

Educating Underserved Populations Through The Magic of Open Source

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Agenda

- Kiwix – what is it, why do we care?
- Rancher – Container management
- Containerizing Kiwix
- Demo



Kiwix

Kiwix is an offline reader for online content like Wikipedia, Project Gutenberg, or TED Talks.

It makes knowledge available to people with no or limited internet access. The software as well as the content is free to use for anyone.

Why?

Half of the world -four billion people – can not reliably use the Internet. It mostly boils down to :

Lack of Infrastructures: in many remote or rural areas or refugee camps internet is often slow, unreliable, or not available at all.

Cost: many people with low or no income simply cannot afford to pay for data.

Gambela, Ethiopia





Kiwix Tools & Resources

The Kiwix tools is a collection of Kiwix related command line tools:

- kiwix-manage: Manage XML based library of ZIM files
- kiwix-read: Read ZIM file content
- kiwix-search: Fulltext search in ZIM files
- kiwix-serve: HTTP daemon serving ZIM files

Kiwix Libraries: <https://library.kiwix.org/?lang=eng>

Currently 3900+ Books (1110 in English)

Create your own ZIM files:

<https://youzim.it/> or <https://github.com/openzim/zim-tools>



Rancher

One Platform for Kubernetes Management

Rancher is a complete software stack for teams adopting containers. It addresses the operational and security challenges of managing multiple Kubernetes clusters, while providing DevOps teams with integrated tools for running containerized workloads.

Bringing Kiwix & Rancher Together!

Containerizing an application

Kiwix Docker images:

- Official Kiwix Docker Hub Image -- <https://hub.docker.com/r/kiwix/kiwix-serve>
- SUSE Base Container Image -- <https://hub.docker.com/r/smuse/suse-bci-kiwix-serve>
 - <https://registry.suse.com/>

Pre-Requisites:

- Load Balancer (our demo will use MetalLB)
- Storage backend (our demo will use NFS)

Helm Chart:

- <https://github.com/phs4suse/kiwix>



Rancher Steps

- Add Github Helm repo
- Create PersistentVolume (our lab will use NFS)
- Launch install
 - Answer custom questions:
 - Namespace, storage, Kiwix options



Rancher Steps - PV



zoom2rke2 Zoomer RKE2 Only User Namespaces

Cluster
Workload
Apps
Service Discovery
Storage
PersistentVolumes
StorageClasses
ConfigMaps
PersistentVolumeClaims
Secrets
Monitoring
More Resources

PersistentVolume: Create

Name *
KiwixNFS

Description
Any text you want that better describes this resource

Volume Plugin *
NFS Share

Capacity *
10 GIB

Plugin configuration

Customize

Path
/zimfiles

Server
192.168.1.137

Read Only
☒ Yes ☐ No

Cluster Tools

v2.6.5

Cancel Edit as YAML Create

zoom2rke2 Only User Namespaces

PersistentVolume: Create

Name *
KiwixNFS

Description
Any text you want that better describes this resource

Volume Plugin *
NFS Share

Capacity *
10 GIB

Plugin configuration

Customize

Customize

Access Modes
☒ Single Node Read-Write
☒ Many Nodes Read-Only
☐ Many Nodes Read-Write

Assign to Storage Class
None

Node Selectors
Add Node Selector

Mount Options
Add Option

Cluster Tools

v2.6.5

Cancel Edit as YAML Create

Rancher Steps - Repo



☰

zoom2rke2 Zoomer RKE2

Only User Namespaces ▾

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Cluster ▾

Workload ▾

Apps ▾

🔍 Charts

■ Installed Apps 0

🌐 **Repositories 2**

■ Recent Operations 0

Service Discovery ▾

Storage ▾

Monitoring ▾

More Resources ▾

Repository: Create

Name *

kiwixrepo

Description

Any text you want that better describes this resource

Target

☐ http(s) URL to an index generated by Helm

☒ Git repository containing Helm chart or cluster template definitions

Git Repo URL *

https://github.com/phs4suse/kiwix

Git Branch

main

Authentication

None ▾

Labels

Add Label

Annotations

Add Annotation

⚙️ Cluster Tools

v2.6.5

Cancel

Create

Rancher Steps - Install



Cluster

Workload

Apps

Service Discovery

Storage

Monitoring

More Resources

zoom2rke2

Zoomer RKE2

Only User Namespaces

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Charts: kiwix (0.0.2)

Install

Linux only

A Helm chart for Kubernetes

Kiwix-Serve is a .zim compatible web server: it allows you to deliver .zim files over the HTTP protocol within your local network – be it a University or your own house.

Chart Information (Helm README)

Kiwix-Serve is a .zim compatible web server: it allows you to deliver .zim files over the HTTP protocol within your local network – be it a University or your own house.

Simply start Kiwix-Serve on your machine, and your content will be available for anybody through their web browser.

Kiwix

Kiwix is an offline reader for online content like Wikipedia, Project Gutenberg, or TED Talks. It makes knowledge available to people with no or limited internet access.

The Kiwix tools is a collection of Kiwix related command line tools:

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kiwix-manage example

```
kiwix-manage /srv/www/htdocs/pub/library_zim.xml add /zimfiles/test.zim
```

Chart Versions

0.0.2

Sun, Jul 24 2022

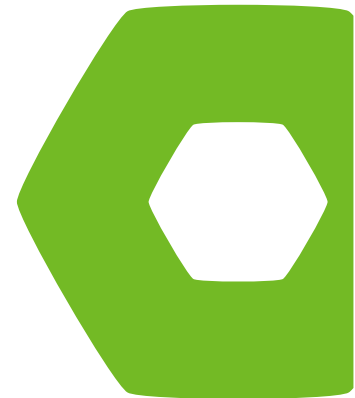
Application Version

3.2.0-5

Chart

Download

Rancher Steps – Install (cont.)



zoom2rke2 Zoomer RKE2 Only User Namespaces

Cluster Workload Apps Service Discovery Storage Monitoring More Resources

kiwix 0.0.2 Install: Step 1 Set App metadata

Linux only

This process will help create the chart. Start by setting some basic information used by Rancher to manage the App.
To install the app into a new namespace enter it's name in the Namespace field and select it.

Namespace default Name

Cluster Tools v2.6.5

zoom2rke2 Zoomer RKE2 Only User Namespaces

Cluster Workload Apps Service Discovery Storage Monitoring More Resources

kiwix 0.0.2 Install: Step 2 Change how the App works

Linux only

Configure Values used by Helm that help define the App.

Edit Options Edit YAML Compare Changes View Chart Info

Deployment

Storage Kiwix Configuration

Deployment

Namespace * kiwix Namespace to deploy Kiwix

Number of replicas * 1

Container Image * smuse/suse-bci-kiwix-serve

Image tag * 3.2.0

Cluster Tools v2.6.5

Previous Install

Rancher Steps – Install (cont.)



zoom2rke2 **Zoomer RKE2** Only User Namespaces

Cluster
Workload
Apps
Service Discovery
Storage
Monitoring
More Resources

kiwix 0.0.2 **Install: Step 2**
Change how the App works

Linux only

Configure Values used by Helm that help define the App.

Edit Options Edit YAML Compare Changes View Chart Info

Deployment
Storage
Kiwix Configuration

Storage

Volume Name *
kiwixnfs

Size *
10G

Persistent Volume name

Size of yo zoom2rke2 **Zoomer RKE2**

Cluster
Workload
Apps
Service Discovery
Storage
Monitoring
More Resources

Cluster Tools

Cancel

v2.6.5

Only User Namespaces

kiwix 0.0.2 **Install: Step 2**
Change how the App works

Linux only

Configure Values used by Helm that help define the App.

Edit Options Edit YAML Compare Changes View Chart Info

Deployment
Storage
Kiwix Configuration

Kiwix Configuration

☐ Use Remote Zim File
☒ Use local library

This will download the remote zim file

Filename *
library.xml

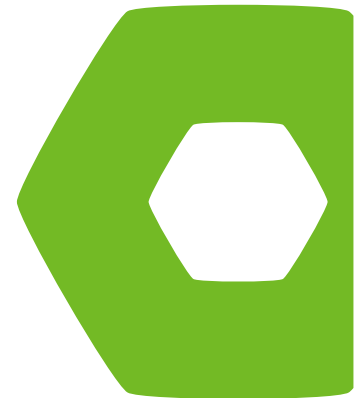
Cluster Tools

Cancel

Previous Install

v2.6.5

Rancher Steps – Install (cont.)



Installed App: s19demo2 Deployed

Namespace: default Age: 1.2 mins

Last Operation: (install) - [View Logs](#)

[Resources](#) [Values YAML](#) [Chart README](#)

```
▼ image:
  ▼ args:
    - '--library library.xml'
    env: null
    repository: smuse/suse-bci-kiwix-serve
    tag: 3.2.0
  namespace: s19demo2
  replicas: 1
  ▼ storage:
    storage_size: 10G
    volume_name: kiwixnfs2
    downloadFile: false
  ▼ global:
    ▼ cattle:
      clusterId: c-m-zq28thw6
      clusterName: zoom2rke2
      rkePathPrefix: ''
      rkeWindowsPathPrefix: ''
      systemDefaultRegistry: ''
      systemProjectId: p-8mmzp
      url: https://leapmac.houseofswartz.net
      systemDefaultRegistry: ''
      libraryXML: true
```

Success!

← → ↻ ⚠ Not Secure | 192.168.1.65/?lang=eng

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Khan




Appropedia

Sharing knowledge to build rich & sustainable lives

EN

Appropedia




WikiMed Medical Encyclopedia

The largest medical encyclopedia, from Wikipedia

EN

Wikipedia



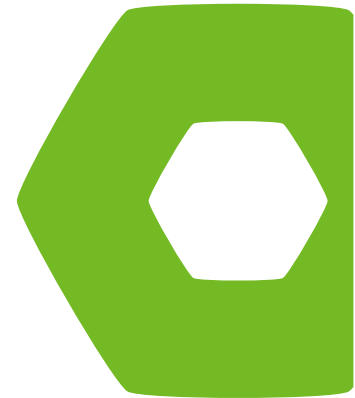
Wikipedia (Simple English)

offline version of Wikipedia in Simple English

EN

Wikipedia

Powered by [Kiwix](#)



Demo





Finish

Thank You



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contribute & have a lot of fun!

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