e//editiones presents:

Common eXist-db / TEI Publisher

Deployment Scenarios

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eXistsolutions

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Common eXist-db / TEI-Publisher Deployment Scenarios - **Workshop Overview**

- Rough overview of eXist-db / TEI-Publisher

- Deployment of eXist-db / TEI-Publisher for

  - Editors

  - Developers

  - System Administrators

- Differentiation

  - This workshop can't cover all possible deployment scenarios of eXist-db / TEI-Publisher thus

    we will concentrate on the ones which are most common from our perspective.

Vitamins for your Applications

Try the all-in-one solution for application building.
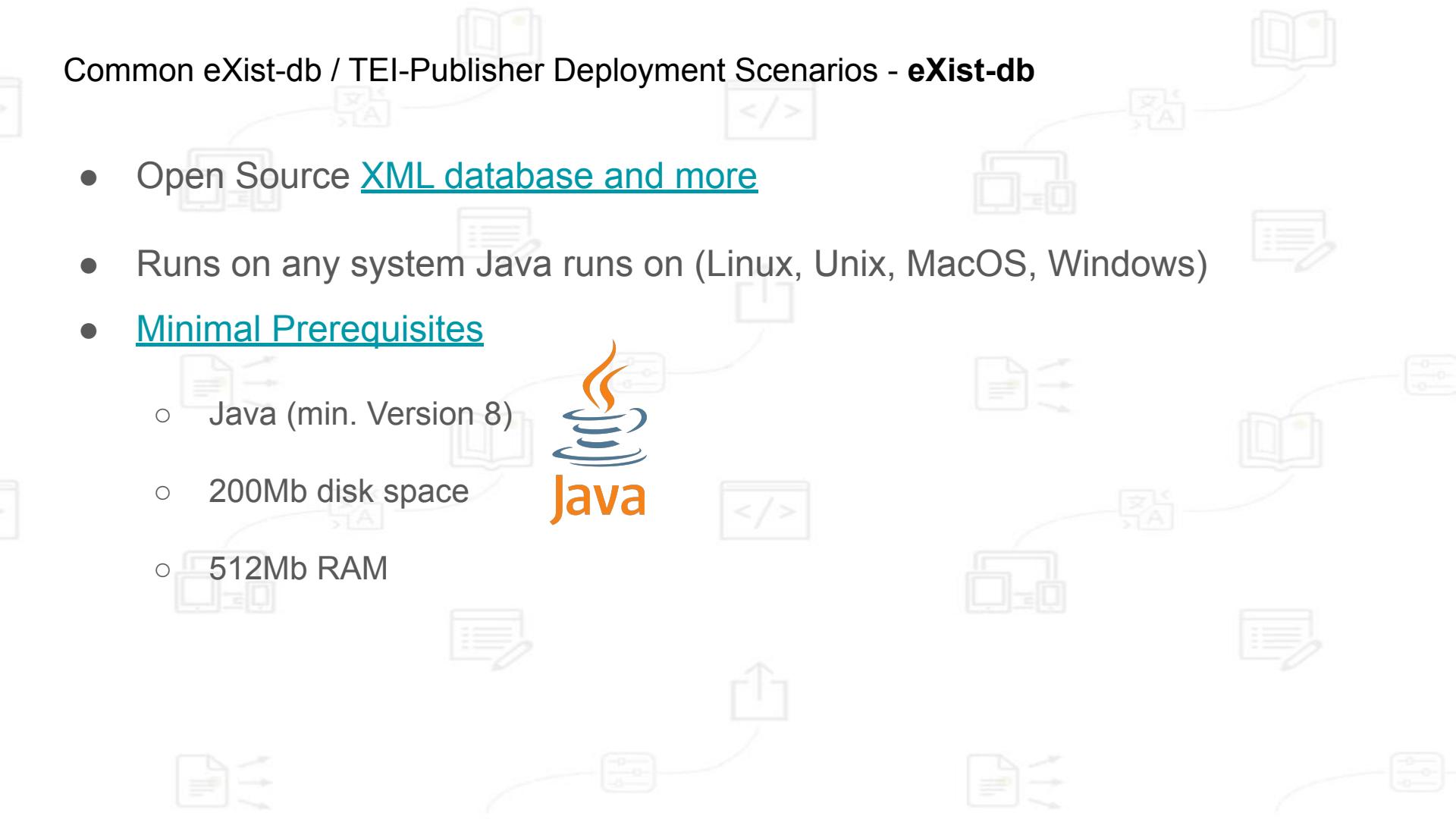
eXist-db is Open Source Software licensed under the LGPL

Download eXist-db

Common eXist-db / TEI-Publisher Deployment Scenarios - **eXist-db**

- Open Source XML database and more

- Runs on any system Java runs on (Linux, Unix, MacOS, Windows)

- Minimal Prerequisites

  ○ Java (min. Version 8)

  ○ 200Mb disk space

  ○ 512Mb RAM

tei
Publisher

The Instant Publishing Toolbox

👁 **Try it (6.0.0)**

Featured Demos
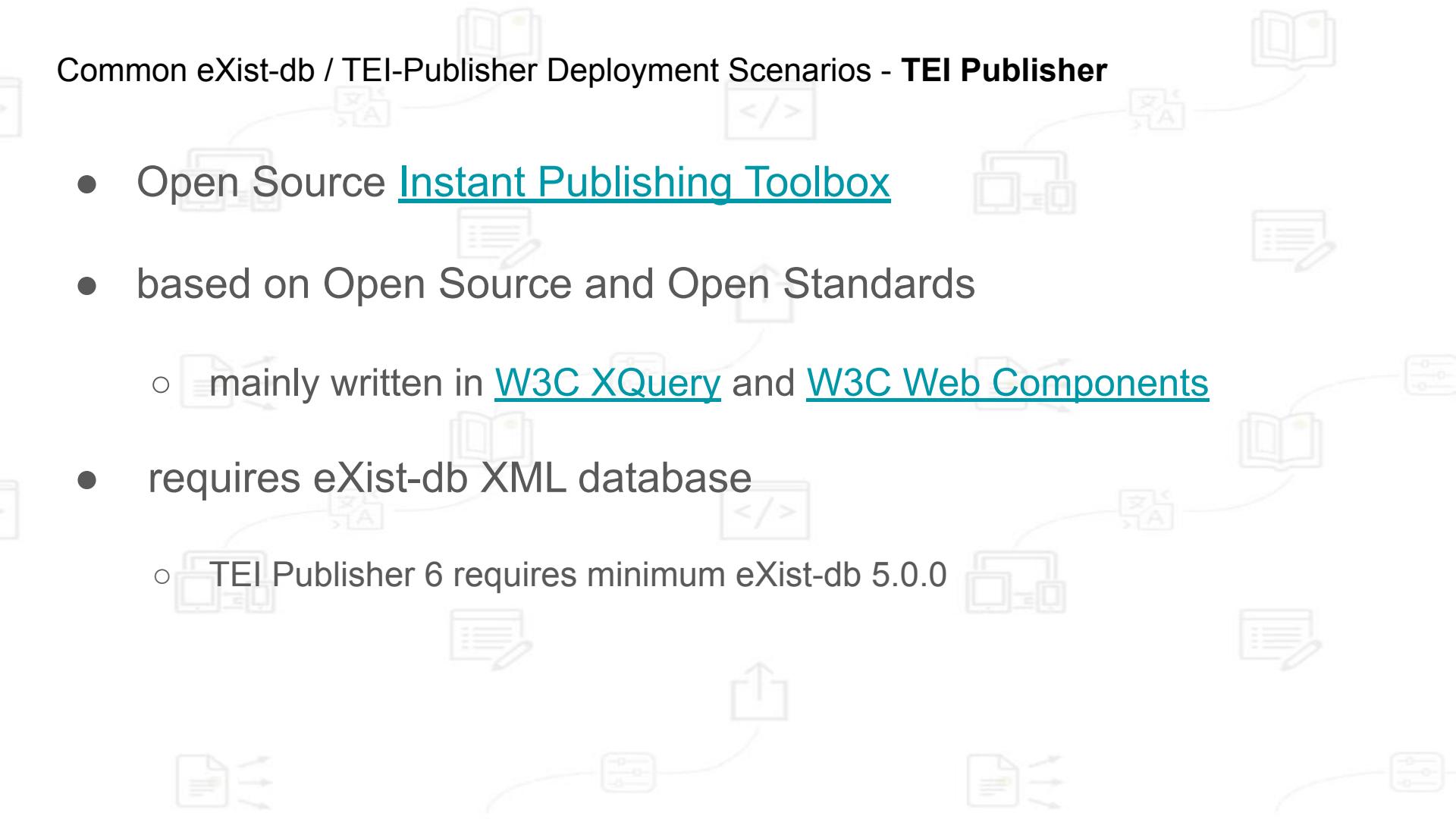
Van Gogh Letters

When the Wall Came Down
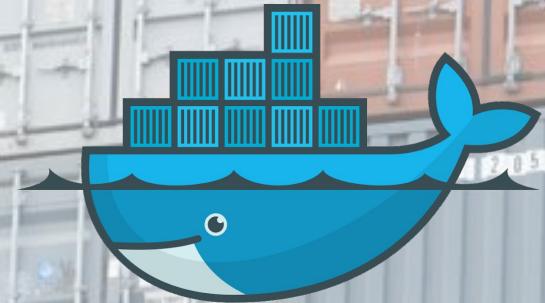
Common eXist-db / TEI-Publisher Deployment Scenarios - **TEI Publisher**

- Open Source [Instant Publishing Toolbox](#)

- based on Open Source and Open Standards

  ○ mainly written in [W3C XQuery](#) and [W3C Web Components](#)

- requires eXist-db XML database

  ○ TEI Publisher 6 requires minimum eXist-db 5.0.0

eXist-db / TEI Publisher for Editors

Common eXist-db / TEI-Publisher Deployment Scenarios - **Editors - Docker**

- Docker: the easiest way to run eXist-db / TEI Publisher

- Download, install and run Docker

- Download TEI Publisher docker image

  - `docker pull existdb/teipublisher:latest`

- Initial Startup of the TEI Publisher docker image

- `docker run ` **`-p`** ` 8081:8080 -p 8444:8443 ` **`-v`** ` exist-data:/exist-data ` **`--name`** ` teipublisher existdb/teipublisher:latest`

- open http://localhost:8081/exist/apps/tei-publisher/ in your Browser

Common eXist-db / TEI-Publisher Deployment Scenarios - **Editors - Docker**

- `docker stop teipublisher` | stop the container
- `docker start teipublisher` | start the container
- `docker logs teipublisher` | show exist.log
- `docker container ps -a` | Lists all running and stopped containers
- `docker cp teipublisher:/exist-data .` | Copy the contents of the database data volume to the current directory (.) on local disk
- [More information](#) about TEI Publisher Docker images and [list of available TEI Publisher images](#).

Download

Latest Stable Release

Version 5.2.0

Docker Images

Version 5.2.0

Maven Artifacts

Version 5.2.0

Nightly Builds

Use at your own risk

All versions of eXist-db are Open Source and may be used in academic, non-commercial and commercial applications.

Community

If you'd like to contribute, ask questions or are looking for the sourcecode please see our github page for details.

powered by
eXistdb
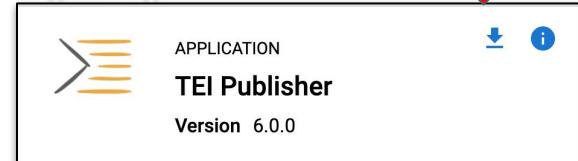
Common eXist-db / TEI-Publisher Deployment Scenarios - **Editors - install eXist-db**

- [Download eXist-db release](#)

  - MacOS: .dmg

  - Windows: -win.zip

  - All operating systems (OS): .jar

- Double-Click or run in console

  - java -jar exist-installer-5.2.0.jar

- Follow the installation instructions

Common eXist-db / TEI-Publisher Deployment Scenarios - **Editors - install TEI Publisher**

- Startup eXist-db
  - **Windows,Linux:** use the eXist-db start menu item or desktop icon
  - **Mac OS**, double-click the eXist-db.app icon inside the folder in which eXist-db is installed.
  - **Alternative 1 for all OS**: step into eXist-db installation directory and either
    - **double-click on start.jar** or
    - call "**java -jar start.jar**" on a command line.
  - **Alternative 2 for all OS**: step into eXist-db installation directory and in the command line run
    - **bin/launcher.sh** (Linux, Mac OS)
    - **bin\launcher.bat** (Windows)
- open http://localhost:8080/exist/apps/dashboard/admin#packagemanager
- Click on the "Available" tab, scroll to "TEI Publisher"

  and click on the arrow down symbol.
- open http://localhost:8081/exist/apps/tei-publisher/

APPLICATION

TEI Publisher

Version   6.0.0

eXist-db Configuration

It seems you are starting eXist-db for the first time. Please configure your memory settings below.

After startup, use dashboard or Java client to set a password for admin (empty by default).

Java Memory

Memory usage: 102 free/3641 max mb

Min Memory	64	Memory settings only become effective after restart and only apply when eXist-db is started via the system tray launcher.
Max Memory	2.048	

Caches

General Cache	256	Total cache size should not exceed 1/3 of max memory unless you have more than 2GB available. These sizes are in megabytes.
Collection Cache	64	

## Data Directory

plication Support/org.exist   Select

Changing the data directory will create an empty database in the new location (unless there's already data in it).

Jetty Ports
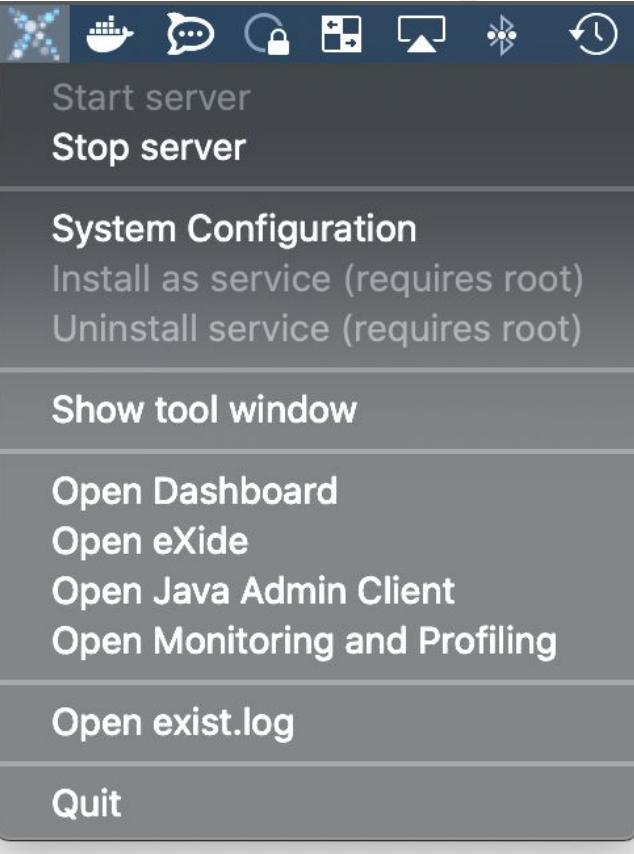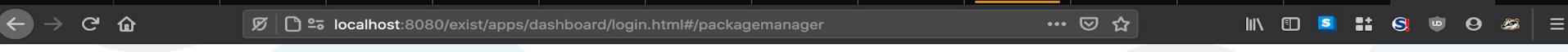
HTTP Port	8080	Set the ports used by the integrated web server. Please make sure those ports are not used by other processes.
SSL Port	8443	

Save

Start server
Stop server

System Configuration
Install as service (requires root)
Uninstall service (requires root)

Show tool window

Open Dashboard
Open eXide
Open Java Admin Client
Open Monitoring and Profiling

Open exist.log

Quit

Sign in

admin

••••••

Login

http://localhost:8080/exist/apps/dashboard/admin#/packagemanager

eXistdb
Version 5.2.0
Dashboard

- Launcher
- Package Manager
- User Manager
- Backup
- Settings
- Logout admin

PackageManager

type here to filter

Installed (7)   Available (60)

Tamboti Metadata Framework
Version 1.1.4

APPLICATION
TEI Processing Model Toolbox
Version 1.1.4

APPLICATION
TEI Publisher
Version 6.0.0

download and install latest version

LIBRARY
TEI Publisher: Processing Model Libraries
Version 2.8.8

APPLICATION
teian, xml annotator
Version 2.4.5

http://localhost:8080/exist/apps/dashboard/admin#/packagemanager

LIBRARY
Transformations from docx to TEI

Launcher

eXistdb

Version 5.2.0

eXide

eXide - XQuery IDE

eXist-db Documentation

Markdown Parser in XQuery

Monex

TEI Publisher

XQuery Function Documentation

http://localhost:8080/exist/apps/dashboard/

TEI Publisher The Instant Publishing Toolbox

Diese Anwendung dient vorrangig zum Experimentieren mit verschiedenen Dokumenten und deren Transformationen über das TEI Processing Model. Es können eigene Dateien hochgeladen und neue ODDs erstellt werden.

Anmelden zum Hochladen eigener Dateien oder Zugriff auf administrative Funktionen (Standardnutzer: 'tei-demo', Passwort: 'demo').

Dokumente

Lokale Sammlung

Sortiere nach
Titel

Distributed Text Services (experimentell)

Filtere nach
Titel

Filter

TEI Publisher Beispielsammlung

Dokumente zur Demonstration diverser Features. Die Auswahl ist in keiner Weise erschöpfend, sondern zeigt nur einen kleinen Ausschnitt des Möglichen. Weitere Beispiele sind jederzeit willkommen!

Spielwiese

Eine beschreibbare Sammlung zum Hochladen eigener Dokumente

Dokumentation

Dokumentation, verfasst in Docbook XML.

ODD Dateien

Deutsches Textarchiv

DOCX Output Preview

A test ODD to preview TEI imported from Word docx

Van Gogh Letters

Docbook v5

Processing of Docbook format

Bogactwa mowy polskiej

Serafin Letters

15th c. manuscript correspondence with parallel translation

Shakespeare Plays

Graves' Letters

Modern correspondence with visualization of prosopographical and geographical information

JATS

Processing of JATS XML (Journal Article Tag Suite)

DOCX Import

http://localhost:8080/exist/apps/tei-publisher

Common eXist-db / TEI-Publisher Deployment Scenarios - **Editors - eXist-db**

- Further options to install and run eXist-db

  - [eXist-db Homebrew Formulae](#) on Mac OS

    - `brew cask install exist-db`

  - Advanced Installation

    - Headless Installation

    - running eXist-db as a service

    - see https://exist-db.org/exist/apps/doc/advanced-installation

  - [Nightly Builds](#) - Use at your own risk

Nightly Builds

Use at your own risk

eXist-db / TEI Publisher for Developers
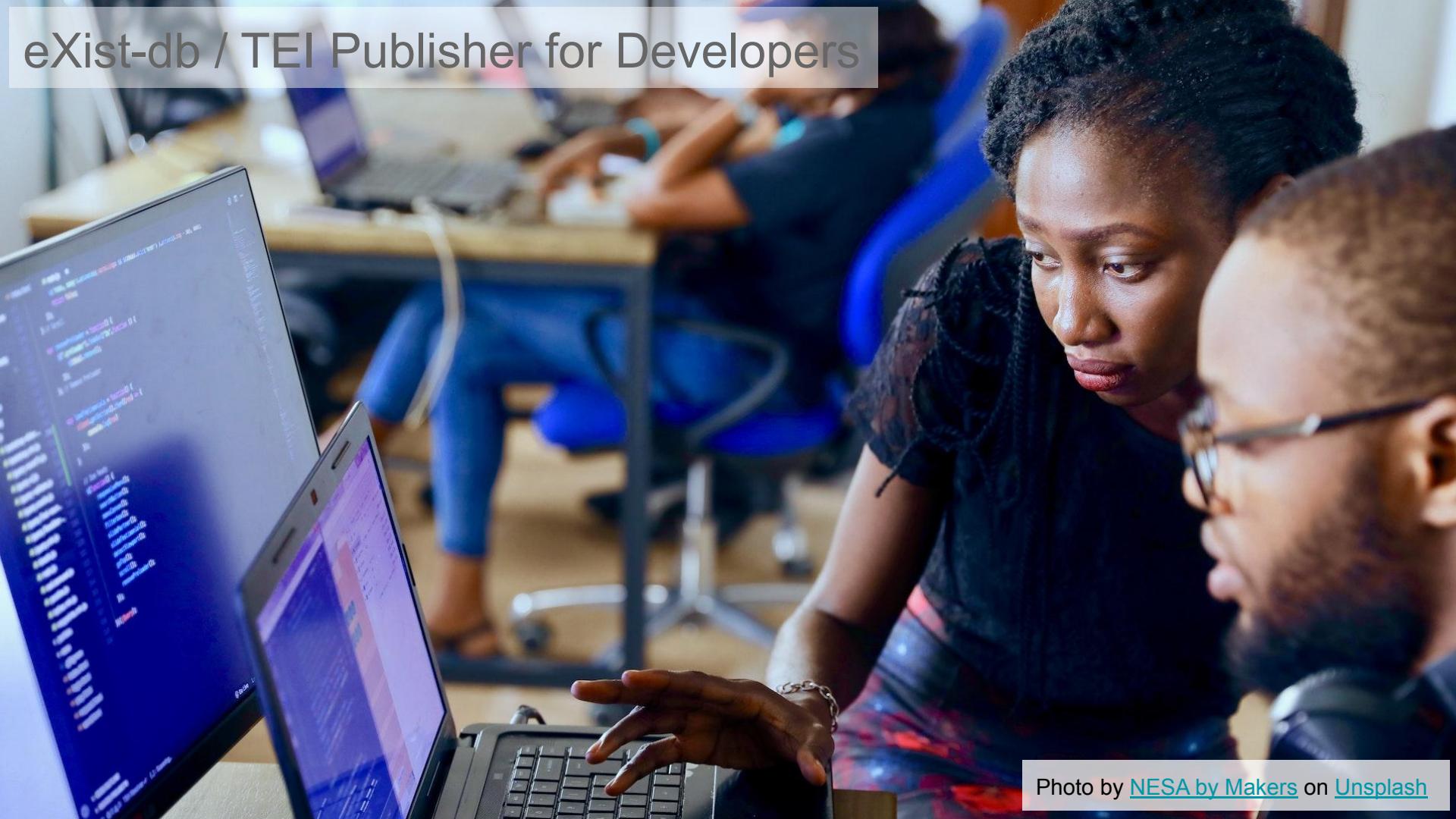
Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers**

- eXist-db / TEI Publisher are both constantly being further developed

- Example 1: Feature "Facets based document filtering"

  - developed for and introduced with TEI Publisher 5 in August 2019

  - Required eXist-db 5.0.0 RC8 or newer

- Example 2: Known eXist-db / TEI Publisher issue gets fixed but there is no

  new release available yet

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: TEI Publisher**

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: TEI Publisher**

- Prerequisites
  - Git
  - Java
  - Apache Ant
- open console
  - `git clone` https://github.com/eeditiones/tei-publisher-app.git
  - step into cloned tei-publisher-app folder and run: `ant`
- open eXist-db packagemanager, click "Upload" and select $tei-publisher-app/build/tei-publisher-6.0.0.xar

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: TEI Publisher**

```
Last login: Sat Sep  5 14:44:20 on ttys003
→  workspace git clone https://github.com/eeditiones/tei-publisher-app.git
Cloning into 'tei-publisher-app'...
remote: Enumerating objects: 160, done.
remote: Counting objects: 100% (160/160), done.
remote: Compressing objects: 100% (58/58), done.
remote: Total 19515 (delta 107), reused 148 (delta 102), pack-reused 19355
Receiving objects: 100% (19515/19515), 91.11 MiB | 4.64 MiB/s, done.
Resolving deltas: 100% (13044/13044), done.
→  workspace cd tei-publisher-app
→  tei-publisher-app git:(master) ant
Buildfile: /Users/windauer/workspace/tei-publisher-app/build.xml

xar:
    [mkdir] Created dir: /Users/windauer/workspace/tei-publisher-app/build
      [zip] Building zip: /Users/windauer/workspace/tei-publisher-app/build/tei-publisher-6.0.0.xar

all:

BUILD SUCCESSFUL
Total time: 1 second
→  tei-publisher-app git:(master) ls -l build/
total 52016
-rw-r--r--  1 windauer  staff  25752968 Sep  5 14:57 tei-publisher-6.0.0.xar
→  tei-publisher-app git:(master) 
```

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: TEI Publisher**

- TEI Publisher requires pb-components package which is loaded from an external server (CDN).
- Use self-hosted pb-components to run TEI Publisher offline or to use not yet released versions of it. You will need Node.js.
- In tei-publisher-app
  - check path to `npm` in `build.properties.xml`

    ```
    npm=/usr/local/bin/npm
    ```

  - edit the dependencies section of `package.json` to include the desired version of the `pb-components` library

    ```
    "dependencies": {
      "@teipublisher/pb-components": "^0.9.37"
    }
    ```

  - run `npm install` to install dependencies
  - edit `modules/config.xqm` and change the variable `$config:webcomponents` to 'local'

    ```
    declare variable $config:webcomponents := "local";
    ```

  - run Apache `ant xar-local`
  - deploy created .xar file via eXist-db Packagemanager

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: TEI Publisher**

```
→  tei-publisher-app git:(master) ant xar-local
Buildfile: /Users/windauer/workspace/tei-publisher-app/build.xml

npm.install:
    [echo]
    [echo] > @vaadin/vaadin-usage-statistics@2.1.0 postinstall /Users/windauer/workspace/tei-publisher-app/node_modules/@vaadin/vaadin-usage-statistics
    [echo] > node check.js
    [echo]
    [echo]
    [echo]    Vaadin collects development time usage statistics to improve this product. To opt-out, either run:
    [echo]    npm explore @vaadin/vaadin-usage-statistics -- npm run disable
    [echo]    to store disable statistics for the machine, or add
    [echo]    "vaadin": { "disableUsageStatistics": true }
    [echo]    to the project package.json and re-run npm install to disable statistics for the project.
    [echo]
    [echo]    For more details, see https://github.com/vaadin/vaadin-usage-statistics
    [echo]
    [echo] added 101 packages from 910 contributors and audited 101 packages in 3.264s
    [echo]
    [echo] 2 packages are looking for funding
    [echo]   run `npm fund` for details
    [echo]
    [echo] found 0 vulnerabilities

prepare:
    [copy] Copying 11 files to /Users/windauer/workspace/tei-publisher-app/resources/scripts
    [copy] Copying 1 file to /Users/windauer/workspace/tei-publisher-app/resources/css/leaflet
    [copy] Copying 5 files to /Users/windauer/workspace/tei-publisher-app/resources/images/leaflet
    [copy] Copying 40 files to /Users/windauer/workspace/tei-publisher-app/resources/images/openseadragon
    [copy] Copying 1 file to /Users/windauer/workspace/tei-publisher-app/resources/lib
    [copy] Copying 8 files to /Users/windauer/workspace/tei-publisher-app/resources/css/prismjs
    [copy] Copying 24 files to /Users/windauer/workspace/tei-publisher-app/resources/i18n/common

xar:
     [zip] Building zip: /Users/windauer/workspace/tei-publisher-app/build/tei-publisher-6.0.0.xar

xar-local:

BUILD SUCCESSFUL
Total time: 6 seconds
```

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: eXist-db from source**

- Prerequisites
  - Git
  - Apache Maven
- Building eXist-db from Source
  - `git clone https://github.com/eXist-db/exist.git`
  - `cd exist`
  - `git checkout master`
  - `mvn -DskipTests package`
  - creates various artifacts
    - compiled eXist-db version in `exist-distribution/target`
    - eXist-db installer in `exist-installer/target`
- More Build Options

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: eXist-db from source**

- Content of `$EXIST_HOME/exist-distribution/target`
  - `eXist-db-5.3.0-SNAPSHOT.dmg` - [Apple Disk Image](#)
  - `exist-distribution-5.3.0-SNAPSHOT-dir` - unpacked eXist-db
  - `exist-distribution-5.3.0-SNAPSHOT-unix.tar.bz2` - Unix / Linux Package
  - `exist-distribution-5.3.0-SNAPSHOT-win.zip` - Zipped for Windows
  - `exist-distribution-5.3.0-SNAPSHOT.app` - MacOS Application
- further resources in the exist-distribution folder that can be ignored: `archive-tmp,`
  `dependency-maven-plugin-markers, expath-pkgs`

```
→  eXistdb-dev git:(develop) ls -l exist-distribution/target
total 1073872
-rw-r--r--@  1 windauer  staff  177565351 Sep  5 15:42 eXist-db-5.3.0-SNAPSHOT.dmg
drwxr-xr-x  10 windauer  staff        320 Sep  5 15:41 exist-distribution-5.3.0-SNAPSHOT-dir
-rw-r--r--   1 windauer  staff  175797201 Sep  5 15:42 exist-distribution-5.3.0-SNAPSHOT-unix.tar.bz2
-rw-r--r--   1 windauer  staff  176043100 Sep  5 15:42 exist-distribution-5.3.0-SNAPSHOT-win.zip
drwxr-xr-x   3 windauer  staff         96 Sep  5 15:41 exist-distribution-5.3.0-SNAPSHOT.app
```

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: eXist-db Branches**

- Main eXist-db Git Branches

  - **develop** - the default Github branch, contains bug fixes and features of the next release

  - **master** - Releases branch

```
commit 3030a5725d295640aacf487b68d6a60f32119b67 (HEAD -> develop, upstream/develop, upstream/HEAD, origin/develop)
Merge: 5a0bf95870 ffa2003be9
Author: Adam Retter <adam.retter@googlemail.com>
Date:   Wed Sep 2 12:44:05 2020 +0200

    Merge pull request #3517 from eXist-db/dependabot/maven/commons-codec-commons-codec-1.15

    Bump commons-codec from 1.14 to 1.15
```

```
commit c58d04ec45de50e7738489dee072fcc863dc8b1b (HEAD -> master, tag: eXist-5.2.0, upstream/master, origin/master)
Author: Adam Retter <adam.retter@googlemail.com>
Date:   Thu Jan 23 13:36:09 2020 +0100

    [maven-release-plugin] prepare release eXist-5.2.0
```

Common eXist-db / TEI-Publisher Deployment Scenarios - **Developers: eXist-db Forks**

- Bug fixes and new features are developed in forks

- Example: Lucene-Facets

  - add another git remote in your eXist-db clone

    - ```git remote add wolfgang git@github.com:wolfgangmm/exist.git```

  - ```git fetch --all``` to fetch all available branches

  - git checkout -b <name> <remote>/<branch>

    - ```git checkout -b lucene-facets wolfgang/feature/lucene-facets```

  - Build and run eXist-db and described in previous slides

⑂ wolfgangmm / exist

forked from eXist-db/exist

```
→ exist git:(develop) git checkout -b lucene-facets wolfgang/feature/lucene-facets
Updating files: 100% (3011/3011), done.
Branch 'lucene-facets' set up to track remote branch 'feature/lucene-facets' from 'wolfgang'.
Switched to a new branch 'lucene-facets'
→ exist git:(lucene-facets) git branch -vv
  develop          3030a5725d [origin/develop] Merge pull request #3517 from eXist-db/dependabot/maven/commons-cod
* lucene-facets   607cb7001f [wolfgang/feature/lucene-facets] Register field + module elems & attrs in xconf xsd
```

# eXist-db / TEI Publisher for Sys Admins
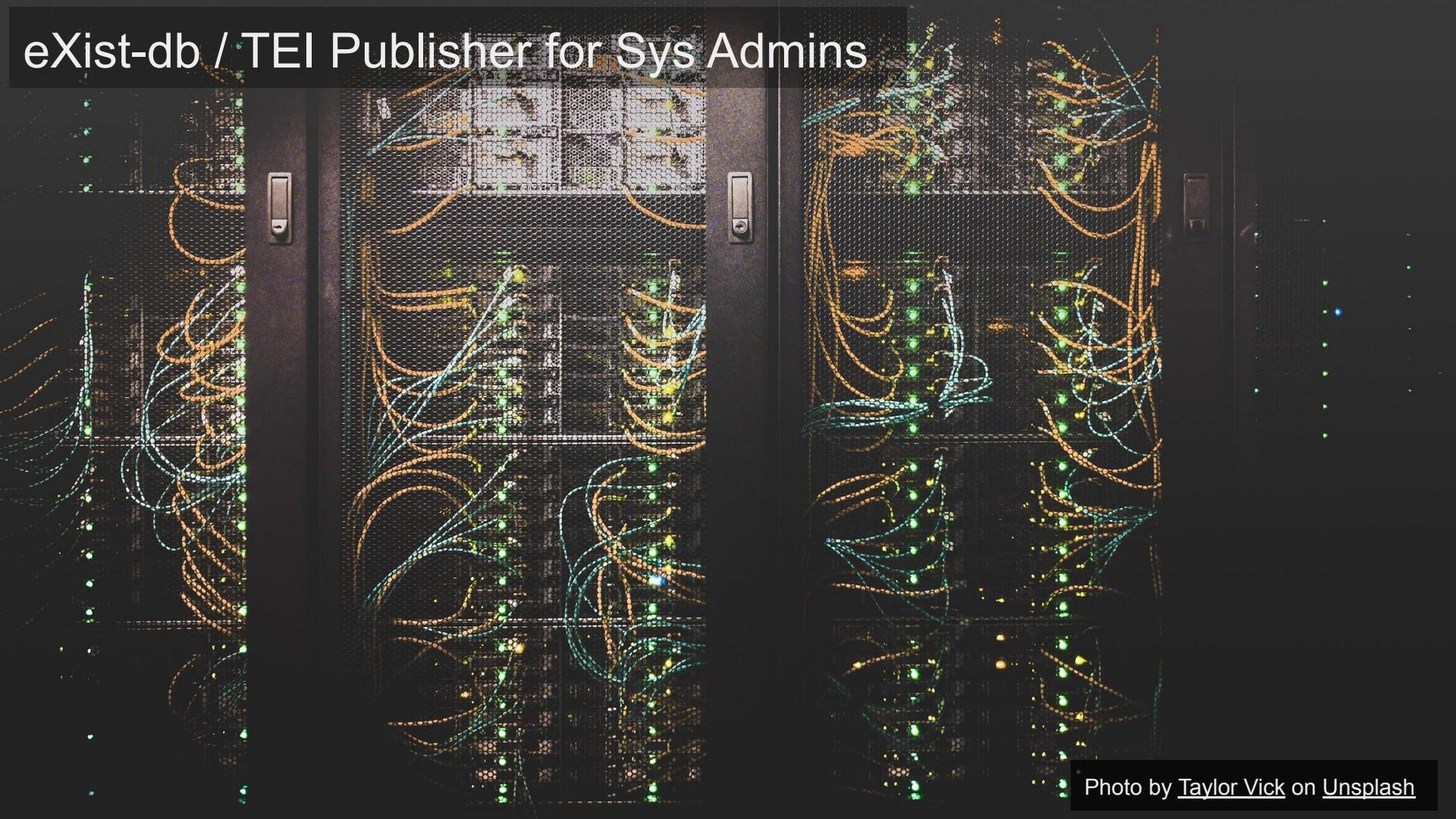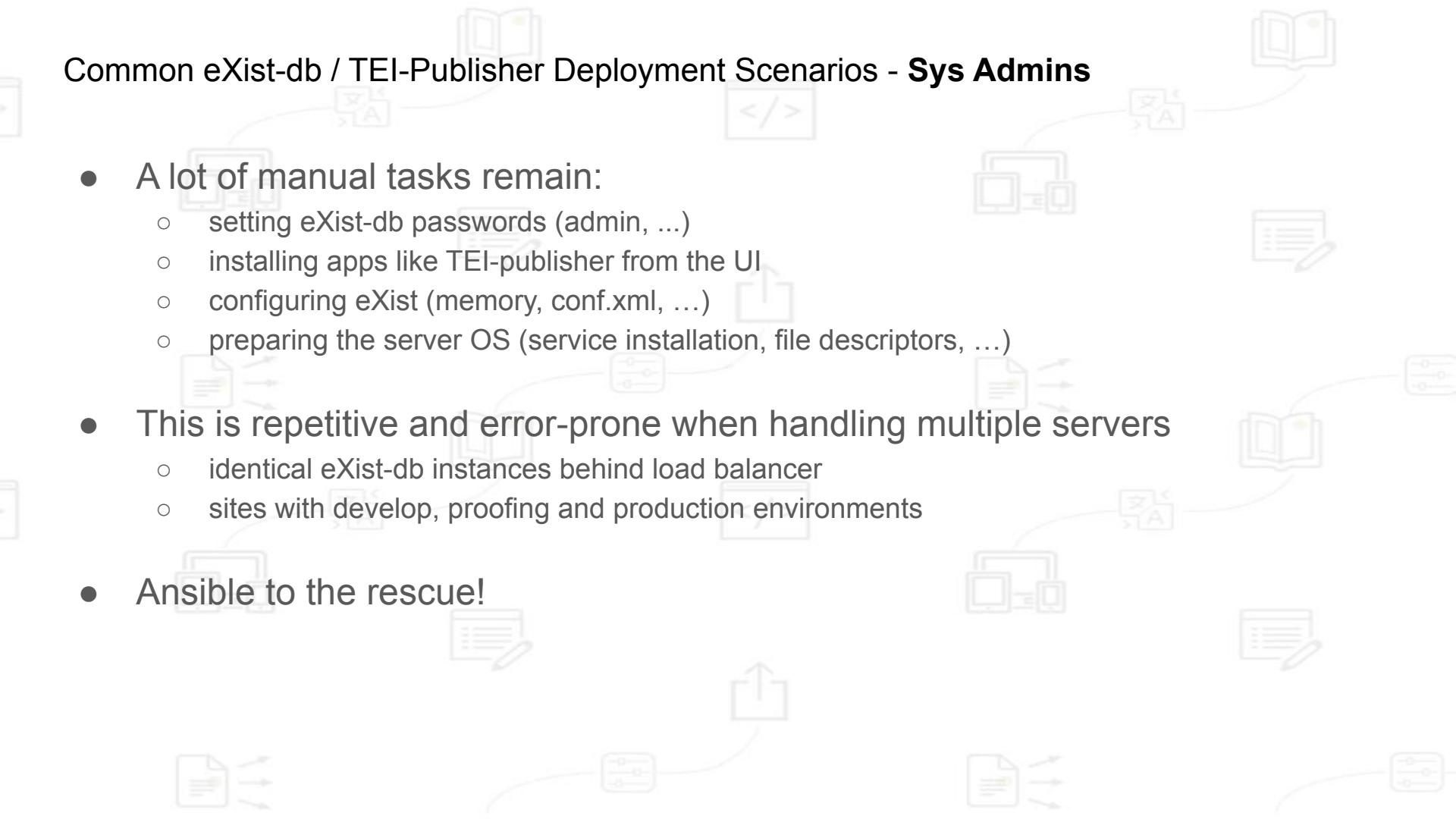
Common eXist-db / TEI-Publisher Deployment Scenarios - **Sys Admins**

- A lot of manual tasks remain:
    - setting eXist-db passwords (admin, ...)
    - installing apps like TEI-publisher from the UI
    - configuring eXist (memory, conf.xml, …)
    - preparing the server OS (service installation, file descriptors, …)

- This is repetitive and error-prone when handling multiple servers
    - identical eXist-db instances behind load balancer
    - sites with develop, proofing and production environments

- Ansible to the rescue!

Common eXist-db / TEI-Publisher Deployment Scenarios - **Ansible**

- Tool for config management, application deployment and task automation
  - Declaration of desired server state
  - Automated procedures to bring the server into desired state
    - tasks
    - playbooks
    - roles (for similar, parameterized instances of "things" like eXist-db)
  - existdb-ansible-role

- Live session: from scratch to installed TEI-publisher: 1 command, 5 minutes
  - bare Ubuntu 20.04 LTS given to us
  - for Ansible we need
    - SSH access
    - sudo rights to become root
    - python installed

Common eXist-db / TEI-Publisher Deployment Scenarios - **Live Session Recap**

- We ran an Ansible playbook `mkserver` against host `existtest` which
  - prepared the server including installation of some packages and our admin user
  - optionally set up firewall, SSH protection and TLS certificates
  - installed and configured an eXist-db instance
    - set up system (packages, users, utils, misc settings)
    - installed eXist from archive or source code
    - configured eXist-db
    - started eXist-db and run automatic deployment of distribution and custom packages
    - hardened eXist-db (passwords)
  - set up monitoring agents for this host and instance
  - set up an nginx frontend proxy for this eXist-db instance

Common eXist-db / TEI-Publisher Deployment Scenarios - **Ansible Takeaways**

- Ansible "idempotency"
  - (re-) running Ansible always creates the same server state
  - detect modifications or config discrepancies between hosts

- Ansible "vault" as encrypted password store
  - we use various passwords, keys and privacy tokens in Ansible tasks
  - these MUST NOT be stored in cleartext in config repositories
  - Ansible has builtin "vault"mechanism: AES256 encryption for private data

Common eXist-db / TEI-Publisher Deployment Scenarios - **Ansible Takeaways**

- We did not cover
    - multiple eXist-db installations on the same host
    - installation of eXist-db related software
        - ActiveMQ for replication
        - Cantaloupe IIIF server
        - Jenkins CI server
        - monitoring and performance testing tools
    - performance tuning

- Questions?

Common eXist-db / TEI-Publisher Deployment Scenarios - **Resources**

- eXist-db
  - [Basic Installation](#)
  - [Advanced Installation Methods](#)
  - [Source Code](#), [Releases](#), [Mailing List](#), [Slack Chat](#)
- TEI Publisher
  - [README](#) with Installation Instructions and [Documentation](#),
  - [Workshop](#) by Wolfgang Meier covering installation and basic usage
  - [Mailing List](#) and [Slack Chat](#) by [E-Editones](#)
- Ansible
  - [eXist-db Ansible Role](#)

- **Contact us:**
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