

# SALTSTACK

## Salt Administration I Training Syllabus

The SaltStack Administration training course provides an IT professional the fundamental skills needed to manage Salt infrastructure.

### PREREQUISITES

Linux system administration experience

### OVERVIEW

The course begins with the installation, configuration, and use of remote execution modules for basic salt management.

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 Salt grains, pillars in state files.

Additional topics include Salt runners, returners, reactors, beacons, and orchestration. Salt 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 Google Hangouts for remote virtual instructor-led attendees. It works best in a Chrome browser with the Google Hangouts plugin. You can download it from <https://www.google.com/tools/dlpage/hangoutplugin>

Sometimes a video conferencing technology may be used. In such cases technical requirements will be given.

### 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 Salt?  
Components of Salt  
Salt Configuration  
Summary

### Salt Installation and Configuration

Objectives  
Installation Overview  
Packaged Installation  
PIP Installation  
Git "source" Installation  
Bootstrapping Salt  
Starting Salt Services  
Salt Master Network Ports  
Basic Minion Configuration  
Salt Security  
Verifying a Salt Installation  
The Class Setup  
Your Salt Lab Environment  
Summary  
Lab - Accessing Your Salt Environment  
Lab - Explore Lab Environment  
Lab - Review and Update the Salt Master Configuration  
Lab - Check Salt 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 Salt Modules  
Salt Documentation  
The Salt File Server  
Using Keyword Arguments(kwarg)s  
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

### Salt Execution Framework

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

### Basics of Salt States

Objectives  
Overview of Salt States  
Rendering Salt States  
Salt State Documentation  
Salt State Components  
Testing States  
Salt State Modules  
The Salt 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 Salt 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 Salt**

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 Salt Pillar Data**

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

### **Using Runners and Orchestration**

Objectives  
Runners  
Salt Orchestration  
Summary  
Lab - Create an Orchestration Configuration

### **Salt 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**

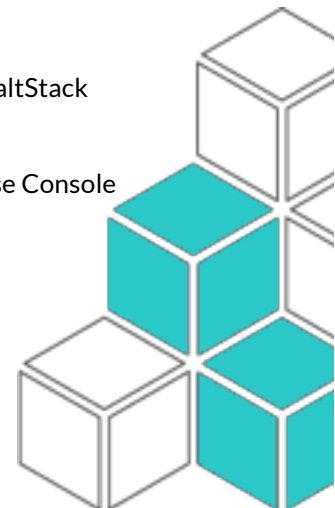
Objectives  
Redirecting Output to an External Source with a Returner  
Command Returners  
Returning Data  
Event Returners  
Managing the Job Cache  
Storing Jobs in an External Job Cache  
Master Job Cache  
File Server Backends  
GitFS File Server Backend  
Summary  
Lab - Using a Job Cache  
Lab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



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## ADDITIONAL INFORMATION

For additional information please contact:

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