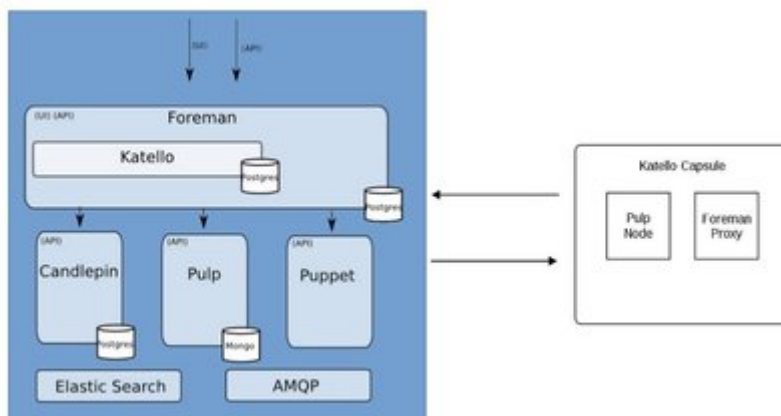


The Foreman installation with Katello support

Katello is a content manager which allows to create, organize and manage Yum and Puppet repositories. Sync remote repositories or upload content directly to build your own custom content. Katello is now fully integrated to *The Foreman*, the provisioning and configuration solution.



Katello permits to keep in sync many external sources :

- Yum repositories,
- Puppet forges,
- Docker registries,
- Red Hat CDN (with a subscription manifest)

More readings :

- <https://theforeman.org/>
- <https://theforeman.org/plugins/katello/index.html>
- https://access.redhat.com/documentation/fr-FR/Red_Hat_Satellite/6.0/html-single/Installation_Guide/
- <https://www.linuxtechi.com/katello-download-yum-repositories-register-clients-for-patching/>

Prerequisites

Software

Foreman/Katello install on amd64 arch exclusively, and can run on RHEL/CentOS 6 or 7.

Hardware

12GB are highly recommended.

	minimum	recommended
RAM	8GB	12GB

	minimum	recommended
CPU	2 cores	4 cores

Storage

Red Hat strongly recommends to use **LVM** for partitioning, and **XFS** as filesystem for storage and database.

mountpoint	size	comments
/	10GB	base system
/var/lib/pulp	500GB+	storage for mirrored repositories
/var/lib/mongodb	20GB-100GB	storage database
/var/lib/pgsql	2GB-50GB	storage database

Installation

storage & filesystem

- Create and format XFS filesystem for Foreman data

```
lvcreate -n pulp -L 500G vg_foreman
lvcreate -n mongodb -L 50G vg_foreman
lvcreate -n postgresql -L 50G vg_foreman
```

```
mkfs.xfs /dev/vg_foreman/pulp
mkfs.xfs /dev/vg_foreman/mongo
mkfs.xfs /dev/vg_foreman/postgresql
```

- Create mountpoints

```
mkdir /var/lib/mongodb /var/lib/pulp /var/lib/postgresql

cat <<EOF >> /etc/fstab
/dev/vg_foreman/pulp    /var/lib/pulp          xfs  defaults 0 0
/dev/vg_foreman/mongo  /var/lib/mongodb       xfs  defaults 0 0
/dev/vg_foreman/postgresql /var/lib/postgresql    xfs  defaults 0 0
EOF

mount -a
```

Software dependencies

- Add EPEL repository

```
yum install -y epel-release
yum update -y
```

- Add Katello/Puppet/Foreman repositories

```
# Katello
yum -y localinstall
http://fedorapeople.org/groups/katello/releases/yum/3.4/katello/el7/x86_64/katello-repos-latest.rpm
# The Foreman
yum -y localinstall
http://yum.theforeman.org/releases/1.15/el7/x86_64/foreman-release.rpm
# Puppet 4
yum -y localinstall
https://yum.puppetlabs.com/puppetlabs-release-pc1-el-7.noarch.rpm
```

Software installaton

- Install Foreman with Katello software and dependencies

```
yum -y install foreman-release-scl
yum update -y
yum install -y katello
```

- Deploy Foreman with Katello

```
foreman-installer --scenario katello
```

- Configure firewall

```
firewall-cmd --permanent --zone=public --add-service=http
firewall-cmd --permanent --zone=public --add-service=https
firewall-cmd --permanent --zone=public --add-service=tftp
firewall-cmd --permanent --zone=public --add-service=puppetmaster
firewall-cmd --permanent --zone=public --add-port=8080/tcp
firewall-cmd --reload
```

Configuration

Mirror a Yum repository

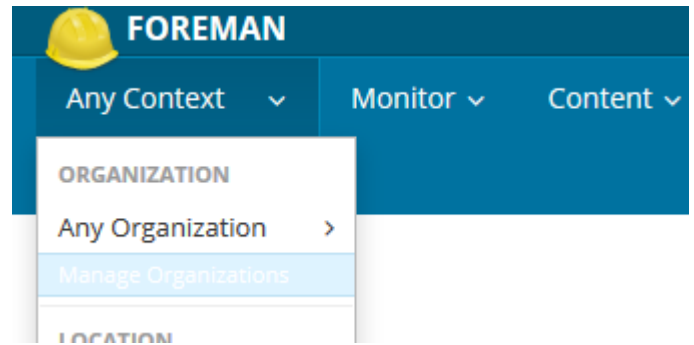
In the below example, we'll mirror *CentOS 7* base repository.

Organization

On a fresh Foreman install, the very first step is to create an *organization*

<columns - → On the Menu bar, click on **Any Context**, then on **Manage Organizations** menu item

<newcolumn> </columns>



<columns - → Click on **New Organization** Button <newcolumn> </columns>

Organizations

Filter ... × Q Search ▼

[New Organization](#) [Mismatches Report](#) [Help](#)

Name	Hosts	Actions
Default Organization	0	Edit ▼

Displaying 1 entry

<columns - → Fill the fields accordingly to your need :

- Name is the display name of your organization,
- Label is the internal name used by Foreman and Katello
- description is a free form where you can describe the organization

<newcolumn> </columns>

1 Create Organization **2 Select Hosts** **3 Edit Properties**

Name *

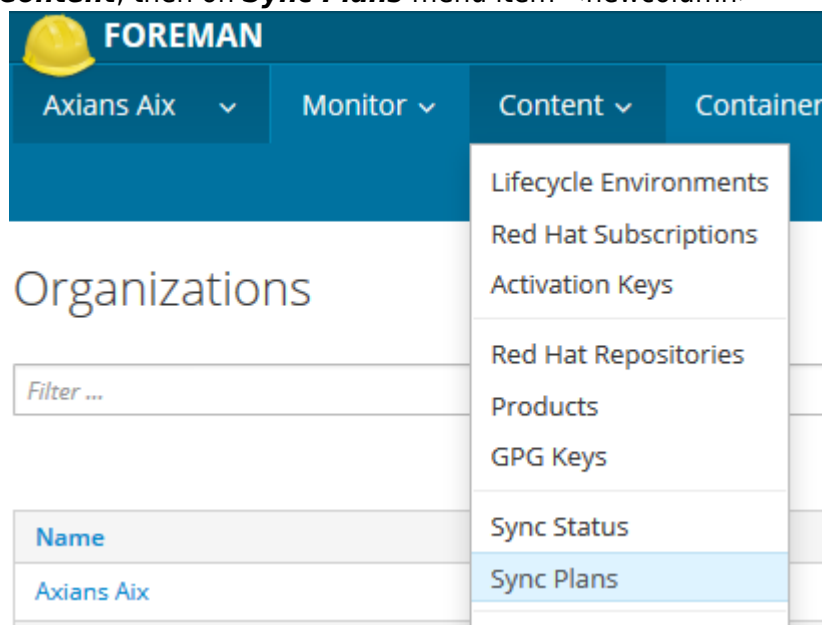
Label *

Description

[Cancel](#) [Submit](#)

Sync plan

<columns - → On the Menu bar, click on **Content**, then on **Sync Plans** menu item <newcolumn>
</columns>



<columns - → Click on **Create Sync Plan** Button <newcolumn> </columns>
Sync Plans

 The screenshot shows the 'Sync Plans' page. At the top, there's a search bar with 'Filter...' and a 'Search' button. To the right is a blue button labeled 'Create Sync Plan'. Below this is a table with the following headers: 'Name', 'Description', 'Original Sync Date', 'Sync Enabled', 'Interval', and 'Next Sync'. The table body contains a message: 'You currently don't have any Sync Plans. A Sync Plan can be created by using the button on the right.'

<columns - → Fill the form with the following informations :

- **Name** : a name for the sync plan,
- **Description** : a description for the sync plan,
- **Interval** : the scheduling interval for the sync plan (hourly, daily, weekly)
- **Start Date** : a start date

Then click on **Save** button. <newcolumn>
</columns>

Create Sync Plan

[Sync Plans](#) » New Sync Plan

Name

Description

Interval

Start Date

Start Time

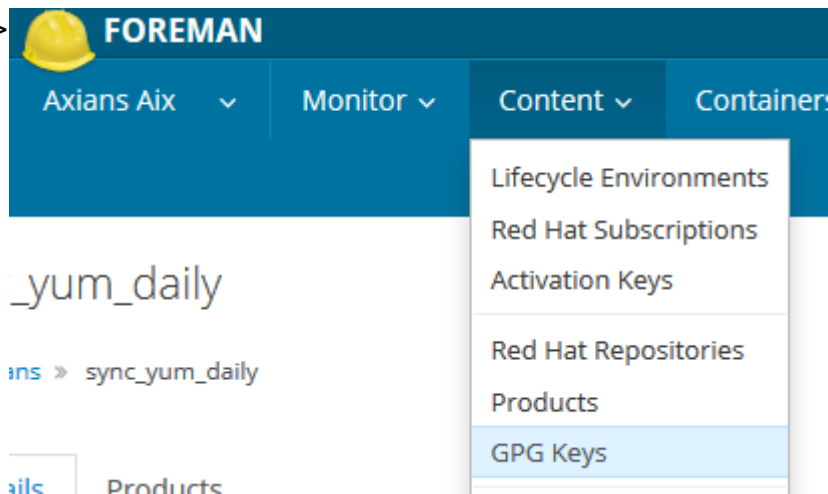
19 : 30

The time the sync should happen in your current time zone.

GPG key

We need to import the GPG key used by the remote repository. In our case, the GPG key is accessible on <http://mirror.centos.org/centos/RPM-GPG-KEY-CentOS-7>

<column -> Click on **Create GPG Key** button </column>
</columns>



<columns -> Click on **Create GPG Key** Button <newcolumn> </columns>

GPG Keys

Filter... Search

Create GPG Key

Name	Organization	Product Count	Repository Count
You currently don't have any GPG keys, you can add GPG keys using the button on the right.			

<columns -> Fill the form with the following informations :

- **Name** : a name for the GPG key to create,
- **GPG Key content** : you can copy & paste the content of the GPG key in the form, of you can use the **Upload** button to upload the GPG key.

Then click on **Save** button. <newcolumn>
</column>

Create GPG Key

[GPG Keys](#) » New GPG Key

Name

RPM-GPG-KEY-CentOS-7

GPG Key Contents

```
hQvsI9FdIIITP4XhFZ4N9ndnEwA4AH7tNBsmB3HEbLqUS
mu2Rr8hGiT2Plc4Y9AO
aliW1kOMsZFyrX39krfRk2n2NXvieQJ
/lw318gSGR67uckkz2ZekbCEpj/0mnHWD
3R6V7m95R6UYqjcw++Q5CtZ2tzmxomZTf42IGIKBbSVml
S75WY+cBULUx3PcZYHD
ZqAbB0DI4MbdEH61kOI8EbN
/TLI1i077r+9LXR1mOnIC3GLD03+Xfy8eEBQf7137
YSMiW5r
/5xwQk7xEcKlbZdmUJp3ZDTQBXT06vavvp3jlkqqH9QOE
8ViZZ6aKQLqv
pL+4bs52jzuGwTMT7gOR5MzD+vT0fV57Xm8MjOxvZgbH
sAgzyFGII1ggUQmU7lu3
uPNL0eRx4S1G4Jn5
=QGYX
-----END PGP PUBLIC KEY BLOCK-----
```

Parcourir...

Aucun fichier sélectionné.

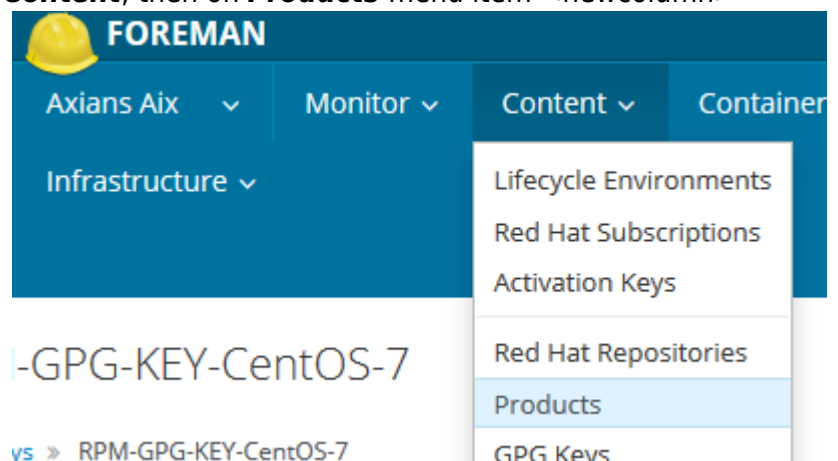
Upload GPG Key file

Save

Cancel

Product

<column> - → On the Menu bar, click on **Content**, then on **Products** menu item <newcolumn>
</column>



<columns - → Click on **Create Product** Button <newcolumn> </column>

Products

Filter... Search

Create Product Repo Discovery Select Action

0 of 0 Selected

☐	Name	Description	Sync Status	Sync Plan	Repositories
You currently don't have any Products.					

<columns - → Fill the form with the following informations :

- **Name** : the name for the product,
- **Label** : the label used internally by Foreman,
- **GPG Key** : select with the drop-down list the relevant GPG key,
- **Sync Plan** : select with the drop-down list the relevant sync plan to apply to this product,
- **Description** : put a description for this product.

Then click on **Save** button. <newcolumn> </column>

Create Product

Products » New Product

Name

CentOS 7

Label

CentOS_7

GPG Key

RPM-GPG-KEY-CentOS-7

Sync Plan

sync_yum_daily

+ Create Sync Plan

Description

CentOS 7 product

Save

Cancel

<columns - → Once the product is created, the user is automatically directed to the **Repositories**

pane. At this time there is not yet any configured repository, so let's create one by clicking on the **New Repository** button : <newcolumn> </columns>

CentOS 7

Select Action ▼

Products » CentOS 7 » Repositories

Details

Repositories

Tasks

Filter...

Search ▼

New Repository

Sync Now

Remove Repositories

0 of 0 Selected

☐	Name	Type	Sync Status	Content
You currently don't have any Repositories included in this Product, you can add Repositories using the button on the right.				

<columns - - → Fill the form with the following informations :

- **Name** : a name for the repository,
- **Label** : the label used internally by Foreman,
- **Type** : select **yum** on the drop-down menu,
- **URL** : enter here the URL of the Yum repository to mirror
- **Download policy**
 - **On demand** : only repo's metadata are downloaded from the remote repository, then packages are fetched and stored on local FS only when clients request them,
 - **Background** : repo's metadata are downloaded from the remote repository, then packages are downloaded as a background task after the initial sync,
 - **Immediate** : both repo's metadata and packages are downloaded.
- **GPG Key** : Select with the drop-down menu the GPG key to use with this repository.

CentOS 7

[Products](#) » [CentOS 7](#) » [Repositories](#) » New Repository

Details

Repositories

Tasks

New Repository

General Information

Name

centos7_base_x64

Label

centos7_base_x64

Type

yum

Sync Information

URL

http://mirror.centos.org/centos/7/os/x86_64/

☒ Verify SSL

Selecting this option will result in Katello verifying that the upstream url's SSL certificates are signed by a trusted CA.

[Unselect if you do not want this verification.](#)

Then click on **Save** button. <newcolumn>

Upstream Password

Password of the upstream repository user for authentication. Leave empty if repository does not require authentication.

Download Policy

☒ Mirror on Sync

Selecting this option will result in contents that are no longer part of the upstream repository being removed during synchronization.

Published Repository Information

Checksum

For older operating systems such as Red Hat Enterprise Linux 5 or CentOS 5 it is recommended to use sha1.

☒ Publish via HTTP

GPG Key

<newcolumn>

Save

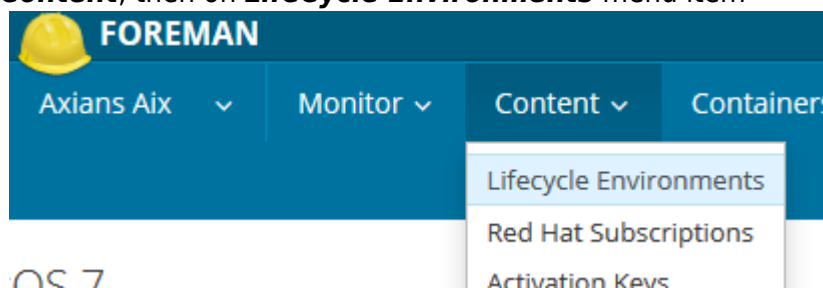
Cancel

</column>

Lifecycle Environments

<column> - → On the Menu bar, click on **Content**, then on **LifeCycle Environments** menu item

<newcolumn> </column>



<column> - → Click on **Create Environment Path** Button <newcolumn> </column>

Lifecycle Environment Paths

Create Environment Path

Library	Content Views	Products	Yum Repositories	OSTree Repositories	Docker Repositories	Packages	Errata	Puppet Modules
	0	1	2	0	0	9363	0	0

<columns - → Fill the form with the following informations :

- **Name** : a name for the environment,
- **Label** : the label used internally by Foreman,
- **Description** : a description

Then click on **Save** button. <newcolumn>
</column>

[Environments List](#) » [New Environment](#)

New Environment

Adding Lifecycle Environment to the end of "Library"

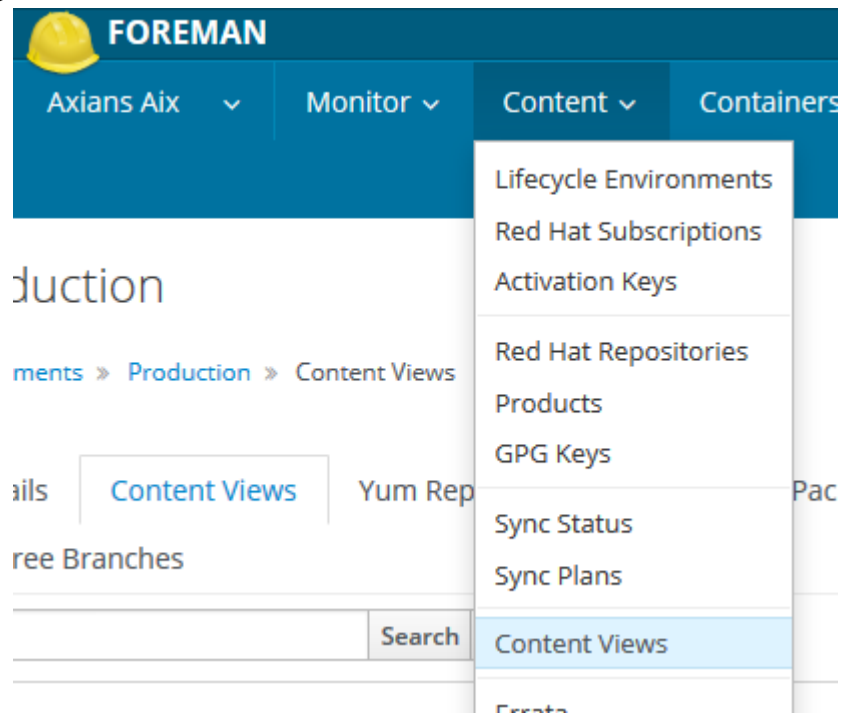
Name

Label

Description

Content View

<columns - → Click on **Create New View** Button <newcolumn> </columns>



<columns - → Click on **Create New View** Button <newcolumn> </columns>

Content Views

Name	Composite View?	Last Published	Environments	Repositories
You currently don't have any Content Views. A Content View can be added by using the button on the right.				

<columns - → Fill the form with the following informations :

- **Name** : a name for the view,
- **Label** : the label used internally by Foreman,
- **Description** : a description

Then click on **Save** button. <newcolumn>
</column>

Create Content View

[Content Views](#) » New Content View

Name

Axians Aix view

Label

Axians_Aix_view

Description

Axians Aix view

☐ Composite View?

A composite view contains other content views.

Save

Cancel

<column> - → Once the view is created, go on the **Yum Content** pane, then select the **Add** pane from the **Repository Selection**

Then select the repositories to include into the view (in the example below, *base* and *updates* repositories from CentOS 7 Product are selected).



[Content Views](#) » [Axians Aix view](#) » Add Yum Repositories

[Details](#) [Versions](#) [Yum Content ▼](#) [File Repositories](#) [Puppet Modules](#) [Docker Content ▼](#) [OSTree Content](#)
[History](#) [Tasks](#)

Repository Selection

[List/Remove](#) [Add](#)

▼

2 of 2 Selected

☐	Name	Product	Last Sync	Sync State	Content
☒	centos7_base_x64	CentOS 7	2017-09-06 14:26:14 UTC	Success	9363 Packages 0 Errata
☒	centos7_updates_x64	CentOS 7	2017-09-06 15:05:14 UTC	Success	2146 Packages 0 Errata

20 ▼ per page Showing 1 - 2 of 2 << < 1 of 1 > >>

<columns - → go on the **Versions** pane, then click on **Publish New Version** button. <newcolumn>
Axians Aix view

▼

[Content Views](#) » [Axians Aix view](#) » Versions

[Details](#) [Versions](#) [Yum Content ▼](#) [File Repositories](#) [Puppet Modules](#) [Docker Content ▼](#) [OSTree Content](#)
[History](#) [Tasks](#)

▼

Version	Status	Environments	Content	Description	Actions
This Content View does not have any versions, create your first Content View Version by using the "Publish New Version" button on the right.					

Details Versions Yum Content ▼ File Repositories Puppet Modules Docker Content ▼ OSTree Content
History Tasks

Publish New Version

A new version of Axians Aix view will be created and promoted to the Library environment. It can be promoted to other environments from the Versions tab of this Content View.

Version Details

Version

1.0

Description

☐ Force Yum Metadata Regeneration ?

Save

Cancel

<columns - → The version is going to be published. This may take a while.

When the publishing procedure is completed, you can click on the **Promote** button for the Version 1.0.

<newcolumn> </column>

Axians Aix view

Publish New Version

Select Action ▼

[Content Views](#) » [Axians Aix view](#) » Versions

Details **Versions** Yum Content ▼ File Repositories Puppet Modules Docker Content ▼ OSTree Content
History Tasks

Filter...

Search ▼

Version	Status	Environments	Content	Description	Actions
Version 1.0	Publishing and promoting to 1 environment.	Library			Promote ▼

20 ▼ per page

Showing 1 - 1 of 1

1 of 1

<columns - → Select the right *library* by clicking on the checkbox, then click on **Promote Version**.
<newcolumn> </columns>

Promote Version 1.0

Choose a lifecycle environment from the available promotion paths.

★ Starred environments are suggested for promotion.

Library	☒ ★ Production
---------	--

Description

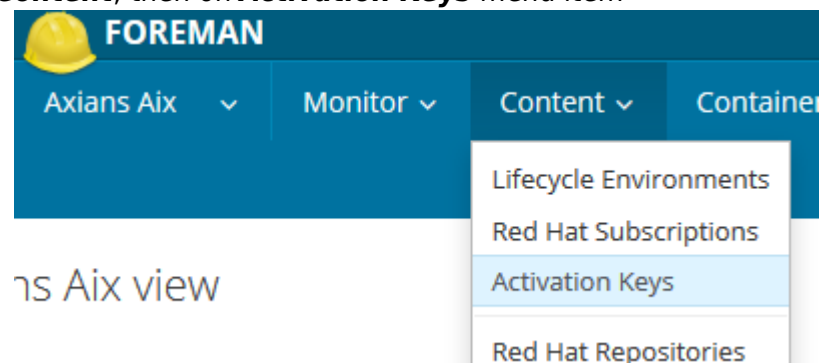
☐ Force Yum Metadata Regeneration ?

Promote Version	Cancel
-----------------	--------

Activation keys

<columns - → On the Menu bar, click on **Content**, then on **Activation Keys** menu item

<newcolumn> </columns>



<ms

Activation Keys

Filter...

Search

Create Activation Key

Name

Host Limit

Environment

Content View

You currently don't have any Activation Keys, you can add Activation Keys using the button on the right.

11

S>

<columns - → Fill the form with the following informations :

- **Name** : The name of the activation key,
- **Unlimited Hosts** : check the box if you don't need to restrict the ammount of clients registered,
- **Description** : put a descriptive text,
- **Environment** : select the desired environments.

Then click on **Save** button. <newcolumn>
</columns>

New Activation Key

Activation Keys » New Activation Key

Name

Axians Aix production key

☒ Unlimited Hosts

Description

Key for production servers on Axians Aix

Environment

☐ Library☒ Production

Content View

The selected environment contains no Content Views, please select a different environment.

Save

Cancel

<columns - → Once the key is created, it can be used to register client hosts to this system by using the following command :

```
subscription-manager register --org="orga_axians_aix" --activationkey="Axians Aix production key"
```

<newcolumn> </columns>

Axians Aix production key

Select Action ▼

[Activation Keys](#) » Axians Aix production key

Details

Subscriptions

Repository Sets

Host Collections

Associations ▼

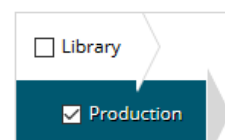
ⓘ This activation key may be used during system registration. For example:
subscription-manager register --org="orga_axians_aix" --activationkey="Axians Aix production key"

Basic Information

Name: Axians Aix production key 
Description: Key for production servers on Axians Aix 
Host Limit: Unlimited 
Service Level: 

Activation Key Content

Release Version: 
Environment :



Content View : 

Configure client host

Prerequisites

The target system must have the required package installed prior registration :

- **subscription-manager** normally comes from distribution's official repository or installation media,
- **katello-ca-consumer-katello.xxx** must be downloaded from the Katello server itself.

In the following example, the Foreman/Katello server IP address is **192.168.122.178** and its FQDN is **katello.internal.lan** :

```
yum install -y subscription-manager
yum localinstall -y
http://192.168.122.178/pub/katello-ca-consumer-katello.internal.lan-1.0-1.no
arch.rpm
```

Client registration

In order to register a client host to Katello, you need to provide the following elements :

- the **organization** name, in our example, the organization name is **orga_axians_aix**,
- the **activation key**. in our example, the key is **"Axians Aix production key"**

```
subscription-manager register --org="orga_axians_aix" --  
activationkey="Axians Aix production key"
```

The system has been registered with ID: c21106ec-9991-4246-b101-966b2dda99a8

No products installed.

List available subscriptions

```
subscription-manager list --available --all  
+-----+  
    Available Subscriptions  
+-----+  
Subscription Name:   EPEL7 for CentOS/RHEL  
Provides:  
SKU:                 884388902125  
Contract:  
Pool ID:             4028fa325e577a77015e5b0d989a0025  
Provides Management: No  
Available:           Unlimited  
Suggested:           1  
Service Level:  
Service Type:  
Subscription Type:   Standard  
Ends:                08/31/2047  
System Type:         Physical
```

Attach to a subscription

```
subscription-manager attach --pool=4028fa325e577a77015e5b0d989a0025  
Successfully attached a subscription for: EPEL7 for CentOS/RHEL
```

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