SUSECON 23

Reimagine. Innovate. Secure

TUT-1117

Integrating SUSE Manager with Ansible

whoami

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Agenda

1. Recap: SUSE Manager automation possibilities
   What is offered out of the box?

2. Automating SUSE Manager installations
   Find out how to automate your installations

3. The Uyuni Ansible collection
   Control SUMA/Uyuni via Ansible

4. Demo: AWX workflow
   Full automated Ansible-based patch management

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Recap

SUSE Manager automation capabilities

SUSE Manager Automation possibilities

XML-RPC API

good ol' default API

Introduced in Spacewalk (2008), hard to use, requires special client libraries

HTTP API

New JSON over HTTP API, easier to consume than XML-RPC API

Introduced in Uyuni 2022.05, supported in SUSE Manager 4.3

Salt

Mighty IaC solution for comprehensive configuration management

spacecmd

Command-line interface to API

Many commands support wildcards, offers shell mode

Automating SUSE Manager installations

In under 10 minutes

Installing SUSE Manager

```yaml
---
- name: Install SUSE Manager
  hosts: suma.giertz.loc
  become: true
  roles:
    - role: stdevel.uyuni.server
      uyuni_scc_reg_code: DERP1337LULZ
      uyuni_scc_mail: simone@gier.tz
```

Installing the most recent supported version of SUSE Manager

Installing Uyuni and some 3rd party repositories

```
---
- name: Install Uyuni
  hosts: uyuni.giertz.loc
  become: true
  roles:
    - role: stdevel.uyuni.server
      uyuni_release: '2023.06'
      uyuni_channels:
        - name: opensuse_leap15_4
          arch: x86_64
      uyuni_enable_monitoring: true
      uyuni_install_monitoring_formulas: true
```

Installing a **specific** Uyuni version and configuration 3rd party repositories using `spacewalk-common-channels`.

Also enables **monitoring** support.

Registering clients

```
---
- name: Register clients
  hosts: clients
  become: true
  roles:
    - role: stdevel.uyuni.client
```

Downloads and executes a bootstrap.sh script.

By default, it searches for the file `bootstrap-$distro$version.sh` – e.g. `bootstrap-almalinux9.sh`.

See also SUSE Manager documentation.

The Uyuni Ansible collection

Plug & automate

The Uyuni Ansible collection

— Collection of various **roles**

   — `storage` (server preparation)

   — `server` (SUMA/Uyuni installation)

   — `client` (bootstrapping)

— Also contains various **plugins**

   — Managing patches, upgrade

   — Running OpenSCAP checks

   — Dynamic inventory

This is a **work in progress** project.

Available on GitHub and Ansible Galaxy:

https://github.com/stdevel/ansible-collection-uyuni

https://galaxy.ansible.com/stdevel/uyuni

Contributions / feedback welcome!

Installing patches

```
---
- name: Installing patches
  stdevel.uyuni.install_patches:
    uyuni_host: 192.168.1.1
    uyuni_user: admin
    uyuni_password: admin
    name: myserver.localdomain.loc
    exclude_patches:
      - openSUSE-2022-10013
      - openSUSE-SLE-15.3-2022-2118
```

Modules specify SUMA / Uyuni connection details and managed host.

Can also be used with the dynamic inventory and delegating the task to the management node (delegate_to).

Checking OpenSCAP compliance

```
---
- name: Check compliance
  stdevel.uyuni.openscap_run:
    uyuni_host: 192.168.1.1
    uyuni_user: admin
    uyuni_password: admin
    name: myserver.localdomain.loc
    document: /opt/scap-yast2sec-xccdf.xml
    arguments: --profile Default
```

XCCDF catalog (document) and oscap parameters (arguments) can be defined using parameters.

Dynamic inventory: configuration

```
---
plugin: stdevel.uyuni.inventory
host: 192.168.1.1
user: admin
password: admin
show_custom_values: true
# ipv6_only: true
verify_ssl: false
# groups:
#   - Test
# pending_reboot_only: true
```

Inventory file needs to end with `.uyuni.yml`.

Configuration file specifies:

- Connection details
- Hostgroup / custom value / IPv6 filter
- Filter for pending reboots

Dynamic inventory: usage

```
$ ansible-inventory homelab.uyuni.yml --list
{
    "Test": {
        "hosts": [
            "uyuni-client-opensuse-leap15"
        ]
    },
    "_meta": {
        "hostvars": {
            "uyuni-client-opensuse-leap15": {
                "ansible_host": "192.168.1.2",
                "susecon23_system": "1"
            }
        }
    }
…
}
```

The Ansible inventory includes **hostgroups** and **custom system information** specified in the SUSE Manager interface.

Those information can be used in Ansible roles and playbooks.

Demo time!

AWX-based patch management workflow

(vSphere, check_mk, Uyuni)

What you're about to see

— Automated patch cycle in the lab

    — vSphere hypervisor for VMs

    — Uyuni

    — check_mk for monitoring

— AWX uses various Ansible collections

    — community.vmware

    — stdevel.uyuni

    — tribe29.checkmk

The AWX workflow will prepare maintenance by:

·Scheduling downtime

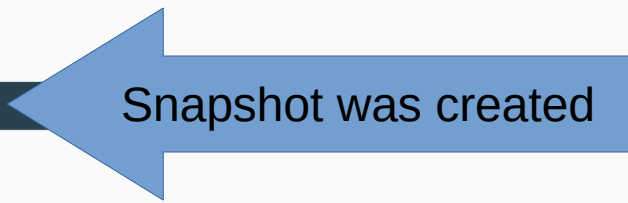·Creating VM snapshots

Afterwards it will install patches.

Total Nodes 4

Save

START — VM Snapshot — check_mk downtime — Patch — OpenSCAP

uyuni-client.labwi.sva.de

AKTIONEN

Übersicht | Überwachen | Konfigurieren | Berechtigungen | Datenspeicher | Netzwerke | **Snapshots** | Updates

SNAPSHOT ERSTELLEN... | WIEDERHERSTELLEN | BEARBEITEN | LÖSCHEN | ALLE LÖSCHEN

- After deployment
  - Ansible Maintenance ← **Snapshot was created**
    - Sie befinden sich hier

Name	Ansible Maintenance
Beschreibung	Snapshot before maintenance created by Ansible
Zeitstempel	02.06.23, 16:19
Größe	1,61 GB
Snapshot des Arbeitsspeichers der virtuellen Maschine erstellen	Nein
Gast-Dateisystem stilllegen	Nein

Tree navigation (left panel):
- check...
  - ch...
- DD
- Katello
  - Ka...
  - Ka...
- Lands...
  - La...
  - La...
- Templ...
  - te...
  - te...
  - te...
  - te...
  - te...
  - te...
- Uyuni
  - uy...
  - Uy...
- DFischer

Kürzlich bearbeitete Aufgaben | Alarme

Name der Aufgabe	Ziel	Status	Details	Initiator	In Warteschlange	Startzeit	Zeitpunkt der Fertigstellung	Server

Keine Elemente gefunden

Alle | Weitere Aufgaben | 0 Elemente

Comments of host uyuni-client.labwi.sva.de

checkmk

Monitor

Customize

Setup

Commands   **Host**   **Add to**   **Export**   **Display**   **Help**   ⌃

🔧 **Remove comments**   ⑆ **Filter**   🔲 **Show checkboxes**   ⊕ **Services of Host**

1 row

Author	Comment text		Time	Expires	E. Type
automation	This host has been scheduled for fixed downtime from 2023-0...	will not be sent out during that time period.	192 s	-	🚧

Downtime was scheduled
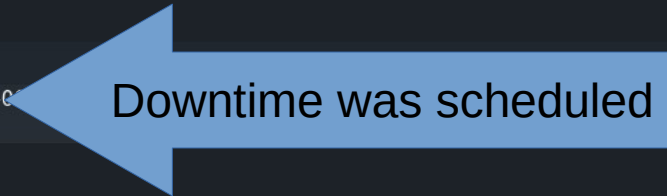
Overview ⌃

Hosts
1

Unhandled p.
0

Services
3

Unhandled p.
0

Events
0

Unhandled p.
0

Bookmarks ⌃

Add Bookmark   Edit

Master control ⌄

Help

User

Sidebar

🔔 🔍 **0** systems selected ✎ 👤 admin   👥 Demo   ⚙   ↩

Search page 🔍

- 🏠 Home ˅
- 🖥 **Systems** ˄
  - System List ˅
  - System Groups
  - System Set Manager ˅
  - Bootstrapping
  - Proxy Configuration
  - Visualization ˅
  - Advanced Search
  - Activation Keys
  - Stored Profiles
  - Custom System Info
  - Autoinstallation ˅
  - Virtual Host Managers
- 📦 Salt ˅
- 🖼 Images ˅
- 🛠 Patches ˅
- ⫼ Software ˅
- ▦ Content Lifecycle ˅
- 🔍 Audit ˅
- ⚙ Configuration ˅
- 🕐 Schedule ˅
- 👥 Users ˅
- 👤 Admin ˅
- 📖 Help ˅
- 🔗 External Links ˅

🖥 **uyuni-client.labwi.sva.de** ❓

🗑 Delete System   ⊕ Add to SSM

| Details | Software | Configuration | Provisioning | Groups | Audit | States | Formulas | **Events** |

Pending   **History**

💼 **System History**

The following history events have been noted for this system.
Please note that this system has no pending events. Events marked with a star (*) happened within a different organization: migrate the system back to the original organization to access event details.
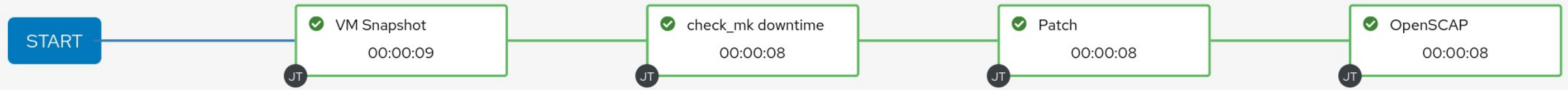
1 - 25 of 63   « ‹ › »

| | 25 ˅ | items per page |

Type	Status	Summary		Time
🖥	✅	OpenSCAP xccdf scanning scheduled by admin		2023-06-02 16:22:38 CEST
🩹	✅	Combined Patch Update: openSUSE-SLE-15.4-2023-743 ... ...s) scheduled by (none)		2023-06-02 16:22:16 CEST
❖	✅	Package List Refresh scheduled by admin		2023-06-02 16:02:20 CEST
❖	✅	Package List Refresh scheduled by admin		2023-06-02 15:53:36 CEST
🖥	✅	Remote Command on uyuni-client.labwi.sva.de. scheduled by admin		2023-06-02 15:52:28 CEST
🖥	✅	OpenSCAP xccdf scanning scheduled by admin		2023-06-02 15:37:41 CEST
🩹	✅	Combined Patch Update: openSUSE-SLE-15.4-2023-743 - Recommended update for gnutls (and 0 more patches) scheduled by (none)		2023-06-01 15:41:28 CEST
❖	✅	Package List Refresh scheduled by admin		2023-06-01 15:38:28 CEST
🖥	✅	Remote Command on uyuni-client.labwi.sva.de. scheduled by admin		2023-06-01 15:38:19 CEST
🖥	⊗	Remote Command on uyuni-client.labwi.sva.de. scheduled by admin		2023-06-01 15:35:28 CEST
❖	⊗	Package List Refresh scheduled by admin		2023-06-01 15:35:22 CEST
❖	✅	Package List Refresh scheduled by (none)		2023-06-01 15:28:02 CEST
🩹	✅	Patch Update: Combined update for the software update stack (284 patches) scheduled by (none)		2023-06-01 15:27:55 CEST
🖥	✅	OpenSCAP xccdf scanning scheduled by admin		2023-06-01 15:09:58 CEST
🖥	✅	OpenSCAP xccdf scanning scheduled by admin		2023-06-01 14:55:32 CEST
🖥	✅	OpenSCAP xccdf scanning scheduled by admin		2023-06-01 14:46:40 CEST
❖	✅	Package List Refresh scheduled by (none)		2023-06-01 14:45:33 CEST

⬅ **OpenSCAP executed**

⬅ **Patch installed**

START

✓ VM Snapshot
00:00:09
JT

✓ check_mk downtime
00:00:08
JT

✓ Patch
00:00:08
JT

✓ OpenSCAP
00:00:08
JT

Roadmap

0.1. (December 2022)

Initial release

1.0 (later 2023)

- proxy role
- SSL certificate support
- JSON over HTTP API in external Python library (pyuyuni)

0.1.1 (April 2023)

- Added client role

Some next version

Your ideas?

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Thank you

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