



FOREMAN: LESSONS LEARNED



AUTOMATED INSTALLATIONS AND HINTS

- > Christian Stankowic
- > Technical Leader Linux at [SVA](#)
- > Linux, Virtualization, IaC, Automation
- > started with Spacewalk in 2014 and Foreman in 2017
- > does a lot of Linux system management projects
- > Host of the [FOCUS ON: Linux](#) podcast 🇩🇪 🎙️



// AGENDA

- > Customer insights
- > Automated installation and documentation
- > Tips & Tricks

// CUSTOMER INSIGHTS

OVERVIEW

The Four Horsemen of Linux system management tools:

- > [Foreman](#) / [Katello](#)
- > [Uyuni](#) (SUSE/community fork of Spacewalk, since 2018)
 - > new UI/UX, Salt IaC, broad distribution support
- > [Landscape](#) (Canonical, since 2007)
 - > very limited feature set, only for Debian-alike, see [review](#)
- > [Oracle Linux Manager](#)
 - > mostly irrelevant; fork of outdated Spacewalk 2.10 (*EOL May 2020*)
 - > PostgreSQL support replaced with Oracle Database, see [review](#)

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- > broad [range of plugins](#) (*more than 100*)
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- > **Automation**

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- > provisioning Bare metal and virtualized hosts from a **single pane of glass**

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- > **RBAC**

- > good preset roles, easy to adapt
- > easy to integrate with LDAP and Active Directory

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- > **Non-Red Hat** distribution support

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- > **Wording**: Hosts vs. Content Hosts, Host Groups vs. Host Collections
- > **Non-Red Hat** distribution support
- > people still get confused with **CV/CCVs concept**
 - > 💡 Multiple CVs/host preview in Katello 4.8.0
- > new Host/CV UI made things **way** better

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- > Use **Orcharhino** if you have more than just RHEL hosts
 - > great support for **SUSE Linux Enterprise** and **Ubuntu**

NON-RED HAT SUPPORT IN FOREMAN

- > By default, Foreman **only** supported **RPM** distributions
 - > adding Debian support was started by ATIX
- > Official [Foreman client packages](#) only available for
 - > EL7-9
 - > SLES 11 (*sic!*, *EOL 03/2019*) and 12
- > Managed clients require additional packages, e.g.:
 - > `subscription-manager / subscription-manager-rhsm`
 - > `katello-host-tools`
 - > `apt-transport-katello` (*on Debian-alike*)

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 - > looks outdated (*last update 2019*)
 - > customers want proper packages for system-relevant configurations
- > Orcharhino fills **exactly this gap**
- > [By request](#), ATIX decided to also [ship the clients upstream](#) 🎉

Subscription Manager for Debian, Ubuntu, and SLES

- [Debian/](#)
- [Ubuntu/](#)
- [SLES/](#)

These open source clients are provided by [ATIX](#). They are independent of the [orcharhino](#) clients provided for [orcharhino](#) customers.

Additional Documentation

[Adding DEB Repositories for Debian 11](#)

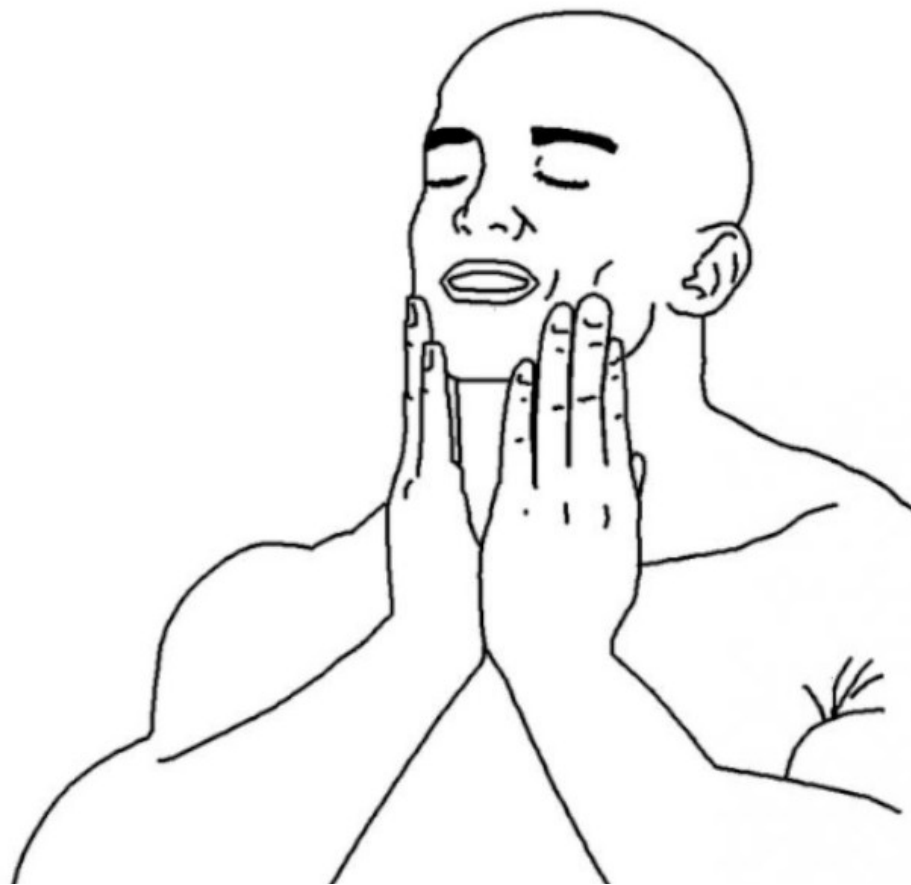
[Adding DEB Repositories for Ubuntu 22.04](#)

[Adding RPM Repositories for SLES15SP5](#)

Community Support

Please consult the official [Foreman documentation](#) before opening an issue in the [Foreman Community Forum](#).

Enterprise Support



FOREMAN/KATELLO OR UYUNI?



FOREMAN/KATELLO OR UYUNI?

- > Uyuni is often considered as "**good-enough**" alternative over Foreman
 - > less modular and complex, but still very useful
- > offers **broad range** of distribution support*
- > Use it, if you **don't need**:
 - > broad range of plugins
 - > VM deployment
 - > Puppet or Chef
 - > thin-provisioned software repositories (***on-demand** download policy*)

* EL derivatives, openSUSE/SLES, Debian, Ubuntu, Amazon/Alibaba Linux

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 - > [theforeman.operations](#) (*installation and upgrades*)
 - > [theforeman.foreman](#) (*day 2 stuff*)

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- > Use a **proper documentation format** that can be Git-controlled, e.g.:
 - > [AsciiDoc](#)
 - > [MkDocs](#)

AUTOMATED INSTALLATIONS

- > Configure **everything** using Ansible
 - > **no** quick & dirty **exceptions**
 - > Single Point of Truth
- > **Reference** YAML files in docs
 - > don't copy that playbook!
- > Give **AsciiDoc** a try
 - > proper variable substitution
 - > various exporters, e.g. **PDF**
 - > way more capable than Markdown



DOCUMENTATION EXAMPLE

```
:author:Simone Giertz <s.giertz@shittyrobots.loc>
:ProjectName: Foreman installation
:date: 09.07.2023
:DokumentVersion: 1.0
:customercompany: ACME Ltd.
:customercompany_sub: IT
:customername: Mr. Chad Badguy
:customerstreet: Main St 1
:customercity: 02120 Boston MA

// Foreman information
:foreman_hostname: linmgmt001
:foreman_fqdn: linmgmt01.shittyrobots.loc
:foreman_ip: 10.10.22.42
:foreman_org: Shitty Robots
```

customer.adoc - customer configuration

DOCUMENTATION EXAMPLE

Source Code:

== Prerequisites

.DNS validation

```
[shell,subs="attributes"]
```

```
-----
```

```
# nslookup {foreman_ip}
```

```
# nslookup {foreman_fqdn}
```

```
----
```

PDF result:

Prerequisites

DNS validation

```
# nslookup 10.10.22.42
```

```
# nslookup linmgmt01.shittyrobots.loc
```



Double-check if these information are correct

FOREMAN INSTALLATION

```
---
hosts: foreman-servers
become: true

roles:
- role: theforeman.operations.foreman_repositories
  foreman_repositories_version: "3.5"
  foreman_repositories_katello_version: "4.7"

- role: theforeman.operations.installer
  foreman_installer_scenario: katello
  foreman_installer_package: foreman-installer-katello
  foreman_installer_options:
    - '--foreman-initial-organization "Shitty Robots"'
    - '--foreman-initial-admin-password chad'
```

katello.yml

- > configures required repositories
- > installs Katello scenario
- > sets explicit options

FOREMAN INSTALLATION

```
...
tasks:
  - name: "Create Fedora product with a sync plan"
    theforeman.foreman.product:
      ...
      name: "Hannah Montana Linux"
      organization: "Shitty Robots"
      sync_plan: "faily-5am"

  - name: "Create repository"
    theforeman.foreman.repository:
      ...
      name: "os_x86_64"
      content_type: "yum"
      product: "Hannah Montana Linux"
      organization: "Shitty Robots"
      url: "http://[...]"
```

content.yml

- > creates a product
- > creates a repository

// TIPS & TRICKS

DESIGN TIPPS

- > deploy an **dedicated Proxy/Capsule** for production landscapes
 - > even for small setups (*those might become big later*)
 - > this ensures that hosts can still be patched/controlled if Foreman is down

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- > Enable `tuned` daemon
 - > use `throughput-performance` for `physic`, `virtual-guest` for VMs
- > Flash storage is king!

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- > Enable `tuned` daemon
 - > use `throughput-performance` for `physic`, `virtual-guest` for VMs
- > Flash storage is king!
- > see the [Satellite Performance Tuning Guides](#) for big landscapes
 - > specific tweaks for particular Satellite services

AUTOMATED INSTALLATIONS TIPPS

- > use Ansible **version pinning**
- > use official Red Hat collections for Satellite*:
 - > [redhat.satellite](#)
 - > [redhat.satellite_operations](#)

```
---  
collections:  
  - name: theforeman.foreman  
    version: 3.12.0  
  - name: theforeman.operations  
    version: 2.0.0
```

* part of ansible-collection-redhat-satellite package

USEFUL CONTENT

- > [theforeman.foreman.content view version cleanup](#)
 - > removes old CV versions, replaces [katello-cvmanager](#)
 - > should be executed regularly
- > [theforeman.foreman.convert2rhel](#) - migrates CentOS to RHEL
- > [theforeman.operations.backup](#) - configures backup

DYNAMIC INVENTORY

- > [theforeman.foreman.foreman](#) plugin offers a **Dynamic Inventory**
- > no need of manually specifying your Ansible inventory
- > content gathered in realtime using the API
- > filename **must have** the `.foreman.yml` **postfix**

```
---
plugin: theforeman.foreman.foreman
url: https://foreman.shittyrobots.loc
user: s.giertz
password: chad
host_filters: 'organization="Shitty Robots"'
```

// DEMO CODE

You can find an example for automated installation and documentation on GitHub:

<https://github.com/stdevel/foreman-lessons-learned>

Feedback and PRs welcome!

FOCUS ON: LINUX

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THANK YOU FOR YOUR ATTENTION