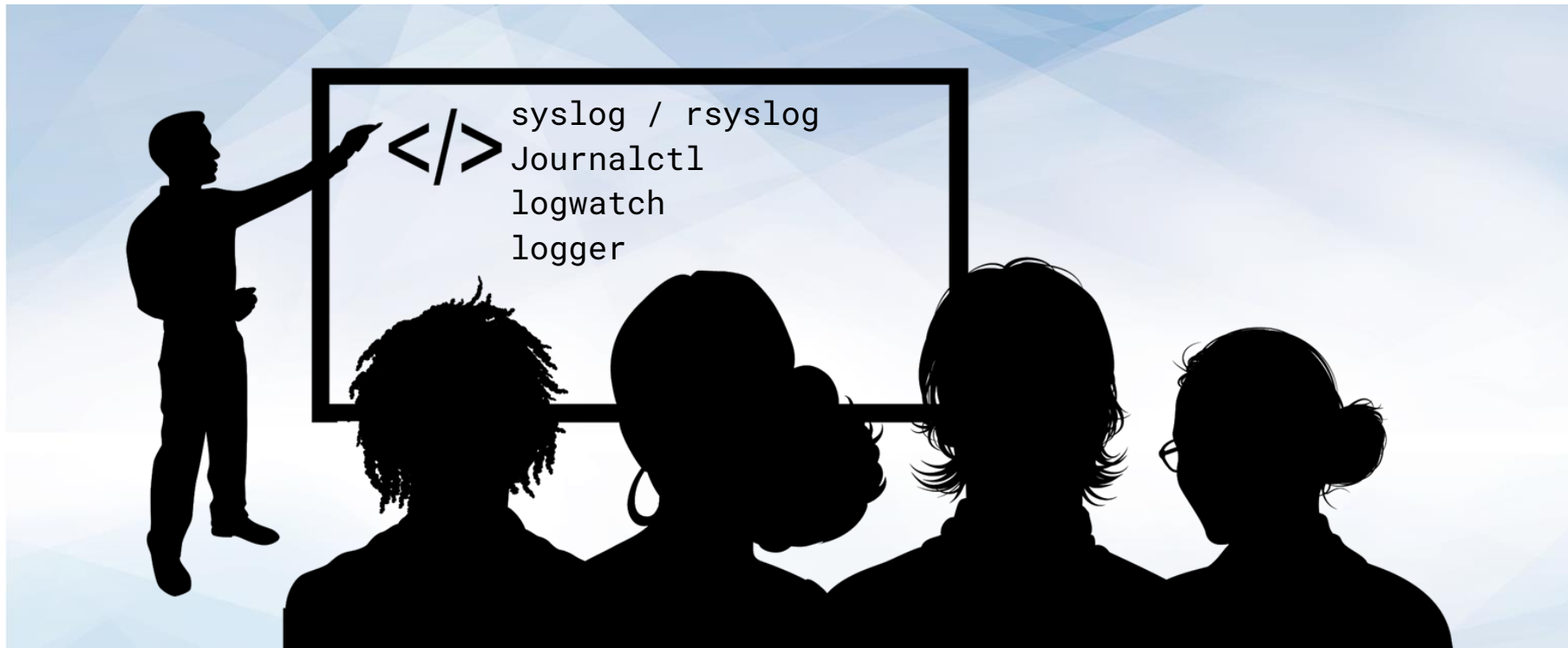




# Instructor Demonstration

Viewing Logs in `/var/log/stslog/` from the Command Line





# Instructor Demonstration

## Viewing Logs with a Graphic User Interface



## Activity: Introduction with Log files

In this activity, you will view log messages from the command line and graphically using the Log File Viewer.

Activities/03\_Stu\_FirstStepsLog/Unsolved/Stu\_FirstStepsLog

**Suggested Time:**  
15 Minutes





# Times Up! Let's Review.

Introduction to Log Files



# Instructor Demonstration

Creating Log Messages



## Activity: Creating Log Messages

In this activity, you will create four short log messages using logger.

Activities/04\_Stu\_CreateLog/Unsolved/Stu\_CreateLog

**Suggested Time:**  
15 Minutes












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Creating Log Messages

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