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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

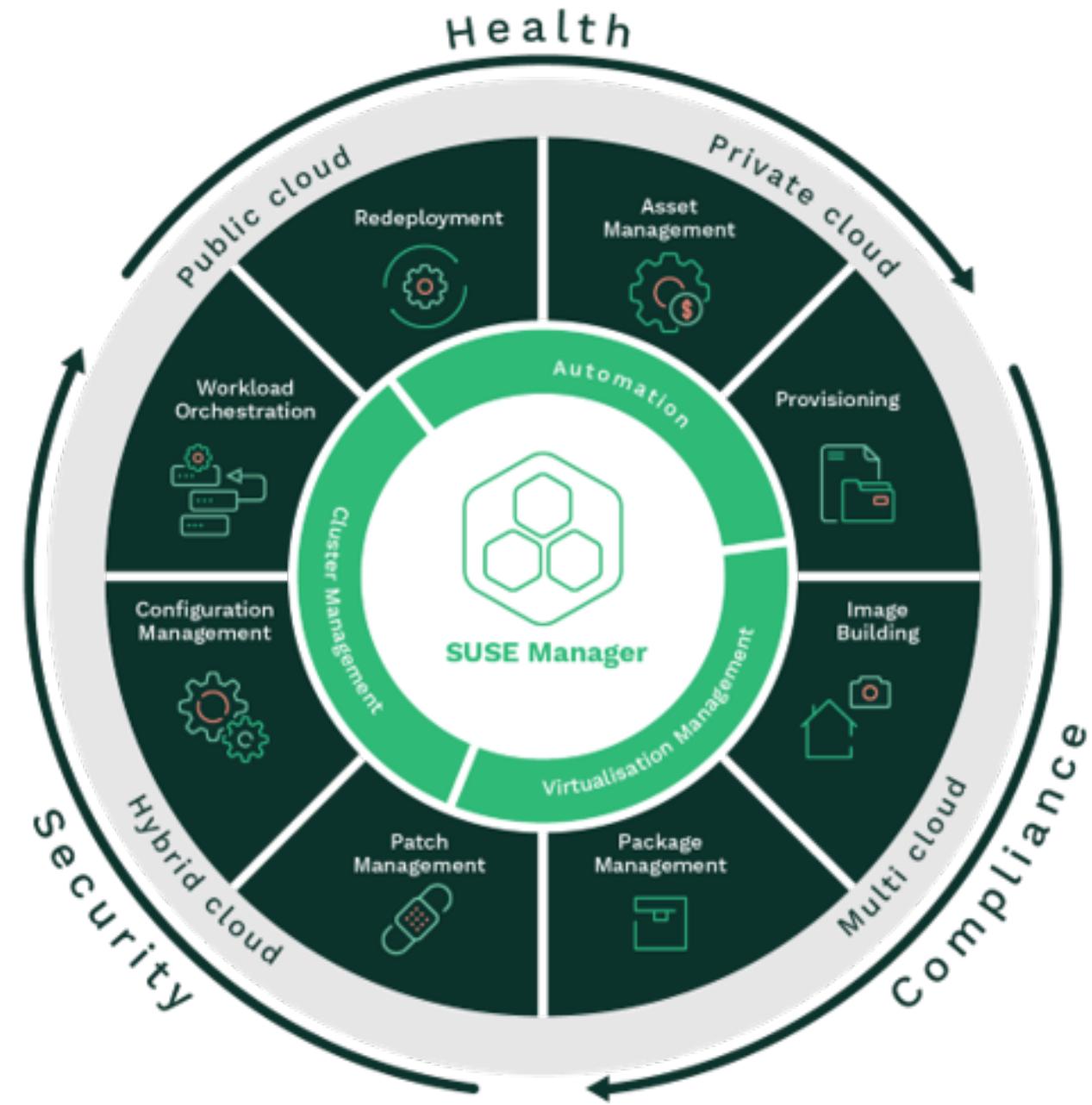
**Best-in-class open source infrastructure management** solution designed to help your enterprise DevOps and IT Operations teams to:

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**

# 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.**

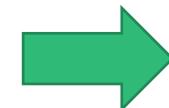
# Security and Compliance



- 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

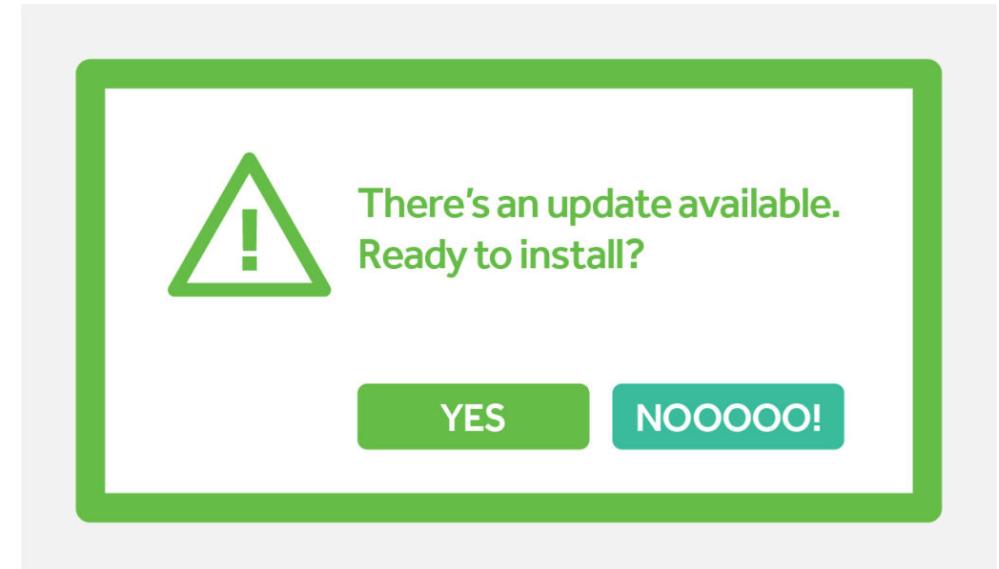


- Verify the presence of patches by using the content provided to the clients
- Apply remediation scripts and Ansible playbooks that are provided to achieve better compliance when needed
- Keep your environment secure & compliant**

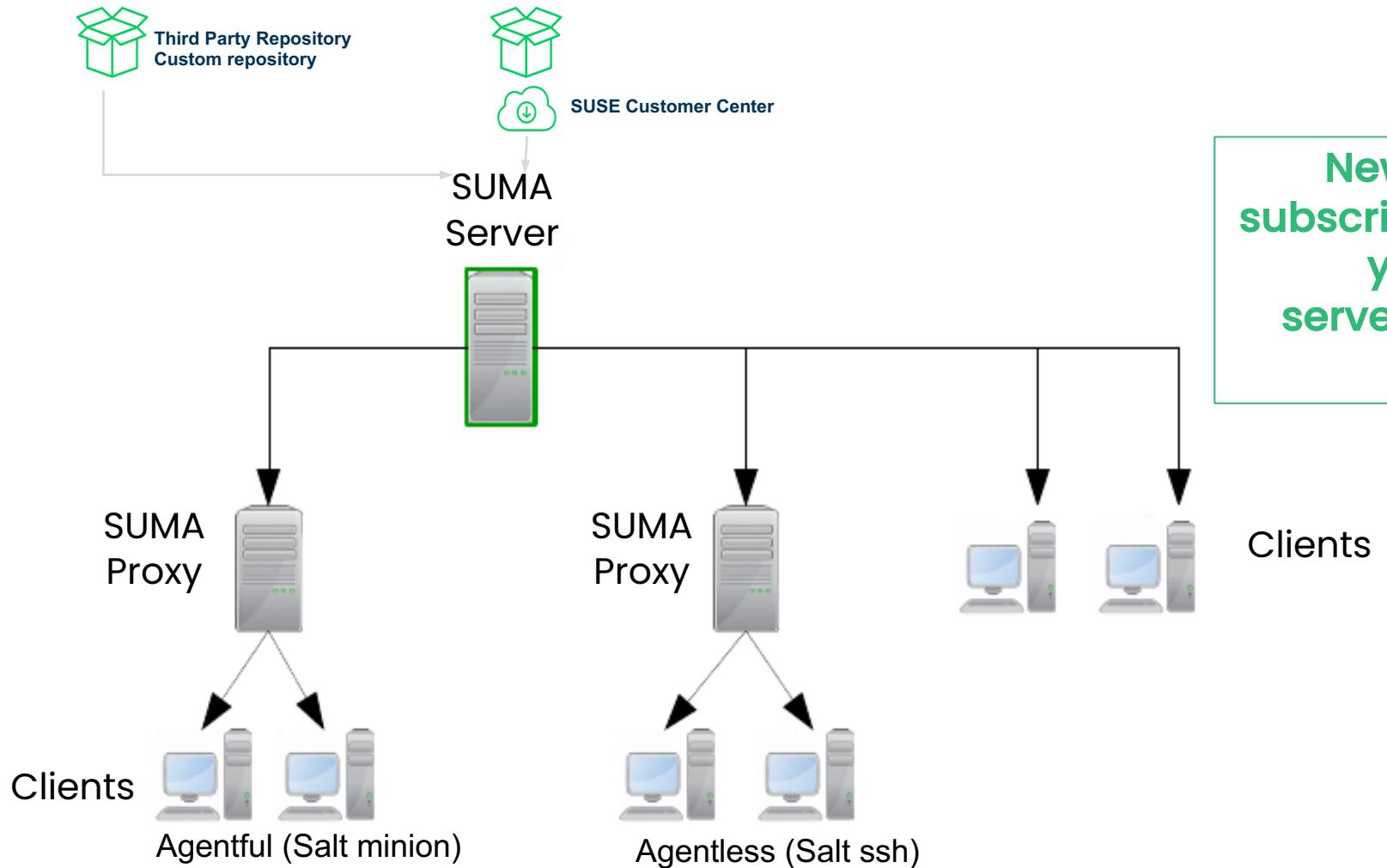
# Updates/upgrades are hard – right?

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



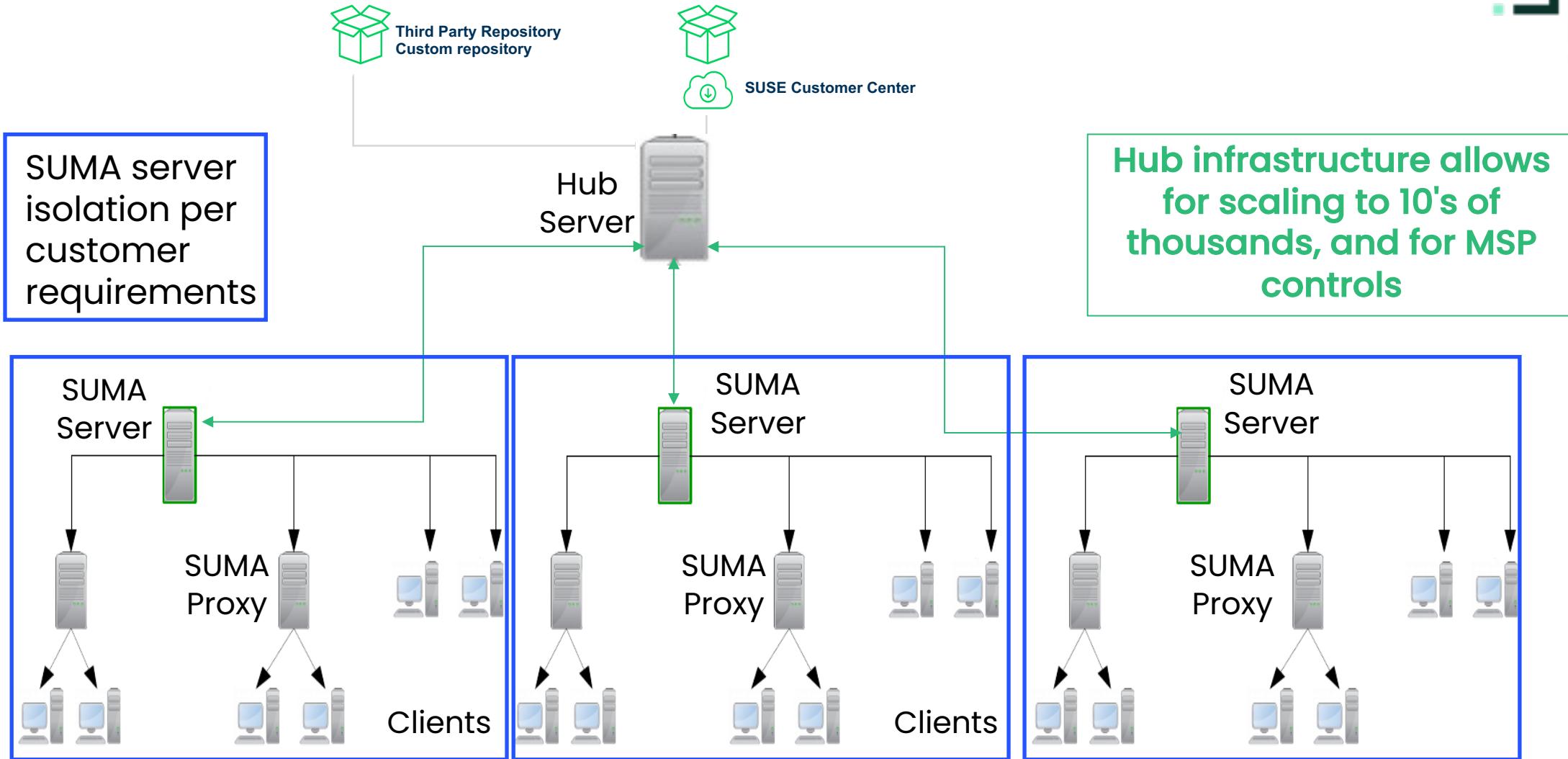
# SUSE Manager architecture – Basic



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



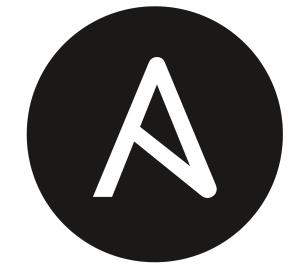
# New in SUSE Manager 4.2 !

- 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!

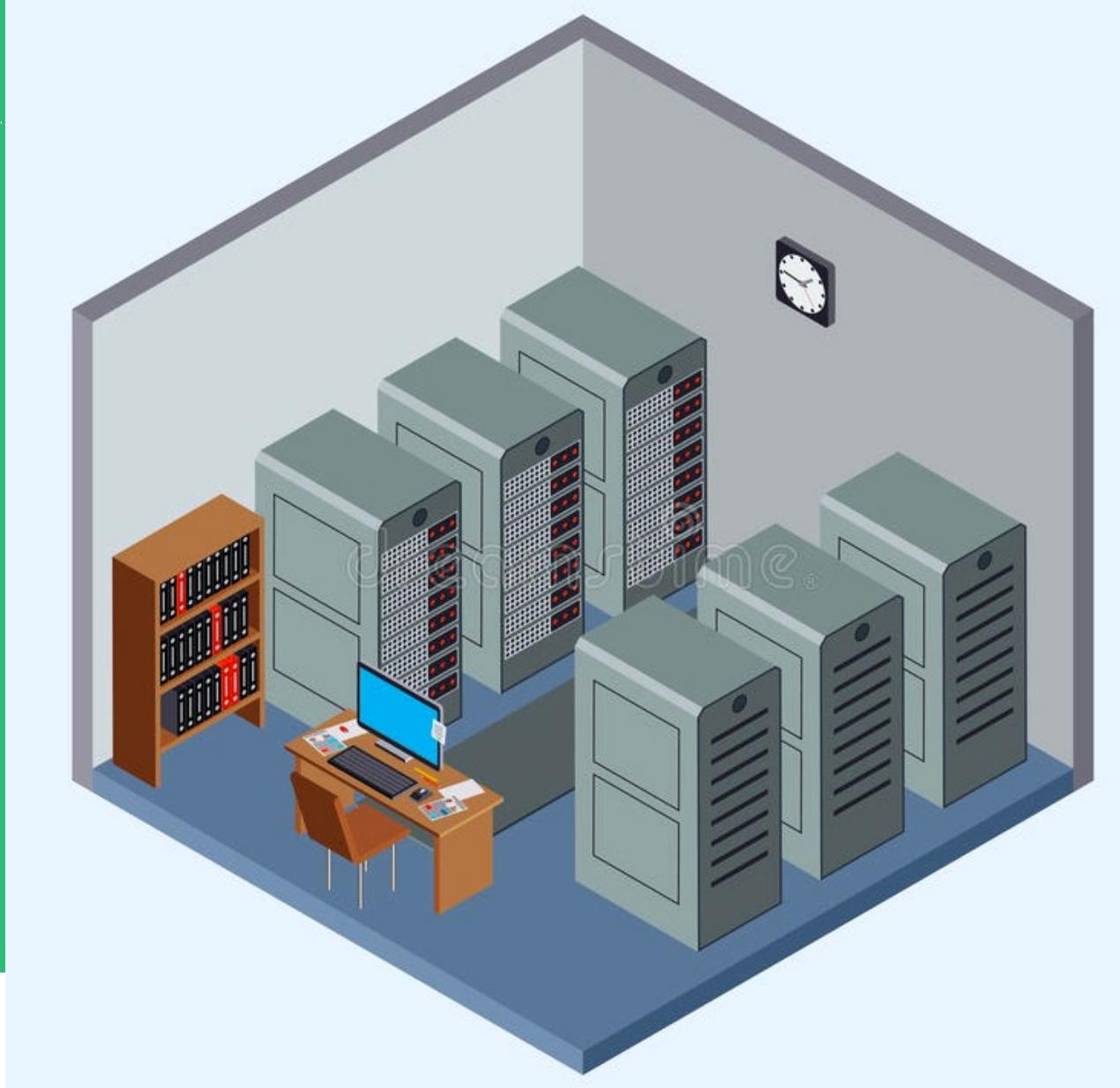


# New in SUSE Manager 4.2 !

- 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

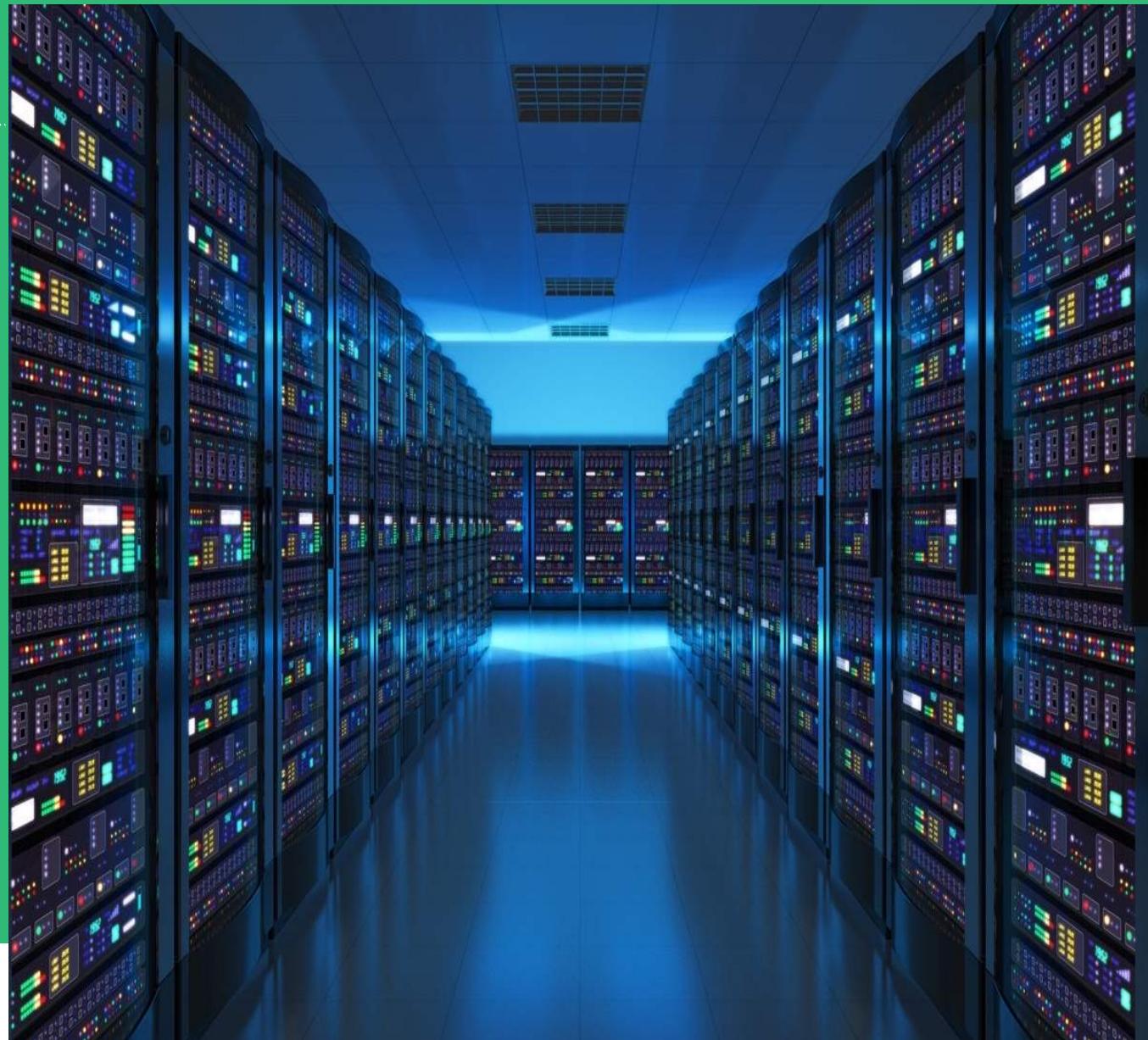
Maintenance Schedule:

- 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, there are two main sections: "Playbook Directories" and "Inventory Files". The "Playbook Directories" section contains a field with "/srv/playbooks" and a "Save" button. The "Inventory Files" section has a "Add an Inventory file" field with "e.g., /etc/ansible/testing/hosts" 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

The screenshot shows the SUSE Manager web interface for managing systems. The top navigation bar includes the SUSE Manager logo, a search bar, and user information (0 systems selected, admin, SUSE, settings). The main title is "suma-42-min-sles15sp3.tf.local". The navigation sidebar on the left lists categories like Home, Systems (selected), Clusters, and others. The main content area is titled "Ansible" and shows tabs for Details, Software, Configuration, Provisioning, Groups, Audit, States, Formulas, Ansible (selected), and Events. Under the Ansible tab, there are three sub-tabs: Control Node (selected), Playbooks, and Inventories. A sub-section titled "Ansible Control Node Configuration: add paths for Playbook discovery and Inventory files introspection." contains two panels: "Playbook Directories" and "Inventory Files". The "Playbook Directories" panel shows a list with "/srv/playbooks" and a field to "Add a Playbook directory" containing "/foobar/". A green arrow points from the placeholder text in this field to the "Save" button. The "Inventory Files" panel has a section "Add an Inventory file" with a placeholder "e.g., /etc/ansible/testing/hosts" and a "Save" button.

# 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

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". It includes 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 left sidebar is titled "SUSE®Manager > Systems" and contains a search bar and a navigation menu with sections like 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, and Patches. The main content area is for a system named "suma-42-min-sles15sp3.tf.local". The top navigation bar includes icons for notifications (11), search, system count (0 selected), user (admin), SUSE, and settings. The "Ansible" tab is active. Below it, tabs for Details, Software, Configuration, Provisioning, Groups, Audit, States, Formulas, Playbooks, and Inventories are shown. The "Playbooks" tab is selected. It lists two playbook paths: "/foobar" and "/srv/ansible-examples". Under "/srv/playbooks", there are two entries: "Playbook File Name: orion\_dummy/playbook\_orion\_dummy.yml" and "Full Path: /srv/playbooks/orion\_dummy/playbook\_orion\_dummy.yml". Another entry "Custom Inventory: /srv/playbooks/orion\_dummy/hosts" is also listed under this section. A second section for "playbook\_ping.yml" shows "Playbook File Name: playbook\_ping.yml", "Full Path: /srv/playbooks/playbook\_ping.yml", and "Custom Inventory: -". On the right side of the main content area, there is a "Delete System" button.

# Adding paths to your playbooks and inventories

The screenshot shows the SUSE Manager web interface. The left sidebar is titled "SUSE®Manager > Systems" and includes sections for Home, Systems (selected), Overview, System List, System Groups, System Set Manager, Bootstrapping, Visualization, 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 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, allowing the user to set the execution date and time (13.05.21 at 15:06 CEST) and add it to an action chain. The "Inventory Path" field is set to "Select...". At the bottom, the "Playbook Content" is displayed:

```
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 has a dark theme with various navigation options like Home, Systems, Clusters, Salt, Images, Patches, Software, and Content Lifecycle. The main area is titled 'suma-42-min-sles15sp3.tf.local' and shows tabs for Details, Software, Configuration, Provisioning, Groups, Audit, States, Formulas, Ansible (which is selected), and Events. Under the Ansible tab, there are sub-tabs for Control Node, Playbooks, and Inventories. The 'Playbooks' tab is active, showing a list of playbooks. One playbook, 'playbook\_onion\_dummy.yml', is selected. A modal window titled 'Schedule Playbook Execution' is open, showing fields for scheduling the execution date and time (Earliest: 13.05.21 at 15:06 CEST) and adding it to an action chain. Below the schedule modal is a section for 'Inventory Path' with a dropdown menu showing '/etc/ansible/hosts' and '/srv/playbooks/onion\_dummy/hosts'. At the bottom, the 'Playbook Content' is displayed in a code editor:

```
1  ---
2  - hosts: myself
3
4  tasks:
5  - name: Install Orion dummy package
6    zypper: pkg=onion-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 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

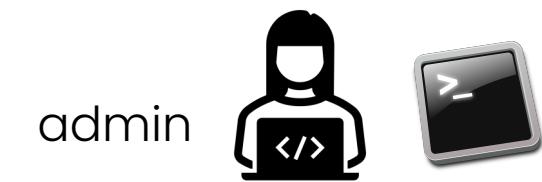
Details: This action will be executed after 5/13/21 5:03:00 PM CEST  
This action's status is: Completed.  
The client completed this action on 5/13/21 5:03:58 PM CEST  
Client execution returned

```
{  
    "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",  
    "when": "  
        -> 11  
    "}  
}
```

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



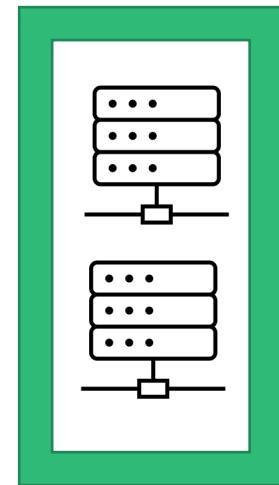
ssh <ansible\_user>@controlnode

Ansible  
Control Node



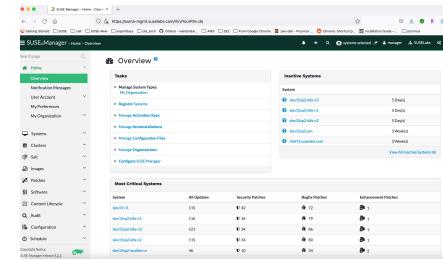
```
ansible all -i inventory -m ping -v  
Ansible-playbook  
/<somedirectory>/some playbook -I  
/<inventory file location>  
#!/bin/bash
```

Ansible  
clients



# Ansible integrated with SUSE Manager

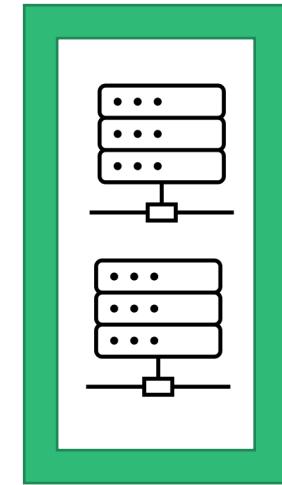
SUSE Manager 4.2



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](#):

Today's playbooks and presentation:

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



# Questions?





# Thank you

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

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