

SALTSTACK®

Training - Admin I

Course Syllabus

The SaltStack Admin I training course provides an IT professional the fundamental skills needed to manage any infrastructure using SaltStack.

PREREQUISITES

Linux system administration experience.

OVERVIEW

The course begins with the installation, configuration, and use of remote execution modules which comprise the use of SaltStack for basic systems management tasks.

It then builds on those concepts with the implementation of Salt states. The Salt states sections include creating SLS files and state trees, setting requisites and declarations, and using the default YAML and Jinja renderers. There is instruction on utilizing SaltStack grains and pillars in state files.

Additional topics include SaltStack runners, returners, reactors, beacons, and orchestration. SaltStack topology considerations will cover Salt-SSH, and Salt syndic. Implementing external and master job caches to persistent storage will also be covered.

OFFERING

All students are provided:

- A course training manual
- A Salt Cloud environment for hands-on labs during training

CERTIFICATION

Completing this course, and “Admin II” will prepare an attendee to sit the **SaltStack Certified Engineer (SSCE)** exam.

FORMAT

This course is offered in the following instructor-led formats:

- 3 full days
- 5 half-day days

This training is offered publically at SaltStack headquarters in Lehi, UT with virtual instructor-led (vILT) access for remote attendees on the 5 half-day format.

When offered privately onsite or virtually the training follows the 3-day format.

COURSE TECHNICAL REQUIREMENTS

The technical requirements for SaltStack Training are:

Video Conference

We typically use Zoom for remote virtual instructor-led attendees. If you are not familiar with Zoom, [please refer to this Zoom getting started guide](#) before your course begins.

Labs

Each student will be given a group of Linux virtual machines hosted in the Amazon cloud. You will need to be able to SSH (destination port 22) from your network to access them. A SSH private key will be given to you for authentication.

Class Portal

The class portal is a website located at <http://training.saltstack.com> containing links to resources and end of chapter knowledge checks. A login to this site will be given at the beginning of class.



COURSE OUTLINE

Introduction

- Welcome
- Objectives
- Getting Started
- Topics Covered
- What is SaltStack?
- Components of SaltStack
- SaltStack Configuration
- Summary

SaltStack Installation and Configuration

- Objectives
- Installation Overview
- Packaged Installation
- PIP Installation
- Git "source" Installation
- Bootstrapping Salt
- Starting SaltStack Services
- SaltStack Master Network Ports
- Basic Minion Configuration
- SaltStack Security
- Verifying a SaltStack Installation
- The Class Setup
- Your SaltStack Lab Environment
- Summary
- Lab - Accessing Your SaltStack Environment
- Lab - Explore Lab Environment
- Lab - Review and Update the SaltStack Master Configuration
- Lab - Check SaltStack Keys
- Lab - Review and Update the Minion Configuration

The "salt" Command-line

- Objectives
- Remote Execution
- Command Structure
- Command Options
- Targeting
- The Grains Interface
- The Pillar Interface
- Compound - Logical Targets
- Nodegroups
- Using SaltStack Modules
- SaltStack Documentation
- The SaltStack File Server
- Using Keyword Arguments(kwargs)
- Commonly Used Execution Modules
- User and Group Management
- Compound Commands

- Module Configuration Settings
- Changing Output Formats
- Summary
- Lab - Viewing System Data
- Lab - Viewing Real-time Information
- Lab - Managing Minions
- Lab - User and Group Management
- Lab - File Management
- Lab - Changing Output

SaltStack Execution Framework

- Objectives
- Calling Modules Locally on a Minion
- The "salt" Command Line Execution
- SaltStack Job Management
- Running Jobs to the Master
- The Event System
- Summary
- Lab -Managing SaltStack Jobs
- Lab - Calling SaltStack Functions
- Lab - Execute a Job in the Background

Basics of SaltStack States

- Objectives
- Overview of SaltStack States
- Rendering SaltStack States
- SaltStack State Documentation
- SaltStack State Components
- Testing States
- SaltStack State Modules
- The SaltStack State Tree
- Running States
- Top File Structure
- Multiple Environment Example
- Managing State Runs
- Summary
- Lab - State Documentation
- Lab - Setup Initial SLS Files
- Lab - Apply a SaltStack State
- Lab - Create and Apply a Highstate

State Requisites and Declarations

- Objectives
- ID vs Name
- Ordering States
- Requisite Declarations
- Including other SLS Files
- Extending External SLS Data
- The Requisite "_in" Declarations
- Altering States



Summary
Lab - Add more SLS files
Lab - Add Manual Ordering
Lab - Adding Requisites
Lab - Work With Requisite "in" declarations

Using Jinja with SaltStack

Objectives
Renderers
Using the Jinja Renderer
Jinja Basics
Data Injected into States
Leveraging Lookup Lists and Dictionaries
Calling Execution Modules with Jinja
Importing Data
Summary
Lab - Conditionals in States
Lab - Using Loops
Lab - Using Map Lookup Files

Using SaltStack Pillar Data

Objectives
SaltStack Pillar Data
Passing Inline Pillar Data
Summary
Lab - Calling SaltStack Modules in States
Lab - Using Pillars in States
Lab - Using Pillar and Lookup Dictionaries

Using Runners and Orchestration

Objectives
Runners
SaltStack Orchestration
Summary
Lab - Create an Orchestration Configuration

SaltStack Reactors and Beacons

Objectives
Reactor System
Beacons
Summary
Lab - Implementing Reactors
Lab - Implementing Beacons

Salt SSH

Objectives
Salt SSH
Calling Salt SSH
Configuring Salt SSH
Additional "salt-ssh" Usage

Summary
Lab - Using Salt SSH

Job Caches and File Backends

Objectives
Redirecting Output to an External Source with a Returner
Command Returners
Returning Data
Event Returners
Managing the Job Cache
Storing Jobs in an External Job Cache
Master Job Cache
File Server Backends
GitFS File Server Backend
Summary
Lab - Using a Job Cache
Lab - Setup a Master Job Cache
Lab - Using the GitFS Backend

Introduction to Salt Cloud

Objectives
What is Salt Cloud?
Salt Cloud Components
The salt-cloud Command
Configuring Salt Cloud
Defining Virtual Machine Profiles
Creating VMs with Profiles
Querying for Cloud Instances
Querying for VMs
Destroying Virtual Machines in the Cloud
Managing Multiple VMs Instances
Summary
Lab - Amazon EC2 Cloud
Lab - Create and Destroy Cloud VMs

Introduction to SaltStack Enterprise

Objectives
Enterprise Features
Overview of Enterprise Architecture
The SaltStack Master Plug-in
Enterprise Console
Targeting
Job Management
Viewing Summary Reports
Comparison of Salt Open versus SaltStack Enterprise
Summary
Lab - Manage Jobs in the Enterprise Console
Lab - View Summary Reports



ADDITIONAL INFORMATION

For additional information please contact:

SaltStack, Inc.
2801 N. Thanksgiving Way
Suite 150
Lehi, UT 84043
T +1 801.207.7440

training@saltstack.com

<http://www.saltstack.com/products/saltstack-training/>
<http://www.saltstack.com/products/saltstack-services/>

