

Demonstration of a model

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

National Mission on Education through ICT
<http://sakshat.ac.in>

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Learning Objectives

In this tutorial, we will learn:



Learning Objectives

In this tutorial, we will learn:

- ▶ **About SMIB**



Learning Objectives

In this tutorial, we will learn:

- ▶ **About SMIB**
- ▶ **Set up the initial values and power flow data**



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- ▶ **Set up the initial values and power flow data**
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- ▶ **Simulation and its setup**
- ▶ **Interpreting the results obtained**



System Requirements



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- ▶ **OpenModelica version 1.12.0**

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- ▶ **Ubuntu Linux OS 16.04**
- ▶ **Windows, Mac OS X or FOSSEE OS on ARM**



Prerequisites

To follow this tutorial, you should have knowledge of :



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To follow this tutorial, you should have knowledge of :

- ▶ Power systems



Prerequisites

To follow this tutorial, you should have knowledge of :

- ▶ Power systems
- ▶ Modeling using OpenModelica



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Prerequisite tutorials are available on <https://spoken-tutorial.org>



Single Machine Infinite Bus (SMIB)

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- ▶ **In this network there is only a single machine and an infinite bus**



Single Machine Infinite Bus (SMIB)

What is SMIB?

- ▶ **SMIB stands for “Single Machine Infinite Bus”**
- ▶ **In this network there is only a single machine and an infinite bus**
- ▶ **The synchronous machine is connected to the Infinite bus using power lines**



Demonstration of SMIB model



Demonstration of SMIB model

- ▶ **Download the files given in Code Files link of this tutorial**



Demonstration of SMIB model

- ▶ Download the files given in Code Files link of this tutorial
- ▶ Extract them into a separate folder



Demonstration of SMIB model

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- ▶ **Let us open SMIB model in OpenModelica**



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Assignment



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- ▶ We recommend that you open different examples under the library
- ▶ Then simulate and explore the results.



Summary

Let us summarize:



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Let us summarize:

- ▶ About SMIB
- ▶ Set up the initial values and power flow data
- ▶ Compile a model
- ▶ Simulation and its setup
- ▶ Interpreting the results obtained



Power System Simulation Project

The FOSSEE team

- ▶ Invites contributions to develop power system networks using OpenIPSL library
- ▶ Gives honorarium and certificates to those who do this
- ▶ For more details, please visit this site
<https://om.fossee.in/powersystems>



About the Spoken Tutorial Project

- ▶ Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project



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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



Forum to answer questions

- ▶ **Do you have questions in THIS Spoken Tutorial?**
- ▶ **Choose the minute and second where you have the question**
- ▶ **Explain your question briefly**
- ▶ **Someone from the FOSSEE team will answer them**

Please visit <https://forums.spoken-tutorial.org/>



Textbook Companion Project

- ▶ **The FOSSEE team coordinates coding of solved examples of popular books**
- ▶ **We give honorarium and certificate to those who do this**

For more details, please visit this site:

<https://OM.fossee.in/Textbook-Companion-Project>



Lab Migration Project

- ▶ **The FOSSEE team helps migrate commercial simulator labs to OpenModelica**
- ▶ **We give honorarium and certificates to those who do this**

For more details, please visit this site:

<https://OM.fossee.in/lab-migration-project>



Acknowledgements

- ▶ **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- ▶ **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- ▶ **More information on this Mission is available at <https://spoken-tutorial.org/NMEICT-Intro>**



Thanks!

<https://openmodelica.org>

