

Overview of Docker

Spoken Tutorial Project
<https://spoken-tutorial.org>

National Mission on Education through ICT

Nirmala Venkat

IIT Bombay

07 Mar 2025



Learning Objectives

In this tutorial we will learn about



Learning Objectives

In this tutorial we will learn about

- Docker



Learning Objectives

In this tutorial we will learn about

- Docker
- Advantages of Docker



Learning Objectives

In this tutorial we will learn about

- Docker
- Advantages of Docker
- The content available in various tutorials in this series



System Requirements

To record this tutorial, I am using



System Requirements

To record this tutorial, I am using

- **Ubuntu Linux OS version 22.04**



Pre-requisites

To follow this series, you must have basic knowledge of using

- Linux



Pre-requisites

To follow this series, you must have basic knowledge of using

- Linux



Pre-requisites

To follow this series, you must have basic knowledge of using

- Linux

If not, please go through the relevant spoken tutorials on this

<https://spoken-tutorial.org>



Docker

- Docker Desktop is built using an open source software platform



Docker

- Docker Desktop is built using an open source software platform
- It allows you to build, test, and deploy applications quickly



Docker

- With Docker, you can package your application along with all its dependencies



Docker

- With Docker, you can package your application along with all its dependencies
- It isolates applications to prevent conflicts and ensure consistency



Advantages of Docker



Advantages of Docker

- Portability – Run applications consistently across different environments



Advantages of Docker

- Portability – Run applications consistently across different environments
- Efficiency – Uses fewer resources than traditional virtual machines



Advantages of Docker

- Portability – Run applications consistently across different environments
- Efficiency – Uses fewer resources than traditional virtual machines
- Scalability – Easily scale applications up or down as needed



Advantages of Docker

- Isolation – **Keeps applications separate to prevent conflicts**



Advantages of Docker

- Isolation – **Keeps applications separate to prevent conflicts**
- Rapid Deployment – **Speeds up development and testing workflows**



Who can use Docker?



Who can use Docker?

- Developers - **Build, test, and deploy applications faster**



Who can use Docker?

- Developers - **Build, test, and deploy applications faster**
- System Administrators – **Manage and deploy applications efficiently**



Who can use Docker?

- Developers - **Build, test, and deploy applications faster**
- System Administrators – **Manage and deploy applications efficiently**
- DevOps Teams – **Automate workflows and CI/CD pipelines**



Who can use Docker?

- Enterprises – **Ensure consistency across multiple environments**



Who can use Docker?

- Enterprises – **Ensure consistency across multiple environments**
- Students & Learners – **Practice coding in isolated environments**



Installation of Docker



Installation of Docker

In this tutorial, we will learn how to

- **Install Docker and its dependencies on Ubuntu**



Installation of Docker

In this tutorial, we will learn how to

- Install Docker and its dependencies on Ubuntu
- Install Docker Desktop on Windows



Installation of Docker

In this tutorial, we will learn how to

- Install Docker and its dependencies on Ubuntu
- Install Docker Desktop on Windows
- Download and run a Docker container



Basics of Images and Containers



Basics of Images and Containers

It explains

- Images and containers



Basics of Images and Containers

It explains

- Images and containers
- Pulling an image from Docker Hub



Basics of Images and Containers

It explains

- Images and containers
- Pulling an image from Docker Hub
- Accessing the running application



Basics of Images and Containers

It explains

- Images and containers
- Pulling an image from Docker Hub
- Accessing the running application
- **Viewing running containers**



Basics of Images and Containers

It explains

- Images and containers
- Pulling an image from Docker Hub
- Accessing the running application
- Viewing running containers
- Stopping and starting a container



Docker Compose



Docker Compose

Here, we will learn about

- Docker compose and its uses



Docker Compose

Here, we will learn about

- Docker compose and its uses
- Running multiple Docker images using Docker Compose



Building Docker Images



Building Docker Images

In this tutorial, we will learn about

- Building Docker images



Building Docker Images

In this tutorial, we will learn about

- Building Docker images
- Pushing images to Docker Hub



Building Docker Images

In this tutorial, we will learn about

- Building Docker images
- Pushing images to Docker Hub
- Image layers and size optimization



Automating Docker Builds



Automating Docker Builds

In this tutorial, we will learn to

- Setup and configure GitHub



Automating Docker Builds

In this tutorial, we will learn to

- Setup and configure GitHub
- Automate Docker builds using GitHub



Automating Docker Builds

In this tutorial, we will learn to

- Setup and configure GitHub
- Automate Docker builds using GitHub
- Pull and test the built images



Docker Security



Docker Security

In this tutorial, we will learn about

- Security in Docker



Docker Security

In this tutorial, we will learn about

- Security in Docker
- Docker Content Trust and Image Signing



Docker Security

In this tutorial, we will learn about

- Security in Docker
- Docker Content Trust and Image Signing
- Tools for Security Scanning



Docker Swarm



Docker Swarm

In this tutorial, we will learn about

- Docker Swarm



Docker Swarm

In this tutorial, we will learn about

- Docker Swarm
- Sharing files using Network File System



Docker Networking



Docker Networking

In this tutorial, we will learn about

- Fundamentals of Docker networking



Docker Networking

In this tutorial, we will learn about

- Fundamentals of Docker networking
- Connecting containers and establishing communication links



Docker Networking

In this tutorial, we will learn about

- Fundamentals of Docker networking
- Connecting containers and establishing communication links
- Configuring port exposure and service exposure



Docker Networking

In this tutorial, we will learn about

- Fundamentals of Docker networking
- Connecting containers and establishing communication links
- Configuring port exposure and service exposure
- Deleting docker network



Advanced Docker

- Write a dockerfile for python automation environment configurations



Advanced Docker

- Write a dockerfile for python automation environment configurations
- Build a docker image from the docker file



Advanced Docker

- Write a dockerfile for python automation environment configurations
- Build a docker image from the docker file
- Run containers using the docker image



Advanced Docker

- Write a dockerfile for python automation environment configurations
- Build a docker image from the docker file
- Run containers using the docker image
- Test the docker image to run python automation script



Summary

In this tutorial, we have learnt about

- **Docker**
- **Advantages of Docker**
- **The content available in various tutorials in this series**



About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



Answers for THIS spoken tutorial

- Questions in THIS Spoken Tutorial
- Visit <https://forums.spoken-tutorial.org>
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer
- You will have to register to ask questions



Forum for specific questions

- **The Spoken Tutorial forum is for specific questions on this tutorial**
- **Please do not post unrelated and general questions on them**
- **This will help reduce the clutter**
- **With less clutter, we can use these discussions as instructional material**



FOSSEE Forum

- For any general or technical questions on Docker, visit the FOSSEE forum and post your question
<https://forums.fossee.in/>



Acknowledgement

- **The Spoken Tutorial project was established by Ministry of Education, Govt. of India**



Thank you

Thanks for watching
<https://spoken-tutorial.org>

