

# **Technical introduction to K-Link and K-Box**

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# Outline

- What is a K-Box?
- What is a K-Link?
- What problems do they solve?
- How do they work together?
- Technology Stack
- Installation
- Open Source

# What is a K-Box?

try.k-box.net

Search "Private"...

Administration **A**

Documents > Private

Create or Add Share Delete Filters

**Private**

- Recent
- Starred
- Shared with me
- Trash
- Projects
  - > Green organization
  - Memories
  - Urgent work group
- My Collections (+)
  - Accounting
  - Documents
  - Photos

name	added by
<input type="checkbox"/> consultancy-material.pdf ☆ 🔒	admin
<input type="checkbox"/> flyer.pdf ☆ 🔒	admin
<input type="checkbox"/> invoice.docx ☆ 🔒	admin
<input type="checkbox"/> leaflet.docx ☆ 🔒	admin
<input type="checkbox"/> letter-to-audiance.odt ☆ 🔒	admin
<input type="checkbox"/> logo.png ☆ 🔒	admin
<input type="checkbox"/> presentation-results.odp ☆ 🔒	admin

Welcome to the K-Box

Email

Email (e.g., user@klink.local)

Password

Password

(Forgot your password?)

Login Remember Me

© 2014-2018 K-Link. K-Box v0.20.1.  
[Help](#) [Service](#) [Policy](#) [Privacy](#)

# What is a K-Box?

- Web application
- Started as a "Document Management System"
- Handles more kind of data:
  - Videos
  - Any type of file

# What is a K-Box?

- Built for organizations in Central Asia
- Now, scaling up to the world.
- Scaling up to more service providers.

# What is a K-Link?

- Takes care of communication between document producers and consumers
- Manages multiple Applications:
  - K-Boxes
  - Websites
  - Adapters



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🔍 Поиск

Введите ключевое слово или фразу для поиска

ВЫК

Тоҷикӣ (Tajik)

Русский (Russian)

English

Тип файла

Video

Document



## Платформа знаний по устойчивому управлению земельными ресурсами

354 материалов опубликовано

Пожалуйста, добро пожаловать на платформу сети по устойчивому управлению земельными ресурсами в Таджикистане «SLMTJ Network».

Платформа обеспечивает доступ к различным познавательным материалам и стремится улучшить обмен и распространение ценного опыта и методик об устойчивом управлении земельными ресурсами среди различных организаций. Все материалы, которые вы найдете здесь, были произведены и собраны участниками Сети «SLMTJ Network», которые объединились чтобы продвигать устойчивое управление земельными ресурсами в Таджикистане и содействовать большему пониманию и реализации опыта в данной сфере.

[Узнайте больше о сети](#)

[Члены сети](#)

## Sustainable-water-managment.pdf

Type	Language	Added On	Source
Document	Ru	3/1/2016	KLINK

## EBRD Sustainable Energy Finance Facility

Type	Language	Added On	Source
Document	En	2/18/2016	KLINK

## EBRD Sustainable Energy Finance Facility

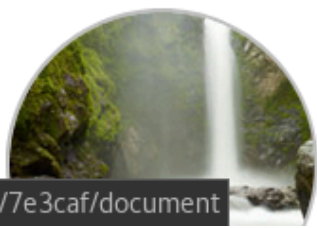
Type	Language	Added On	Source
Document	En	2/18/2016	KLINK

## Foggin-2016-IRC2016-Sustainable-Rangelands.pdf

Type	Language	Added On	Source
Document	En	5/2/2017	KLINK

## 2008\_Жайыттарды-туруктуу-пайдалануу-колдонмо\_CAMP-Алатоо\_KG.pdf

Type	Language	Added On	Source
Document	Ru	3/1/2016	KLINK



## Why ecosystem services?

Ecosystem services are Nature's benefits to people. They comprise the diverse ways we depend on Nature. The idea of ecosystem services speaks to many decision-makers, for example in regional planning, infrastructure, rural development or urban management. Counting on Nature's benefits requires us to know them better.

# Components

- **K-Search:** Apache SOLR for the search; reachable through an API
- **K-Link Registry:** Authentication of Applications
- **K-Link Website:** A public face to the K-Link
- **K-Link Adapters:** Integration of search and file submission from other apps or sites.

# What problems do they solve?

- Collaborative management of information
- Addressing needs for team management, sharing and publication of information
- Sovereignty of data and technology
- Business opportunities

# How do they work together?

- Team and sharing dimension lives in the K-Box
- Several K-Boxes can publish information to a common K-Link
  - Using the K-Search API
- K-Link provides wide access to information retrieval

**Support for existing apps**

- Services exposed as simple HTTP API (the K-Search API)
- Offers JSONRPC methods that can be called
  - Adding Documents
  - Removing Documents
  - Searching Documents

# Technology Stack

## User-facing apps written in PHP

- Laravel for rapid development
- Symfony for extra flexibility
- Well established ecosystem



# Performance critical parts in C and Go



## Apache SOLR as search engine

- Based on a well established and proven Open Source engine: Lucene
- Highly efficient full-text search
- Optimized to work with K-Search API

## Problem: Deployment gets complicated

- Lots of complexity to keep track of
- Some dependencies not packaged (npm, yarn)
- Hard to target different operating systems
- Want to support multiple instances on single system
- Webserver configuration becomes a nightmare

## Solution: Containers

- Allow putting multiple services on a single server
- Good resource separation
- Less overhead than virtual machines
- In plain language: More instances on a single server

# Installation

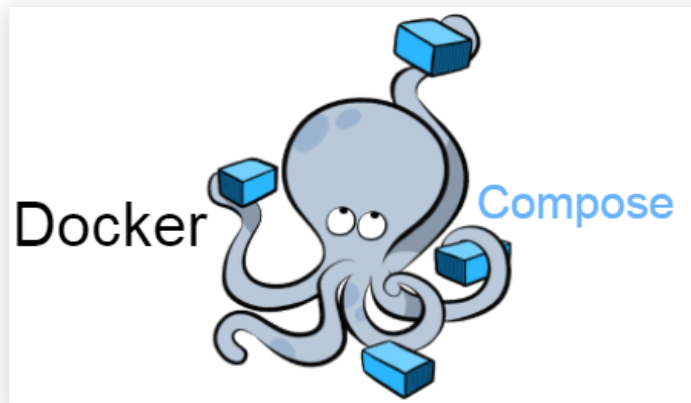
## Installation used to be difficult

```
git clone ...  
apt install ...  
composer install ...  
yarn install ...  
dpkg-reconfigure mysql-server  
vim /etc/nginx/...  
systemctl start ...
```

Made easier for us and for you:

```
docker-compose up -d
```

Only requirement: x86\_64 Server with docker!



# Open Source!

K-Link and K-Box is available for anybody

- free to circulate
- free to modify and repurpose,
- free to be seen and understood and learned from, down to the last line of its code.

