Epistemix Documentation

['Epistemix Inc.']

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CONTENTS

Welcome to the Epistemix Documentation site, containing information, guides, and references for Epistemix products. This includes the FRED Modeling Language™ and the FRED Modeling Platform™. If you have questions about the company or are interested in speaking with our sales, recruiting, or other teams, please visit our main site at epistemix.com.

CHAPTER

ONE

BACKGROUND INFORMATION

Our agent-based modeling platform, the Framework for Reconstructing Epidemiological Dynamics (FRED) is our signature product to help leaders make better decisions. If you are new to FRED or would like a quick primer, the *Key Concepts* page may be especially helpful. Other background information will be added here in the future.

1.1 Formatting Key

This sections provides short overview of the formatting used throughout the Epistemix Documentation. The following list summarizes the formatting conventions used.

- **bold** introduces key terms or concepts.
- bold computer text is used for file names, such as main.fred
- `computer text` is used for variables, function() names, and other coding syntax within the text.

Larger sections of code will appear in demarcated code blocks. For example, here is a block of FRED code:

```
# Sample code may appear in a block like this
# you can often copy these blocks directly into a FRED model file
condition MY_CONDITION {
    state_state = Start

    state Start {
        # some code
    }
    # some more code
}
```

Command line interaction will also appear in demarcated blocks.

```
$ some_command  # code that begins like this can be copied directly into your console
output will look like this
```

In command-line interactions, the $ represents a Linux or Mac generic shell prompt. Your shell prompt may look different.

1.2 Key Concepts

Our agent-based modeling environment is the Framework for Reconstructing Epidemiological Dynamics, or FRED. It is important to make a distinction between the different aspects of FRED that you may encounter. This includes the following concepts.

language The FRED Modeling Language refers to the programming language defined by FRED. This language was built by Epistemix to simplify the construction, execution, and understanding of agent-based models. The definition and use of the FRED language is documented in the FRED Modeling Language Documentation.

model A FRED model is designed to reflect some aspect of reality relating to people and their interactions. A model can be represented graphically, for example, as a state diagram, or as code in the FRED language. A model is a representation of the conditions, behavior decisions, and impacts that people may experience.

agent In FRED, agents represent individual people. They have an age, gender, race, and other demographic information associated with them that can be used within the model.

simulation A FRED simulation is the execution of a model with a defined set of parameters, especially the specific location and time-frame. The location determines the population, or set of agents, that participate in the simulation. During a simulation the individual agents experience the conditions, make decisions, and are impacted by the model. The results of a FRED simulation evolve over time based on the actions of the agents in the model.

platform The FRED Modeling Platform refers to the tools provided to build, execute, and analyze FRED models and simulations. This includes local tools for simulating FRED models on your own machine, as well as cloud-based tools for simulating models in the cloud. Simulations with less than 2 million agents can often be running on a local machine, while our cloud tools can support simulation of large urban areas or even an entire state with many millions of agents in a single simulation. The definition and use of the FRED language is documented in the FRED Modeling Language Documentation.

CHAPTER

TWO

THE FRED MODELING LANGUAGE

The FRED Modeling Language™ is our proprietary agent-based modeling language. The following documents are or will be available.

- FRED Modeling Language Introduction
- FRED Modeling Language Guide
- FRED Modeling Language Reference
- FRED Module Library
- FRED Language Tutorials

CHAPTER

THREE

THE FRED MODELING PLATFORM

The FRED Modeling Platform™ is our tools and products for building, executing, and analyzing FRED models. The following documents are or will be available.

- FRED Modeling Platform Introduction
- FRED Simulation Information Management System
- FRED Local Guide
- FRED Command Line Interface Guide & Reference
- FREDpy Guide and Reference
- FRED Studio Guide and Reference

CHAPTER

FOUR

FRED RELEASE NOTES

Release notes for the FRED Modeling Language and the FRED Modeling Platform are provided together at the following link.

- FRED Modeling Release Notes