SaltStack – Brownbag

(Not) just another Automation & Remote Execution Tool

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Agenda

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1. Project
2. Quickstart
3. States
4. Grains
5. Pillar
6. Modules

Project

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- Was born in February, 2011
- Written in Python, Apache License v2
- Runs on Linux, Arch Linux, FreeBSD, OS X, Solaris, Windows
- > 10k commits, ~ 340 contributors, Top 10 of „GitHubs notable OSS“ (2012)
- Commercial support by the company behind SaltStack

Quickstart

Installation on Debian Wheezy

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1. Setting the repository source
   - deb http://debian.saltstack.com/debian wheezy-saltstack main

2. Importing the package signing key
   - wget -q -O - "http://debian.saltstack.com/debian-salt-team-joehealy.gpg.key" | apt-key add -

3. Updating the local cache & Installation of Salt Client + Master
   - apt-get update && apt-get install **salt-minion salt-master**

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4. Make domain ‚salt‘ resolvable (Client)
   - echo “192.168.2.1 master.domain.de salt“ >> /etc/hosts

5. Restart the client (Client)
   - service salt-minion restart

6. Accept client‘s public key (Master)
   - salt-key -a client.domain.de

Salt States

Postfix Satellite Example

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- **Sa**ltL**t** **S**tate File Tree (/srv/salt/):
  - top.sls
  - postfix/
    - init.sls
    - satellite.sls
    - files/
      - etc/
        - postfix/
          - satellite.main.cf

Salt States

top.sls – Assigning nodes to SLS modules

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```
development:                    <-- Environment
  'mx-*':                       <-- Match nodes (hostname)
    - postfix.satellite         <-- Module

development:
  'webservers':                 <-- Global defined group of nodes
    - match: nodegroup
    - apache
    - curl
```

Salt States

postfix/init.sls – Initial Module States

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```
postfix:                    <-- Name
    pkg:                    <-- Type
        - installed         <-- Function
        - names:            <-- Parameter
            - postfix
            - postfix-pcre
    service:
        - running
        - require:
            - pkg: postfix
            - file: /etc/postfix/main.cf
```

Salt States

postfix/satellite.sls – Special Module States

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```
/etc/postfix/main.cf:
    file.managed:
        - source: salt://postfix/files/etc/postfix/satellite.main.cf
        - user: root
        - group: postfix
        - mode: 640
        - require:
            - pkg: postfix
```

Salt States

postfix/files/etc/postfix/satellite.main.cf – Configuration File Template

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```
...
myhostname = {{ grains['fqdn'] }}
myorigin = $myhostname
inet_interfaces = {{ inet_interfaces }}
{% if use_postscreen == True -%}
postscreen_bare_newline_action = ignore
postscreen_blacklist_action = drop
{% endif %}
...
```

Salt States

Predefined SaltStack State Types (Puppet: Resources)

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alias	cmd	**cron**	svn	**disk**
file	gem	**git**	grains	user
group	mercurial	hosts	**iptables**	kmod
libvirt	locale	**lvm**	mdadm	mongodb
mount	**mysql**	network	**pkg**	postgres
quota	selinux	**service**	**ssh**	...

Salt Grains

Static node-specific information (Puppet: Facts)

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- Contain node-specific information like
  - BIOS (release, version)
  - CPU (manufacturer, arch, model, flags)
  - Hostname, Domain, FQDN
  - LSB distribution / OS info (OS, codename, release, id, kernel type + version)
  - IP configuration (Interfaces, IP addresses)
  - Salt runtime environment data (version, $PATH, Python version, master)
  - System type (virtual/ physical)
- Can be extended
- But do not have to: → Pillar

Salt Pillar

Dynamic node-specific information

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- Node-specific information defined by the user
- Uses the same structure as SLS tree (top.sls, several environments, …)
- Provides the same targeting possibilities (globbing, regex, node groups, lists, grains)
- Will be sent to the client by the master during SLS execution only
- Simple YAML syntax

Salt Modules

Remote Execution

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- To be used on the CLI (Master):

```
salt \
        -L 'web1.domain.de,web2.domain.de,web3.domain.de' \
        pkg.install \
                name=foobar \
                refresh=true \
                fromrepo=wheezy-backports \
                version=4.2
```

- Or within SLS files: {% if salt['pkg.upgrade_available']('foobar') == true %}

Salt Modules

Predefined SaltStack Modules

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pkg	alias	**apache**	timezone	at
cmd	cp	**cron**	debconf	dig
disk	**dnsutil**	pip	extfs	**file**
gem	**git**	group	logrotate	mdadm
mongodb	**mount**	**mysql**	network	**service**
quota	**ps**	puppet	S3	ssh
solr	tls	**tomcat**	user	...

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