

# **Uyuni** Introduction & how to manage CentOS

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### About me





### Pau Garcia Quiles

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Former Debian Developer Former KDE developer Former... more things



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### What?



- Systems management solution
- Deploy and manage all kind of workloads from a single place
- Automate audit and reporting capabilities
- Hardware and software inventories
- Configuration management: automatically maintain standard configurations

### Architecture





## **Origins: Spacewalk**



- Free & Open Source Systems Management
- Around since 2008
- Base for Red Hat Satellite 5 and SUSE Manager <= 3.2
- Maintenance mode:
  - No modern configuration management
  - No clear plans for the future

#### \* https://en.wikipedia.org/wiki/Salar\_de\_Uyuni Image: https://www.flickr.com/photos/madeleine\_h/9468953452/ Attribution-ShareAlike 2.0 Generic (CC BY-SA 2.0)

"Salar de Uyuni" is the world's largest salt flat

# Uyuni: fork of Spacewalk



- Simple installation
- Two stacks: traditional client ("spacewalk") and Salt
  - New development goes into Salt clients ("minions")
  - Traditional stack lets you continue using your Spacewalk/Satellite stack and knowledge in Uyuni. No need to convert to Salt.
- Containers/Kubernetes integration
- Scalability
- Usability
- React Web UI
- Python 3 and JDK11 codebase

### Features

- System deployment
- Patch management
- Service Pack migration
- Configuration management
- Bare-metal provisioning
- Schedule action chains to be performed on systems
- API

# **Cool features!**



- Content Lifecycle Management
  - Define stages (DEV, TEST, PRO) for your software channels
  - Apply filters to add/remove contents
- Build container images
- Compliance management: OpenSCAP and CVE Audit! Get alerts and fix in 1-click!
- Subscription management
- Formulas with Forms: create your own YAML automation templates, no programming skills required
- Virtualization
- Monitoring (Prometheus & Grafana stack)

### Releases



# **LYLN**

- Rolling release
- 3 releases since October 2018
  - Working towards more frequent releases
- No Community vs Enterprise editions
- Upstream for SUSE Manager >= 4.0 since June 2018

### **Current situation**



- Public repository and public development: upstream first policy
- Mailing lists, IRC, Gitter
- (Semi) Public CI
- Newest release: 2020.01 (today!)
- Base OS: openSUSE Leap 15.1
- Clients:
  - RHEL 6/7/8 CentOS 6/7/8
  - SLE11/12/15 openSUSE 15
  - Ubuntu 16.04/18.04 (Debian 9/10)
  - (Oracle Enterprise Linux)

# The future



- openSUSE Leap 15.2 as base system
- Cluster management
- Multi-Server
- More usability work
- Continue building the community!

### F F 1 88 1 **CentOS with Uyuni** A AA AA

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# Install Uyuni



- Install openSUSE Leap 15.1
- Add Uyuni repository
- zypper in patterns-uyuni\_server
- yast2 > Network Services > Uyuni Setup

### **Add CentOS channels**



- zypper in spacewalk-utils
- spacewalk-common-channels -l | grep centos7
- spacewalk-common-chanels -a x86\_64 centos7 centos7-update centos7uyuni-client
- spacewalk-repo-sync -c "centos7\*"
- mgr-create-bootstrap-repo -f --with-custom-channels centos-7-x86\_64

### **Onboard CentOS clients**



- Create activation key
- Register clients using one of three methods:
  - Web UI (easiest)
  - Bootstrap script (massive onboarding, customization during onboarding)
  - Manually (install Salt minion, accept key in Server)

### Errata



- Use Steve Meier's external service to get errata information for CentOS
- Uyuni will use it for Patches and Audit
- Fully documented in Uyuni docs

## **CentOS supported features**



- Check the docs for the full list of supported features:
   <u>https://www.uyuni-project.org/uyuni-docs/uyuni/client-</u>
   <u>configuration/supported-features-centos.html</u>
- If in doubt, ask in the lists, IRC or Gitter!

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	Q	Overview					
Home	1	Tasks			Inactive Systems		
Overview							
Notification Messages User Account	~	Manage System Types: My Organization			No inactive systems. All of your systems are actively checking into Uyuni at this time. You can view a list of all of your systems at Systems		
My Preferences		Register Systems			> All.		
My Organization	~	Manage Activation Keys					
Systems	~	Manage Autoinstallations					
Salt	~	Manage Configuration Files					
) Images	~	Manage Organizations					
Patches	~	Configure Uyuni					
Software	~	· configure oyun					
Content Lifecycle	~						
Audit	~	Most Critical Systems					
Configuration	~	System	All Updates	Security Patches	Bugfix Patches	Enhancement Patche	25
Schedule	~	min-centos7.tf.local	72	<b>V</b> 19	<b>i</b> 49	<b>2</b> 4	
Users	~	1 - 1 of 1 most critical systems displayed					View All Critical System
Admin	~	Recently Scheduled Actions					
Help	~	Recently Scheduled Actions					
External Links	~	Action				User	Age
		Package List Refresh				(none)	0 Hour(s)
		Package Install/Upgrade				🛔 admin	0 Hour(s)
		Remote Command on min-centos7.tf.I	ocal.			🛔 admin	0 Hour(s)
		<ul> <li>Subscribe channels</li> </ul>				👗 admin	0 Hour(s)
		Subscribe channels					

View All Scheduled Actions			
Relevant Security Patches		Systems	Updated
CESA-2019:2118	Moderate CentOS glibc Security Update	ť	9/10/19
E C 0504 2010 2020			0140140

### ≡ Uyuni > Systems

Search page	a 🛛 a min-centos7.tf.loca	Delete System   • Add to SSM	
希 Home	Details Software Configuratio	on Provisioning Groups Audit States Formulas Events	
Systems	Pending History		
Overview			
System List	😤 💼 System History Event		
System Groups	Summary:	Remote Command on min-centos7.tf.local. scheduled by admin	
System Set Manager			
Bootstrapping	Details:	This action will be executed after 1/31/20 2:26:00 PM CET This action's status is: Completed.	
Visualization	× ·	The client completed this action on 1/31/20 2:26:43 PM CET	
Advanced Search		Client execution returned Script executed successfully. [jid=20200131142631927955]	
Activation Keys			
Stored Profiles Custom System Info		(code 0)	
Autoinstallation	~	Run as: root:root Timeout: 600 seconds	
Software Crashes		Script contents:	
Virtual Host Managers		#!/bin/sh	
		# Add your shell script below	
😚 Salt	· · · · ·	ls -lah /	
🖨 Images	× 1	Start Date: 1/31/20, 2:26 PM	
🐼 Patches		End Date: 1/31/20, 2:26 PM	
Software	→ 1	Return Code: 0 Raw Output: view/download raw script output	
Content Lifecycle	<b>↓</b>	Filtered Output:	
		total 12K dr-xr-x. 17 root root 224 Nov 16 2018.	
<b>Q</b> Audit	×	dr-xr-x. 17 root root 224 Nov 16 2018 lrwxrwxrwx. 1 root root 7 Nov 16 2018 bin -> usr/bin	
Configuration	~	dr-xr-xr. 5 root root 281 Nov 16 2018 boot	
O Schedule	~ <b>I</b>	drwxr-xr-x 19 root root 3.2K Jan 31 13:55 dev drwxr-xr-x. 71 root root 8.0K Jan 31 13:58 etc	
🐸 Users		drwxr-xr-x. 2 root root 6 Apr 11 2018 home 1rwxrwxrwx. 1 root root 7 Nov 16 2018 lib -> usr/lib	
📥 Admin		lrwxrwxrwx. 1 root root 9 Nov 16 2018 lib64 -> usr/lib64 drwxr-xr-x. 2 root root 6 Apr 11 2018 media	
Copyright Notice		drwxr-xr-x. 2 root root 6 Apr 11 2018 mnt	
Uyuni release 201910	00 8.1087	drwxr-xr-x. 2 root root 6 Apr 11 2018 opt dr-xr-xr-x 106 root root 0 Jan 31 13:54 proc	
Content Lifecycle	~	dr-xr-x 5 root root 194 Jan 31 14:25 root drwxr-xr-x 22 root root 640 Jan 31 14:26 run	
		lrwxrwxrwx. 1 root root 8 Nov 16 2018 sbin -> usr/sbin	
<b>Q</b> Audit		drwxr-xr-x. 3 root root 17 Nov 16 2018 srv dr-xr-xr-x 13 root root 0 Jan 31 13:54 sys	
Configuration		drwxrwxrwt. 8 root root 265 Jan 31 14:26 tmp drwxr-xr-x. 13 root root 155 Nov 16 2018 usr	

📅 Home	ř	Details Software Configuration	Provisioning Groups Audit States Formulas Events
Systems		Pending History	
Overview		Pending history	
System List	× n	System History Event	
System Groups			
System Set Manager	~	Summary:	Package Install/Upgrade scheduled by admin
Bootstrapping		Details:	This action will be executed after 1/31/20 2:27:00 PM CET
Visualization	<b>~</b>		This action's status is: Completed. The client completed this action on 1/31/20 2:29:00 PM CET
Advanced Search			Client execution returned
Activation Keys			
Stored Profiles			"file_ -mgrchannels_susemanagerplugin_yum_ -/usr/share/yum-plugins/susemanagerplugin.py_ -managed": { "comment": "File /usr/share/yum-plugins/susemanagerplugin.py is in the correct state",
Custom System Info			"name": "/usr/share/yum-plugins/susemanagerplugin.py",
Autoinstallation			"start_time": "14:28:02.220172", "result": true,
Software Crashes			"duration": 27.68,
			"_run_num_": 0.0, "_sls_": "channels",
Virtual Host Managers			"changes": {},
😚 Salt	~		"id": "mgrchannels_susemanagerplugin_yum" },
🔓 Images			"file_ -mgrchannels_repo_ -/etc/yum.repos.d/susemanager:channels.repo_ -managed": {     "comment": "File /etc/yum.repos.d/susemanager:channels.repo updated",
			"name": "/etc/yum.repos.d/susemanager:channels.repo",
🕅 Patches	~		"start_time": "14:28:02.262204", "result": true,
Software	<b>.</b>		"duration": 25.895,
Content Lifecycle			"_run_num_": 2.0, "_sls_": "channels",
	~		"changes": {
<b>Q</b> Audit	×		"diff": " \n+++ \n@@ -2,12 +2,12 @@\n # Do not edit this file, changes will be overwritten\n #\n \n-[susemanager:centos7-x86_64]\n-name\u003dCentOS 7 (x86_64) \n+[susemanager:centos7-uyuni-client-x86_64]\n+name\u003dUyuni Client Tools for CentOS 7 (x86_64)\n enabled\u003dl\n autorefresh\u003dl\n-baseurl\u003dhttps://server.t
Configuration	~		f.local:443/rhn/manager/download/centos7-x86_64\n-susemanager_token\u003deyJhbGciOiJUZIlNiJ9.eyJleHAiOjE2MTIwMTMxMzgsImlhdCI6MTU4MDQ3NZEzOCwibmJmIjoxNTgwNDc3MDE4LCJqd GkiOiIORWR3cGllZTNxNThBSmZzdjFxR3dBIiwib3JnIjoxLCJvbmx5Q2hhbm51bHMiOlsiY2VudG9zNy140DZfNjQiXX0.vbENZFz4RSxP4MCgIKPTHTVNEwcLrUpEjrDOAbT5T1s\n+baseur1\u003dhttps://serve
			r.tf.local:443/rhn/manager/download/centos7-uyuni-client-x86_64\n+susemanager_token\u003deyJhbGciOiJIUzIlNiJ9.eyJleHAiOjE2MTIWMTMXMzgsImlhdCI6MTU4MDQ3NzEzOCwibmJmIjoxN
O Schedule	× •		TgwNDc3MDE4LCJqdGki0iJIU2tLemNEMXFLSVQwc2JJRDZqa2NnIiwib3JnIjoxLCJvbmx5Q2hhbm51bHMi0lsiY2VudG9zNy1leXVuaS1jbG11bnQteDg2XzY0I119.baRgKqUraywptAYRRjuEf1mzJ9ngjI11xr2GAYF dFxQ\n type\u003drpm-md\n gpgcheck\u003d0\n repo gpgcheck\u003d0\n@g -26,12 +26,12 @g\n pkg gpgcheck\u003d1\n \n \n-[susemanager:centos7-uyuni-client-x86 64]\n-name\u0
警 Users	~		03dUyuni Client Tools for Cent0S 7 (x86_64)\n+[susemanager:centos7-x86_64]\n+name\u003dCent0S 7 (x86_64)\n enabled\u003dl\n autorefresh\u003dl\n-baseurl\u003dhtps://s
🐣 Admin	÷		erver.tf,local:443/rhn/manager/download/centos7-uyuni-client-x86_64\n-susemanager_token\u003deyJhbGci0iJUUzINiJ9.eyJleHAiOjE2MTIWMTMxMzgsImlhdCI6MTU4MDQ3NzEzOCwibmJmI joxNTgwNDc3MDE4LCJqdGki0iJU2tLemNEMXFLSVQwc2JJRDZqa2NnIiwib3JnIjoxLCJvbmx5Q2hhbm51bHMi01siY2VudG9zNy11eXVuaS1jbGlibnQteDg2XZY0I119.baRgKqUraywptAYRRjuEf1mzJ9ngjI11xr2
Copyright Notice			GAYFdFxQ\n+baseurl\u003dhttps://server.tf.local:443/rhn/manager/download/centos7-x86_64\n+susemanager_token\u003deyJhbGci0iJIUz11NiJ9.eyJleHAi0jE2MTIwMTMxMzgsImlhdCl6M TU4MDQ3NzEzOCwibmJmIjoxNTgwNDc3MDE4LCJqdGki0iI0RWR3cGl1ZTNxNThBSm2zdjFxR3dBIiwib3JnIjoxLCJvbmx5Q2hhbm51bHMi01siY2VudG9zNy140DZfNjQ1XX0.vbENZFz4RSxP4MCgIKPTHTVNEwcLrUpE
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Virtual Host Managers			}; "id": "mgrchannels_repo"
29	1000		1,
😚 Salt	×		"file_ -mgrchannels_susemanagerplugin_conf_yum_ -/etc/yum/pluginconf.d/susemanagerplugin.conf_ -managed": { "comment": "File /etc/yum/pluginconf.d/susemanagerplugin.conf is in the correct state",
🖨 Images	~		"name": "/etc/yum/pluginconf.d/susemanagerplugin.conf",
🐼 Patches	~		"start_time": "14:28:02.247995", "result": true,
			"duration": 13.484, "run_num_": 1.0,
Software	~		"_sls_": "channels",
Content Lifecycle	~		"changes": {}, "id": "mgrchannels_susemanagerplugin_conf_yum"
			mytotimitete_volumitagetpieg41_0011_74m

```
" run num ": 1.0,
   Stored Profiles
                                                                                          " sls ": "channels",
                                                                                          "changes": {},
   Custom System Info
                                                                                          " id ": "mgrchannels susemanagerplugin conf yum"
   Autoinstallation
                                                                                        },
                                                                                        "cmd_|-mgrchannels_yum_clean_all_|-/usr/bin/yum clean all_|-run": {
   Software Crashes
                                                                                          "comment": "Command \"/usr/bin/yum clean all\" run",
                                                                                          "name": "/usr/bin/yum clean all",
   Virtual Host Managers
                                                                                          "start time": "14:28:02.288978",
                                                                                          "result": true,
😚 Sait
                                                                                          "duration": 17919.18,
                                                                                          " run num ": 3.0,
Images
                                                                                          "__sls__": "channels",
                                                                                          "changes": {
Patches
                                                                                           "pid": 1719.0,
                                                                                            "retcode": 0.0,
Software
                                                                                            "stderr": "".
                                                                                            "stdout": "Loaded plugins: fastestmirror, susemanagerplugin, yumnotify\nCleaning repos: susemanager:centos7-uyuni-client-x86 64\n
                                                                                                                                                                                                                                         : susemanager:cent
Content Lifecycle
                                                                                      os7-x86 64 susemanager:centos7-x86 64-updates\nCleaning up everything\nMaybe you want: rm -rf /var/cache/yum, to also free up space taken by orphaned data from disable
                                                                                      d or removed repos\nCleaning up list of fastest mirrors"
Q Audit
                                                                                          1,
                                                                                          "__id__": "mgrchannels_yum_clean_all"
                                                                                        1,
Configuration
                                                                                        "pkg_|-pkg_installed_|-pkg_installed_|-installed": {
                                                                                         "comment": "The following packages were installed/updated: bzip2\u003dl.0.6-13.el7",
O Schedule
                                                                                          "name": "pkg installed",
                                                                                          "start time": "14:28:20.786768",
🐸 Users
                                                                                          "result": true,
                                                                                          "duration": 40194.47,
🐣 Admin
                                                                                          "__run_num__": 4.0,
                                                                                          " sls ": "packages.pkginstall",
Copyright Notice
                                                                                          "changes": {
Uyuni release 201910
                                                                                            "bzip2": {
                                                                                             "new": í
   Virtual Host Managers
                                                                                                  "release": "13.e17",
Salt
                                                                                                  "version": "1.0.6",
                                                                                                  "arch": "x86_64",
Images
                                                                                                  "install date time t": 1.580477338E9
Patches
                                                                                              "old": ""
Software
                                                                                          "__id__": "pkg_installed"
Content Lifecycle
Q Audit
                                                                                    (code 0)
Configuration
                                                                                    Packages Scheduled:
O Schedule

    bzip2-1.0.6-13.el7.x86_64

🐏 Users
                                                 Time:
                                                                                    1/31/20 2:27:00 PM CET
🔒 Admin
Copyright Notice

    Return to history list for min-centos7.tf.local

Uyuni release 201910
```

~

n Home	Details Softwa	vare Configuration Provisioni	ing Groups Audit States Formulas Events		
Systems		Packages Software Channels	SP Migration		
Overview					
System List	🛛 🧭 Relevant I	Patches			
System Groups	The following patches	s may currently be applied to this system	ι̂.		
System Set Manager Bootstrapping		1 - 19 of 19 (0 selected)			Apply Patches
Visualization					
Advanced Search	Security Advisory	Show			
Activation Keys					
Stored Profiles	Filter by Synopsis:	£.	Select first character +		25 v items per page
Custom System Info Autoinstallation	🗸 🗌 Туре	Advisory	Synopsis	Status	Updated 🚛
Software Crashes		CESA-2019:2118	Moderate CentOS glibc Security Update	N/A	9/10/19
Virtual Host Managers	• • C	CESA-2019:2029	Important CentOS kernel Security Update	N/A	9/10/19
😚 Sait	· •	CESA-2019:2091	Moderate CentOS systemd Security Update	N/A	8/30/19
🔓 Images	× 🛛	CESA-2019:2110	Moderate CentOS rsyslog Security Update	N/A	8/30/19
Patches	· ·	CESA-2019:2272	Moderate CentOS python-urllib3 Security Update	N/A	8/30/19
Software	- U	CESA-2019:2035	Low CentOS python-requests Security Update	N/A	8/30/19
Content Lifecycle	· ·	CESA-2019:2030	Moderate CentOS python Security Update	N/A	8/30/19
Q Audit	×	CESA-2019:2189	Moderate CentOS procps-ng Security Update	N/A	8/30/19
		CESA-2019:2046	Moderate CentOS polkit Security Update	N/A	8/30/19
Schedule		CESA-2019:2304	Moderate CentOS openssl Security Update	N/A	8/30/19
🐸 Users	Č U	CESA-2019:2143	Low CentOS openssh Security Update	N/A	8/30/19
Admin Copyright Notice		CESA-2019:2237	Moderate CentOS nspr Security Update	N/A	8/30/19
Uyuni release <u>201910</u> ✿⊐ mnayca		CESA-2019:2169	Important CentOS linux-firmware Security Update	N/A	8/30/19
🔊 Patches	× 0	CESA-2019:2136	Moderate CentOS libssh2 Security Update	N/A	8/30/19
🔢 Software	× 0	CESA-2019:2197	Low CentOS elfutils Security Update	N/A	8/30/19
Content Lifecycle	Ť D	CESA-2019:2060	Moderate CentOS dhcp Security Update	N/A	8/30/19
<b>Q</b> Audit		CESA-2019:2181	Low CentOS curl Security Update	N/A	8/30/19
Configuration	× •	CESA-2019:2075	Moderate CentOS binutils Security Update	N/A	8/30/19
O Schedule	· · ·	0504 2040 2057	Madagate OctoOp bird Octoorte Hadate	51/A	8/20/40



## A&Q



- CentOS 8 support
  - Basic support (reposync and command-line) in Uyuni 2020.01
    - CentOS 8.1 does not work yet: modules.yaml is different from RHEL's
  - Managing appstreams in the UI, CLM and flattening repositories available in next release





- It Uyuni available for CentOS?
  - No but we will accept it if the community contributes it
  - Unofficial packages available in OBS for Fedora



Also at Config Management Camp 2020 next week: 3 talks (virtualization, AnsibleGate, Yomi) and an Uyuni workshop

# Join Us at uyuni-project.org

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Inspiration openSUSE Design Team http://opensuse.github.io/branding-guidelines/