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Integrate Ansible Systems into SUSE Manager



Presenters



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- Agenda for this session

- What is SUSE Manager?
- Why to integrate with Ansible in SUSE Manager 4.2 ?
- How to do it
 - Registering your Ansible control nodes into SUSE Manager
 - Discovering your Ansible inventories and playbooks
 - Running Ansible playbooks using SUSE Manager
- Demo!
- Next steps ahead in the roadmap

But first, What is SUSE Manager?



SUSE Manager

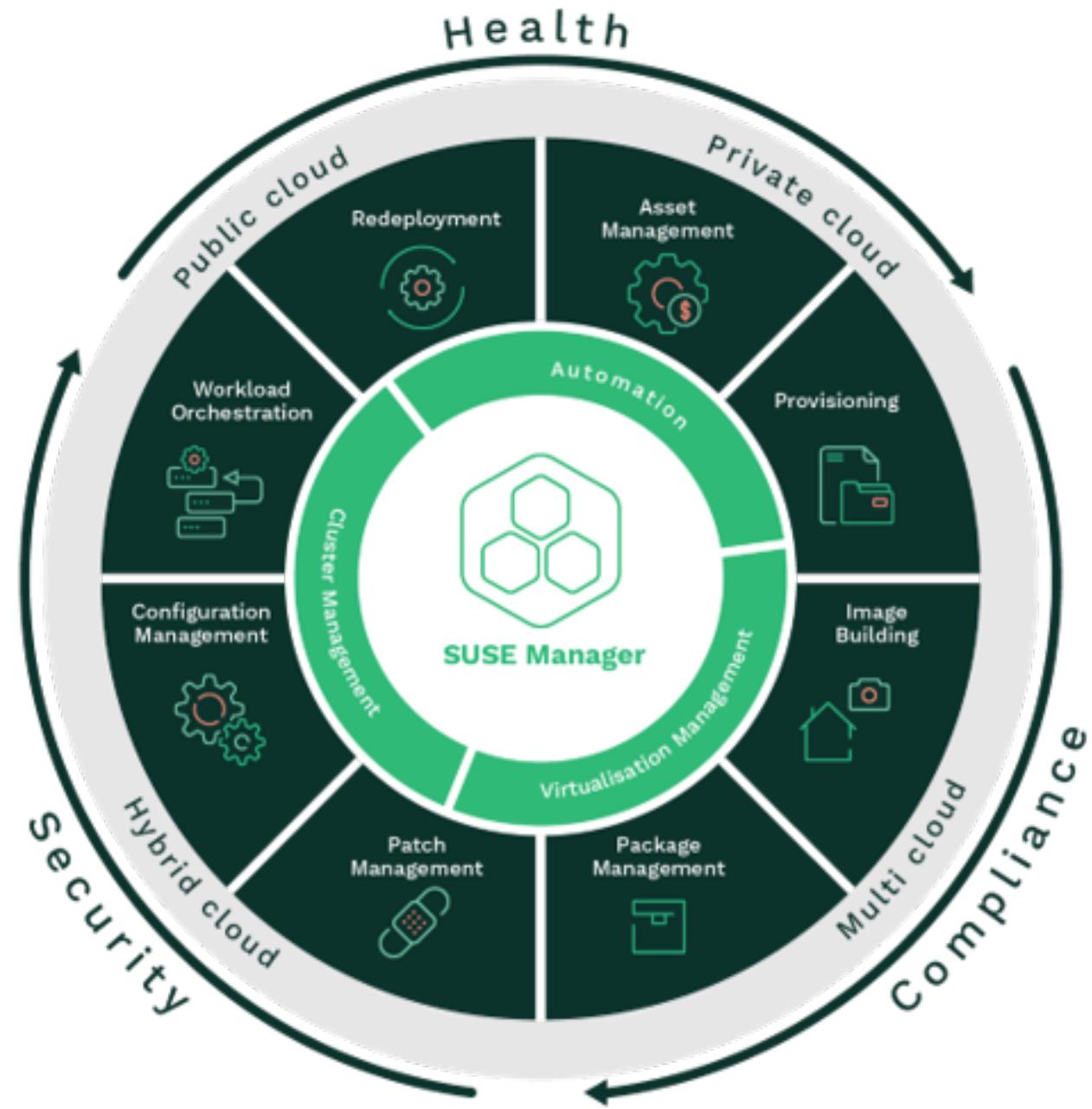
Best-in-class open source infrastructure management solution designed to help your enterprise DevOps and IT Operations teams to:

Optimize operations while reducing **costs**

Reduce **complexity** and regain control of IT assets

Ensure **compliance** with internal security policies and external regulations

One solution to manage all your Enterprise Linux infrastructure



Heterogeneous Linux environments

SUSE Manager delivers support for these clients:



SUSE Manager 4.2

Added support for:

- Amazon Linux 2
- Alma Linux 8
- (Rocky Linux) – Fall 2021



**Enable the management of all your Enterprise Linux Distributions
from a single tool – no matter where they are located**



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SUSE Manager Automation with Salt

Automation with Salt is the mainstay of SUSE Manager



Key features:

- Agent or agentless communication
- Event-driven automation
- Content management
- OS image create and deploy
- Binaries delivered for all supported distros
- Formulas to quickly deliver bundled, targeted features and configuration

Only SUSE Manager offers:

An integrated solution for powerful software updates and package management,
And class-leading configuration management and automation for
all major Linux distributions.

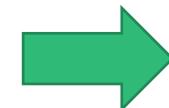
Security and Compliance



- How do you ensure you meet compliance and security requirements?
- How do you detect vulnerabilities in your large, mixed environment where visibility is increasingly reduced?
- How you know if your systems are still compliant over time?

SUSE Manager 4.2

- SUSE Manager 4.2 enhances its Security and Compliance by providing OpenSCAP content for SLE and all other supported Linux operating systems

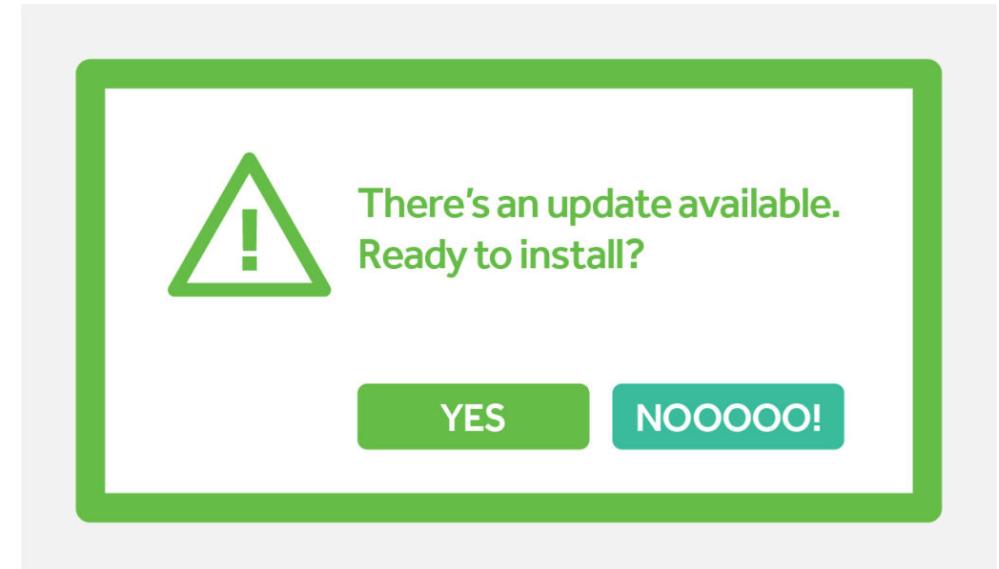


- Verify the presence of patches by using the content provided to the clients
- Apply remediation scripts and Ansible playbooks that are provided to achieve better compliance when needed
- Keep your environment secure & compliant**

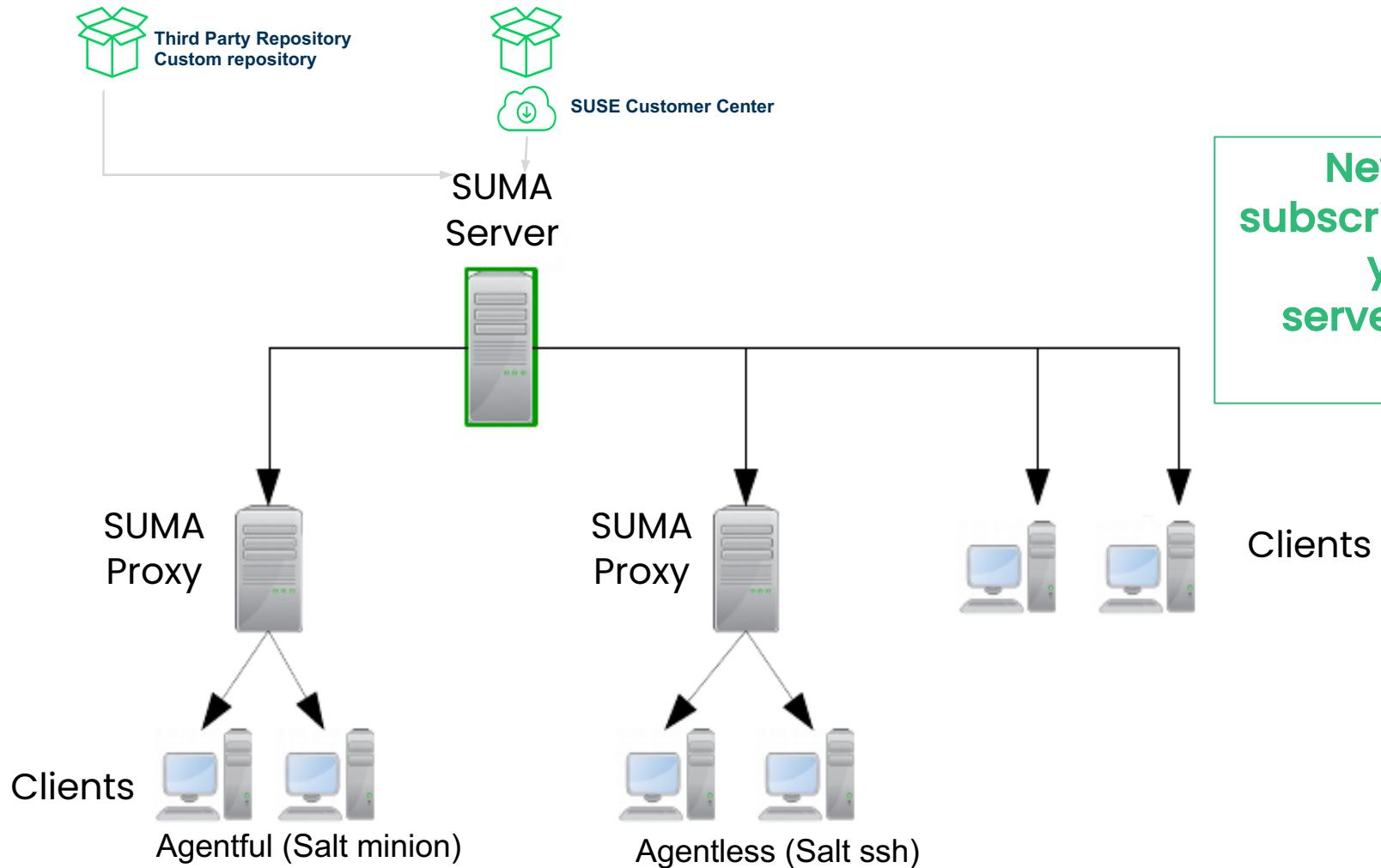
Updates/upgrades are hard – right?

SUSE Manager can handle them!

- Product migration for openSUSE
- Service pack migration tool for SLE
- Autoinstallation tool for "offline" major system upgrades
 - PXE not required!
 - Can be run on cloud clients



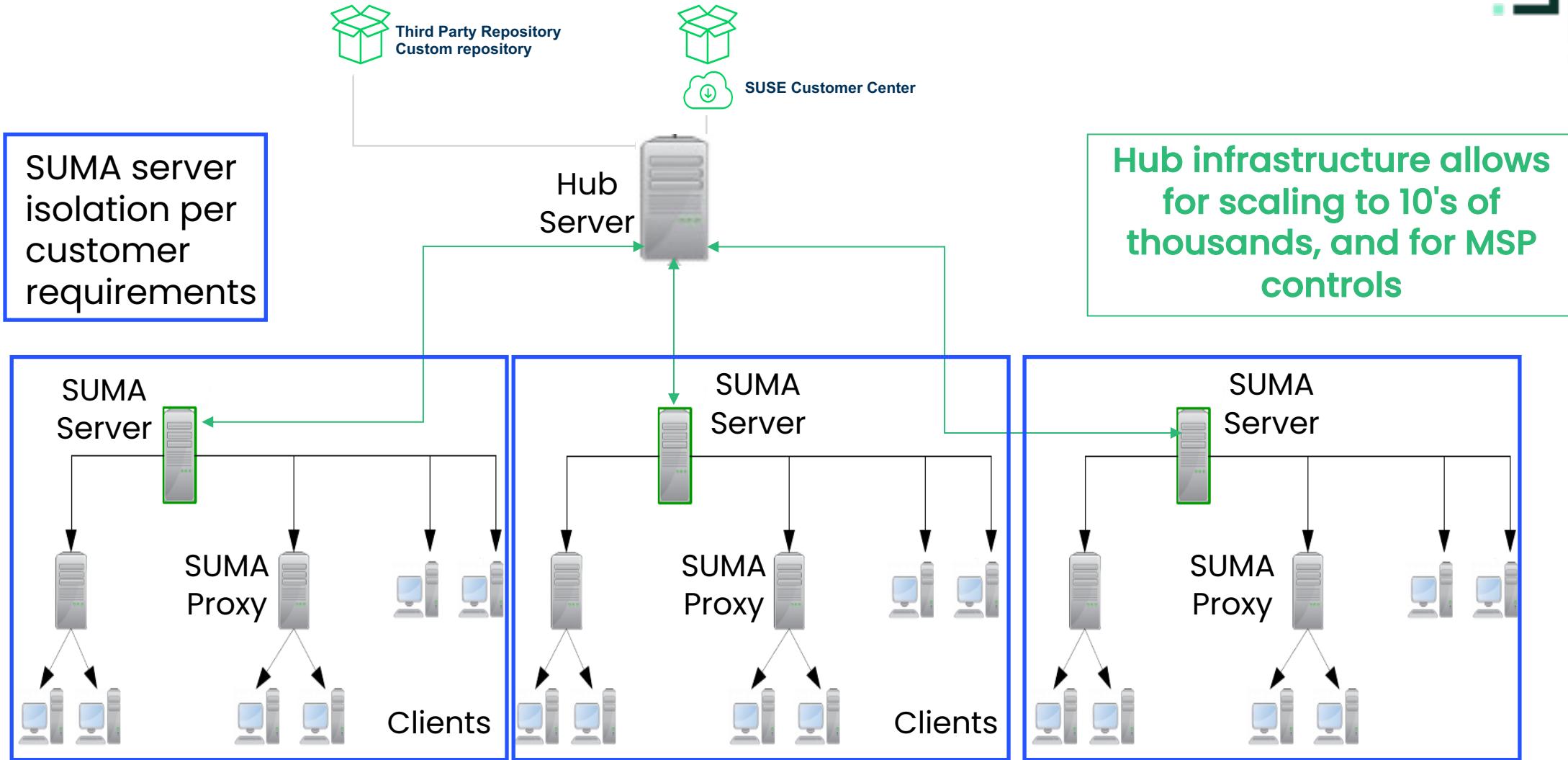
SUSE Manager architecture – Basic



New, Simplified
subscription model lets
you deploy
server/proxy where
needed



SUSE Manager architecture - Hub



Why Ansible in SUSE Manager 4.2 ?



People are running Ansible out there!

- Some customer's IT infrastructure is already managed by Ansible
- Efforts already invested. Security audited
- Ansible modules and playbooks all over the place



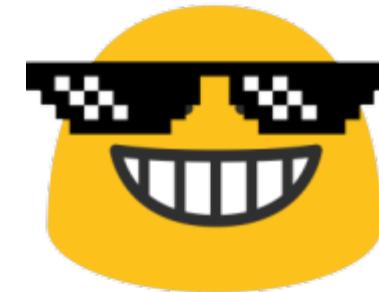
... and they usually face the same problems!

- Real-time monitoring
- Event-driven Orchestration
- Scalability
- No UI or API (except for Ansible Tower / AWX)



But SUSE Manager and Salt will help you with that!

- Real-time monitoring -> **beacons** !
- Event-driven Orchestration -> **reactors** !
- Scalability -> **zeromq / hub** !
- No UI or API -> **SUSE Manager** !



New in SUSE Manager 4.2 !

- SUSE Manager 4.2 provides an initial integration with Ansible (technology preview)
- Ansible package is now part of "SLE15 Client Tools"
 - Version 2.9.21



New in SUSE Manager 4.2 !

- Allow registering your Ansible control nodes and operate them (Ansible 2.9)
- Display your inventories and discover your playbooks
- Reuse your existing playbooks and run them!

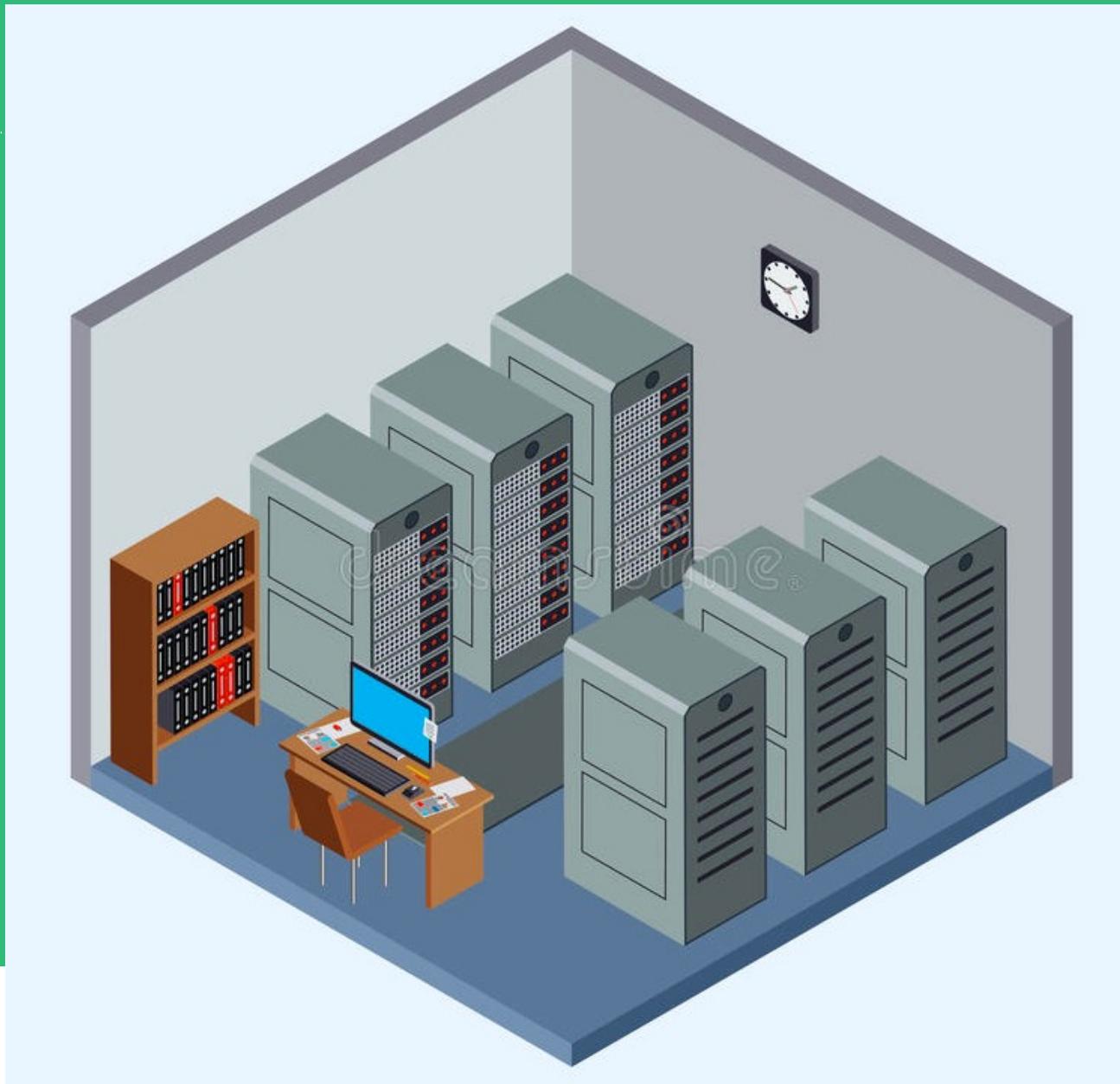


New in SUSE Manager 4.2 !

- With a new UI to operate the Ansible control nodes
- Also new XMLRPC API endpoints
- Long time requested feature from customers and community



Registering your Ansible control nodes into SUSE Manager



Register your Ansible control node as system

SUSE®Manager > Systems > Overview

11 0 systems selected admin SUSE

Search page + Add Systems

Home Systems Overview System List System Groups System Set Manager Bootstrapping Visualization Advanced Search Activation Keys Stored Profiles Custom System Info Autoinstallation Virtual Host Managers Clusters Salt Import

System Overview

View System Groups Select All 1 - 3 of 3

Filter by System Name: Select first character 25 items per page

<input type="checkbox"/> SSM	System	Updates	Patches	Packages	Config Diffs	Base Channel	System Type
<input type="checkbox"/>	suma-42-min-centos7.tf.local	?	4	112	0	centos7 for x86_64	Salt
<input type="checkbox"/>	suma-42-min-centos7-v2.tf.local	?	4	112	0	centos7 for x86_64	Salt
<input type="checkbox"/>	suma-42-min-sles15sp3.tf.local	!	21	160	0	SLE-Product-SLES15-SP3-Pool for x86_64	Salt

Download CSV

Add new system type: "Ansible control node"

SUSE Manager > Systems

suma-42-min-sles15sp3.tf.local

Details Software Configuration Provisioning Groups Audit States Formulas Ansible Events

Overview Properties Remote Command Reactivation Hardware Transfer Notes Custom Info

Edit System Details

System Name: suma-42-min-sles15sp3.tf.local

Base System Type: Salt

Add-On System Types:

- Ansible Control Node
- Container Build Host
- Monitoring
- OS Image Build Host

Notifications:

- Receive Notifications of Updates/Patches.
- Include system in daily summary report calculations.

Auto Patch Update:

- Automatic application of relevant patches

Maintenance Schedule:

- None
- Cancel affected actions

New "Ansible" page in the system profile

The screenshot shows the SUSE Manager interface for managing systems. The left sidebar is titled "SUSE®Manager > Systems" and includes sections for Home, Systems (which is currently selected), Overview, System List, System Groups, System Set Manager, Bootstrapping, Visualization, Advanced Search, Activation Keys, Stored Profiles, Custom System Info, Autoinstallation, Virtual Host Managers, Clusters, Salt, and Images. The main content area is for the system "suma-42-min-sles15sp3.tf.local". The top navigation bar includes a notification icon (11), a search bar, a selection counter ("2 systems selected"), user information ("admin"), and SUSE branding. Below the navigation, tabs for Details, Software, Configuration, Provisioning, Groups, Audit, States, Formulas, Ansible (which is highlighted with a green arrow), and Events are present. Under the Ansible tab, the "Control Node" section is active, showing fields for Playbook Directories (containing "/srv/playbooks") and Inventory Files (with an "Add an Inventory file" input field and a "Save" button). A green arrow points from the text "New 'Ansible' page in the system profile" to the "Ansible" tab.

Discovering your Ansible inventories and playbook



Adding paths to your playbooks and inventories

SUSE®Manager > Systems

suma-42-min-sles15sp3.tf.local

Details Software Configuration Provisioning Groups Audit States Formulas Ansible Events

Control Node Playbooks Inventories

Ansible Control Node Configuration: add paths for Playbook discovery and Inventory files introspection.

Playbook Directories

/srv/playbooks

Add a Playbook directory

e.g., /srv/playbooks

Inventory Files

Add an Inventory file

e.g., /etc/ansible/testing/hosts

Save

Search page

Home Systems Overview System List System Groups System Set Manager Bootstrapping Visualization Advanced Search Activation Keys Stored Profiles Custom System Info Autoinstallation Virtual Host Managers Clusters Salt Images

systems selected admin SUSE

Delete System

Adding paths to your playbooks and inventories

SUSE®Manager > Systems

suma-42-min-sles15sp3.tf.local

Ansible Control Node Configuration: add paths for Playbook discovery and Inventory files introspection.

Playbook Directories

/srv/playbooks

Add a Playbook directory

/foobar/

Inventory Files

Add an Inventory file

e.g., /etc/ansible/testing/hosts

Save

Adding paths to your playbooks and inventories

SUSE®Manager > Systems

summa-42-min-sles15sp3.tf.local

Details Software Configuration Provisioning Groups Audit States Formulas Ansible Events

Control Node Playbooks Inventories

Ansible Control Node Configuration: add paths for Playbook discovery and Inventory files introspection.

Playbook Directories

- /foobar
- /srv/playbooks
- /srv/ansible-examples

Add a Playbook directory

e.g., /srv/playbooks

Inventory Files

- /etc/ansible/hosts

Add an Inventory file

e.g., /etc/ansible/testing/hosts

Save

Search page

Home Systems Overview System List System Groups System Set Manager Bootstrapping Visualization Advanced Search Activation Keys Stored Profiles Custom System Info Autoinstallation Virtual Host Managers Clusters Salt Images

11 0 systems selected admin SUSE

Displaying your inventories

The screenshot shows the SUSE Manager web interface. The left sidebar is titled "SUSE®Manager > Systems" and contains a search bar and a navigation menu with the following items:

- Home
- Systems
 - Overview
 - System List
 - System Groups
 - System Set Manager
 - Bootstrapping
 - Visualization
 - Advanced Search
 - Activation Keys
 - Stored Profiles
 - Custom System Info
 - Autoinstallation
 - Virtual Host Managers
- Clusters
- Salt
- Images
- Patches
- Software
- Content Lifecycle
- Audit
- Configuration

The main content area is titled "ansible-controlnode" and shows the path "/home/ansible/ansibledemo/inventory/inventory". It displays two sections: "Registered Systems:" and "Unknown Hostnames:". Below these sections is a code editor containing the Ansible inventory file content:

```
1  meta:
2    hostvars: {}
3  all:
4    children: [centosservers, nginxcentos, nginxsles, sles15, ungrouped, webservers]
5  centosservers:
6    hosts: [centos7-1.suselabs.com, centos7.suselabs.com]
7  nginxcentos:
8    hosts: [centos7-1.suselabs.com]
9  nginxsles:
10   hosts: [sles15sp3-an.suselabs.com]
11  sles15:
12   hosts: [sles15sp3-an.suselabs.com]
13  webservers:
14   hosts: [centos7.suselabs.com, sles15sp3-an.suselabs.com]
15
```

The top right of the interface includes a notification bell, a search icon, a button for "0 systems selected", and user management links for "manager", "suselabs", and "Logout".

Running Ansible playbooks using SUSE Manager



Adding paths to your playbooks and inventories

The screenshot shows the SUSE Manager web interface. The top navigation bar includes the SUSE Manager logo, a search bar, and user information (0 systems selected, admin, SUSE). The main content area is titled "suma-42-min-sles15sp3.tf.local". The "Ansible" tab is selected in the navigation bar. Below it, there are tabs for "Control Node", "Playbooks", and "Inventories". The "Playbooks" tab is active, showing two entries:

- /foobar
- /srv/ansible-examples

Under the "Inventories" section, there is a collapsed section labeled "/srv/playbooks". Inside this section, there are two entries:

Playbook File Name:	Full Path:
orion_dummy/playbook_orion_dummy.yml	/srv/playbooks/orion_dummy/playbook_orion_dummy.yml
playbook_ping.yml	/srv/playbooks/playbook_ping.yml

Below these entries, there is a "Custom Inventory:" field containing the path /srv/playbooks/orion_dummy/hosts.

Adding paths to your playbooks and inventories

The screenshot shows the SUSE Manager web interface. The left sidebar is the navigation menu:

- Home
- Systems** (selected)
- Overview
- System List
- System Groups
- System Set Manager
- Bootstrapping
- Visualization
- Advanced Search
- Activation Keys
- Stored Profiles
- Custom System Info
- Autoinstallation
- Virtual Host Managers
- Clusters
- Salt
- Images
- Patches
- Software
- Content Lifecycle
- Copyright Notice
- SUSE Manager release 4.2.0 RC1

The main content area shows a system named "suma-42-min-sles15sp3.tf.local". The "Ansible" tab is selected. Below it, the "Playbooks" tab is active, showing a list of playbooks:

- Playbook 'orion_dummy/playbook_orion_dummy.yml'

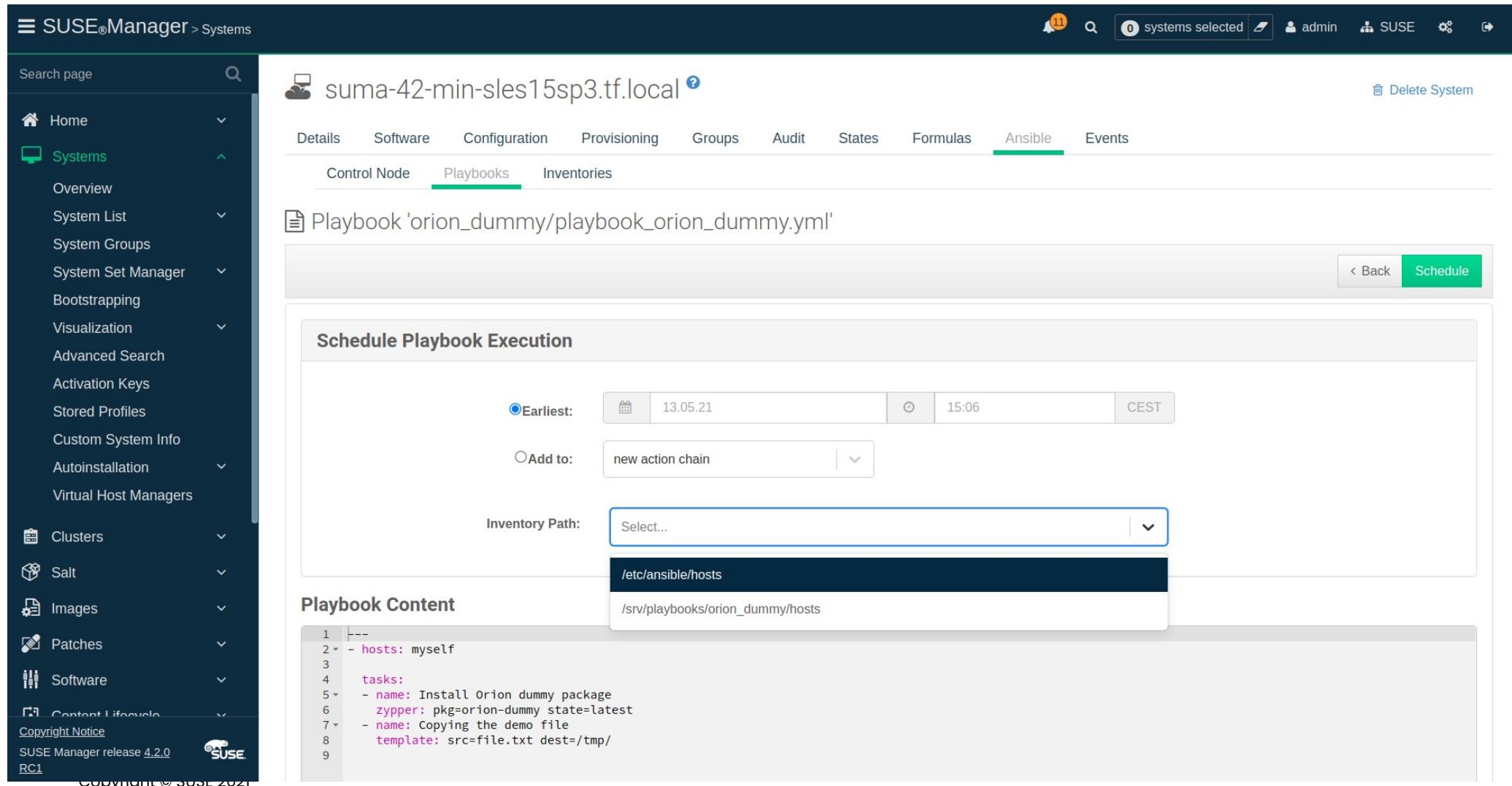
A modal window titled "Schedule Playbook Execution" is open. It contains the following fields:

- Earliest:** A date and time selector set to "13.05.21 15:06 CEST".
- Add to:** A dropdown menu set to "new action chain".
- Inventory Path:** A dropdown menu set to "Select...".

Below the modal, the "Playbook Content" section displays the YAML code for the playbook:

```
1 ---  
2 - hosts: myself  
3  
4 tasks:  
5 - name: Install Orion dummy package  
6   zypper: pkg=orion-dummy state=latest  
7 - name: Copying the demo file  
8   template: src=file.txt dest=/tmp/  
9
```

Adding paths to your playbooks and inventories



The screenshot shows the SUSE Manager web interface for managing systems. The left sidebar contains navigation links for Home, Systems (selected), Overview, System List, System Groups, System Set Manager, Bootstrapping, Visualization, Advanced Search, Activation Keys, Stored Profiles, Custom System Info, Autoinstallation, Virtual Host Managers, Clusters, Salt, Images, Patches, Software, Content Lifecycle, Copyright Notice, and SUSE Manager release 4.2.0 RC1. The main content area displays the details for the system 'suma-42-min-sles15sp3.tf.local'. The 'Ansible' tab is selected, showing tabs for Control Node, Playbooks (selected), Inventories, and Events. Below these tabs, a section titled 'Playbook 'orion_dummy/playbook_orion_dummy.yml'' is shown. A 'Schedule' button is highlighted in green. A modal window titled 'Schedule Playbook Execution' is open, showing options for scheduling the playbook. The 'Earliest' option is selected, with a date and time set to '13.05.21 15:06 CEST'. The 'Add to:' dropdown is set to 'new action chain'. The 'Inventory Path:' dropdown has a list of options, with '/etc/ansible/hosts' currently selected. The 'Playbook Content' section shows the YAML code for the playbook:

```
1  ---  
2  - hosts: myself  
3  
4  tasks:  
5  - name: Install Orion dummy package  
6    zypper: pkg=orion-dummy state=latest  
7  - name: Copying the demo file  
8    template: src=file.txt dest=/tmp/  
9
```

Adding paths to your playbooks and inventories

SUSE Manager > Systems

11 Q 0 systems selected admin SUSE

suma-42-min-sles15sp3.tf.local

Details Software Configuration Provisioning Groups Audit States Formulas Ansible Events

Pending History

System History Event

Summary: Execute playbook 'playbook_susecon_centos7.yml' scheduled by admin

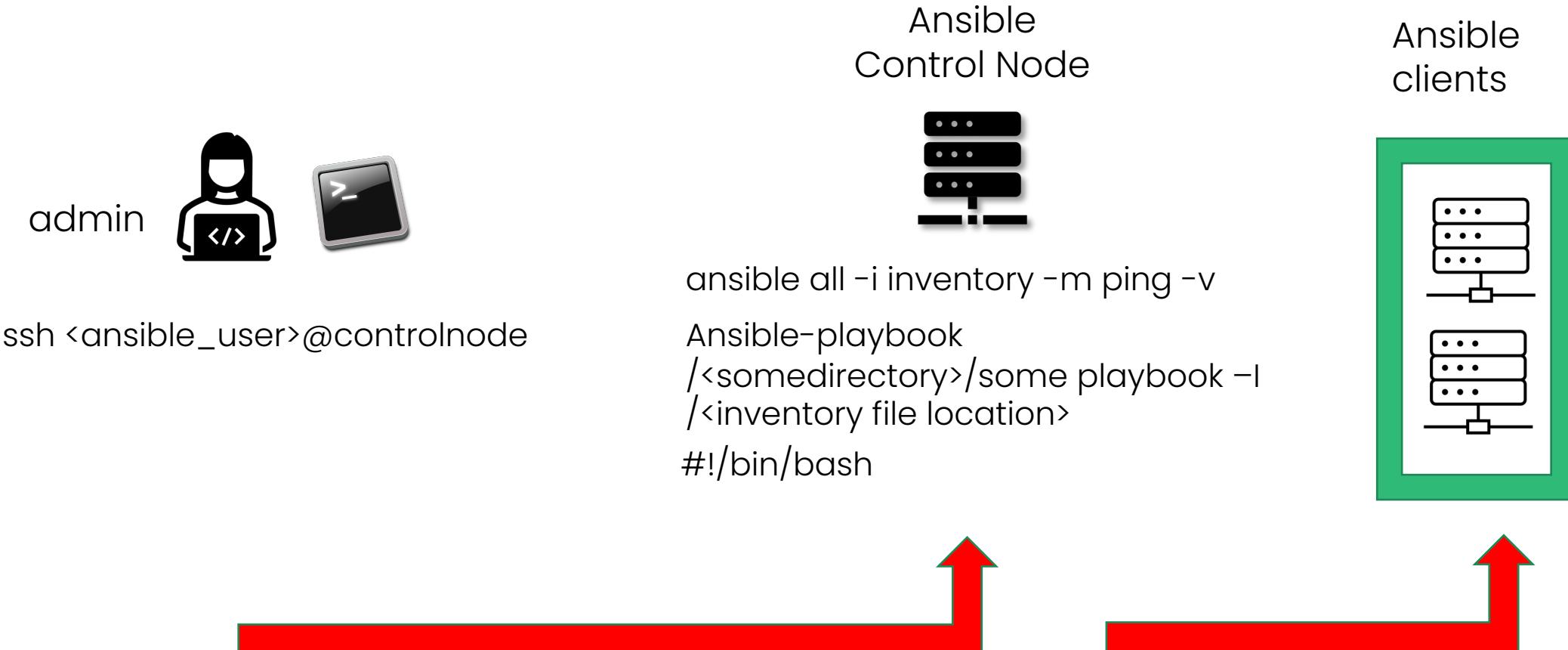
Details: This action will be executed after 5/13/21 5:03:00 PM CEST
This action's status is: Completed.
The client completed this action on 5/13/21 5:03:58 PM CEST
Client execution returned

```
{  
    "ansible_|_run_ansible_playbook_|_-/srv/playbooks/test_playbook_susecon/playbook_susecon_centos7.yml_|_playbooks": {  
        "result": true,  
        "changes": {  
            "webservers_centos": [  
                {"Copying the demo index": [  
                    "suma-42-min-centos7.tf.local": [  
                        {"after": "<html>\n<title>SUSECON Demo server</title>\n<body>\n<img src=\"https://www.susecon.com/assets/images/susecon_logo2021.png\" alt=\"SUSECON Digital 2021\">\n<p>This HTML server has been deployed using Ansible and SUSE Manager</p>\n</body>\n</html>\n",  
                        "after_header": "/root/.ansible/tmp/ansible-local-4750kqf38o3o/tmp_deey52x/index.html",  
                        "before": "<html>\n<title>Ansible TEST server</title>\n<body>\n<img src=\"www.susecon.com/assets/images/susecon_logo2021.png\" alt=\"SUSECON Digital 2021\">\n</body>\n</html>\n",  
                        "before_header": "/var/www/html/index.html"  
                    ]  
                ]  
            ]  
        ]  
    },  
    "comment": "Changes were made by playbook /srv/playbooks/test_playbook_susecon/playbook_susecon_centos7.yml",  
    "name": "/srv/playbooks/test_playbook_susecon/playbook_susecon_centos7.yml",  
    "__sls__": "ansible.runplaybook",  
    "changed": true  
}
```

Search page

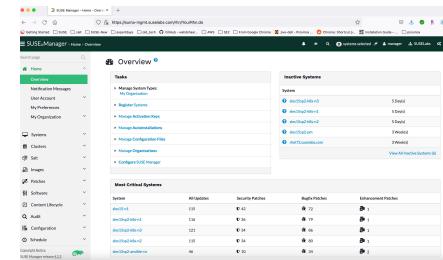
Home Systems Overview System List System Groups System Set Manager Bootstrapping Visualization Advanced Search Activation Keys Stored Profiles Custom System Info Autoinstallation Virtual Host Managers Clusters Salt Images Patches Software Content Lifecycle Copyright Notice SUSE Manager release 4.2.0 SUSE Copyright © SUSE 2021

Example of a typical ansible environment



Ansible integrated with SUSE Manager

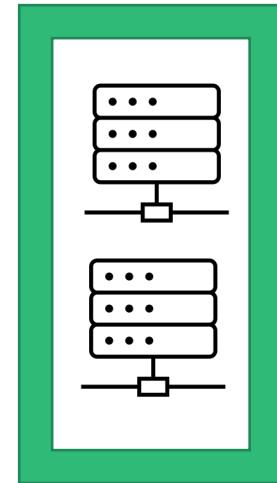
SUSE Manager 4.2



Ansible
Control Node



Ansible
clients



Demo



Now What?



Next steps in the roadmap

- UI / UX improvements
- Better parsing of Inventories & playbooks:
groups and vars
- Playbooks with Forms (variable injection)
- Support for Ansible 2.10
- Based on your feedback, more...

Where do I go from here?

SUSE Manager resources:

SUSE Manager website:

<https://www.suse.com/products/suse-manager/>

Github resources:

[Scripts for automating SUMA tasks](#)

[In-place migration resources](#)

[Manager-build-profiles](#)

Additional information

- [SUSE Manager Automation blog](#)
- [SUSE Manager White Paper](#):



Questions?





Thank you

For more information, contact SUSE at:
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Today's playbooks and presentation:

- <https://github.com/firefhtr/ansibledemo>