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# **Open-Xchange Server Backend Porting Guide**

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## Open-Xchange Server: Backend Porting Guide

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## Chapter 1. Open-Xchange Server v6.22 Overview

The following information help you getting started with the backend migration to version 6.22

## 1.1. Update and Installation Open-Xchange Server v6.22

The new Open-Xchange Server v6.22 is the first step on the way to the next generation Open-Xchange App Suite. The update provides a new and improved Open-Xchange Server backend with enhancements for both generations.

Especially on the backend, Open-Xchange implemented various changes and improvements like a new and clear structure for the configuration files and packages, an improved exception framework, unified OSGi, etc.

On this page you can find an overview of the differences between the Open-Xchange 6.20.x and the Open-Xchange v.6.22 backend. There are new requirements, update guides, and multiple other changes.

**Please read the different articles and manuals regarding the update.** We encourage administrators of Open-Xchange 6 v6.20.x to install this update. The further feature development will be based on v6.22

**Custom Packages: Unfortunately custom packages will not be ready with 6.22 release. If you have custom packages provided by Open-Xchange, please discuss with your Open-Xchange contact when these packages will be available for 6.22.**

**Custom Plugins: If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles please check the information about necessary code and packaging changes below.**

Furthermore, Open-Xchange provides the complete v6.22 materials as a document which is available here: [Software Repository](http://software.open-xchange.com/OX6/6.22/doc). [<http://software.open-xchange.com/OX6/6.22/doc>]

## 1.2. Supported Update Path

Old version	New version	Update supported
v6.20.7	v6.22.0	yes
v6.20.x	v6.22.x	no (*)
v6.18.x	v6.22.x	no
Older Versions	v6.22.x	no

(\*) If you do not update to 6.20.7, see [3: Updating Open-Xchange Server packages \(page 21\)](#), before you start the 6.22 update, it is possible that some important scripts have not run on your system(s) and configuration options might be missing. If you have already updated to 6.22 from an v6.20 version earlier than 6.20.7 and you are experiencing problems, please contact Open-Xchange Support.

## 1.3. Rollback

Please note that after updating to 6.22 there is no way to get back to an earlier version of Open-Xchange. Please make sure that you have a full backup of your Open-Xchange installation(s).

## 1.4. Cluster Setups

If you have several Open-Xchange systems in a cluster setup, you need to shut down all of them before attempting the upgrade. Parallel operation of v6.20 and v6.22 nodes in one cluster may lead to unforeseen errors and is not supported even for a short time.

## 1.5. Supported Server / Client Combinations

### 1.5.1. Client Support

Open-Xchange GUI / Clients	Open-Xchange Supported Server	
v6.22.x	v6.22.x	yes
v6.20.x	v6.22.x	no
v6.18.x	v6.22.x	no
Older versions of Open-Xchange GUI	v6.22.x	no
OXtender 2 for Microsoft Outlook	v6.22.x	yes
OXtender for Business Mobility	v6.22.x	yes
Open-Xchange Web Interface v1.2	v6.22.x	yes
OXtender for cPanel	v6.22.x	yes
OXtender 1 for Microsoft Outlook		no
OXtender for SyncML		no
Parallels Operations Automation		no (supported with upcoming 6.22.1, Q4 2012)

### 1.5.2. Open-Xchange Database Support (Parallel Setup)

Database	New Version	Supported
Open-Xchange Database	v6.22.x	yes (after running v6.22 update tasks)
Open-Xchange Database	v6.20.7	yes (after running v6.22 update tasks)
Open-Xchange Database	v6.20.x	yes (after running v6.22 update tasks)
Open-Xchange Database	v6.18.x	no
Open-Xchange Database	Older Versions	no

## 1.6. Improvements Overview of 6.20.x to 6.22 Backend

Open-Xchange provides an overview page regarding the main improvements of the new v6.22. Please have a look at [2: Improvements Overview of 6.20.x to 6.22 Backend \(page 17\)](#)

## 1.7. Configuration Changes

### 1.7.1. Configuration file location

In v6.22 we simplified the directory tree containing all configuration files to not longer include the subdirectories admindaemon, common and groupware.

For more details see the packaging changes overview page 5: [Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#).

**If you have any configuration management or templating system for automatic deployment of OX instances in place, these changes mean that you will have to adapt that system to the new configuration file tree.**

### 1.7.2. Other configuration changes

- push.properties has been renamed to push-udp.properties
- the configuration of theme packages has changed. This is also described on the packaging changes overview page 5: [Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#).



## 1.8. RMI changes

With the consolidation of the admin process and the groupware process in 6.22 we also consolidated the former splitted RMI libraries. So the files `/opt/open-xchange/lib/ox_admin_rmiclient.jar` and `/opt/open-xchange/lib/ox_admin_hosting_rmiclient.jar` were combined into the file `/opt/open-xchange/lib/com.openexchange.admin.rmi.jar`. This means that you have to adjust your software to use the new library if you use the RMI interface.

## 1.9. Packages changes

With v6.22 we have significantly reduced the number of packages necessary to install Open-Xchange Server. We encourage administrators of Open-Xchange v6.20.x to read the article [4: \*New Packages Structure with 6.22\* \(page 27\)](#) before updating to Open-Xchange v6.22. This article describes in detail which new packages correspond to which old ones.

The changes in the package structure should be completely transparent to the system administrator and are handled by standard package management tools during the upgrade.

**If you have any custom system for automatic installation and deployment of OX instances in place, it is very likely that you need to adapt your system to the new package structure.**

## 1.10. Dropped Packages

The package `open-xchange-upsell-generic` has been dropped for this release. An update will replace the package with `open-xchange-upsell-multiple` which offers the same features. The configuration needs to be converted though:

In `upsell.properties`:

```
com.openexchange.upsell.multiple.method=direct  
com.openexchange.upsell.multiple.method.static.shop_redir_url=URL_TO_STATIC_HTML_DOCUMENT
```

The URL must point to an HTML document which holds the content previously defined in `upsell.properties'` `modules/com.openexchange.upsell.generic/html`.

## 1.11. Default Languages

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update. Please refer to [3: Updating Open-Xchange Server packages \(page 21\)](#) for update details for your distribution.

## 1.12. No Separate Admin Daemon

Admin functionality will now be a part of the Groupware Process as optional bundle. This means the former, as root running, Admin daemon will no longer exist.

Admin functionality is only available when the corresponding packages are installed.

As a result of this change, there is now only one startup script which starts the Open-Xchange Server. The new unified process is called open-xchange.

Following are potential pitfalls :

- ox-admin-scriptconf.sh is merged to /opt/open-xchange/etc/ox-scriptconf.sh, check NRFILES and Memory setting to fit the environment.
- If /etc/security/limits.conf does set limits for the open-xchange user, those need to be adopted.
- administrative tasks are now executed as user open-xchange (for example the filestore mount is no longer accessed as root).
- The new, unified process is not able to open tcp sockets below 1024.
- Separate monitoring for the admin process is no longer needed.
- admindaemon used to limit its network usage to IPv4 which is not the case anymore. This means that proper network setup is needed to avoid DNS and routing issues caused by dual stack usage.

## 1.13. Changes to programming APIs which might break custom plugins to the OX Server

Please see [2: Improvements Overview of 6.20.x to 6.22 Backend \(page 17\)](#) for changes to the v6.22 core.

If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the pages [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#) and [6: Code changes necessary for Open-Xchange Server v6.22 \(page 35\)](#) for changes you might need to do.

## 1.14. Installation and Update Guide for Open-Xchange v6.22

### 1.14.1. Quick Installation Guide (supported packages)

To download and install the software, please use the following Installation Guides.

7: [Open-Xchange Server 6 \(v6.22\) on Debian GNU/Linux 6.0 \(page 39\)](#) Download and Installation Guide for Debian GNU/Linux 6.0 (Squeeze)

8: [Open-Xchange Server 6 \(v6.22\) on SuSE Linux Enterprise Server 11 \(page 53\)](#) Download and Installation Guide for SUSE Linux Enterprise Server 11

9: [Open-Xchange Server 6 \(v6.22\) on RedHat Enterprise Linux 5 \(page 67\)](#) Download and Installation Guide for RedHat Enterprise Linux 5

10: [Open-Xchange Server 6 \(v6.22\) on RedHat Enterprise Linux 6 \(page 83\)](#) Download and Installation Guide for RedHat Enterprise Linux 6

11: [Open-Xchange Server 6 \(v6.22\) on CentOS5 Linux \(page 99\)](#) Download and Installation Guide for CentOS 5

12: [Open-Xchange Server 6 \(v6.22\) on CentOS6 Linux \(page 113\)](#) Download and Installation Guide for CentOS 6

### 1.14.2. Update Guide (supported packages)

To update the software to Open-Xchange v6.22, please use the following Update Guides. **There you can also find information on how to start the groupware with / without admin part, on known issues and manual steps required.**

13: [Update of Open-Xchange Server v6.20 to v6.22 on Debian GNU/Linux 6.0 \(page 127\)](#) Update Guide from 6.20 to 6.22 for Debian GNU/Linux 6.0 (Squeeze)

14: [Update of Open-Xchange Server v6.20 to v6.22 on SLES11 \(page 135\)](#) Update Guide from 6.20 to 6.22 for SUSE Linux Enterprise Server 11

15: [Update of Open-Xchange Server v6.20 to v6.22 on RHEL 5 \(page 145\)](#) Update Guide from 6.20 to 6.22 for RedHat Enterprise Linux 5

16: [Update of Open-Xchange Server v6.20 to v6.22 on RHEL 6 \(page 155\)](#) Update Guide from 6.20 to 6.22 for RedHat Enterprise Linux 6

17: [Update of Open-Xchange Server v6.20 to v6.22 on CentOS 5 \(page 165\)](#) Update Guide from 6.20 to 6.22 for CentOS 5

18: [Update of Open-Xchange Server v6.20 to v6.22 on CentOS 6 \(page 175\)](#) Update Guide from 6.20 to 6.22 for CentOS 6

## 1.15. Migration from OLOX1 to OLOX2

### 1.15.1. Migration Path

Open-Xchange will discontinue the support for OXtender 1 for Microsoft Outlook with the new release v6.22. Additionally, at the new backend, the Open-Xchange WebDAV XML API will no longer be officially supported. Open-Xchange will provide an upgrade path to the OXtender 2 for Microsoft Outlook.

If the user installs the upcoming OLOX1 6.18.19 we will provide the following information to the user when trying to sync against the OX server  $\geq 6.22$ . Open-Xchange provides via a pop-up window at the product the following migration possibilities:

- User can use the OXUpdater to install the new version
- User can directly start installing by clicking on a provided link

If the user closes the pop-up window, the OLOX 1 will be deactivated for the current session and profile. After installing OLOX2 and starting Outlook the user has to select the new OLOX2 profile and the migration is done.

A complete migration path is documented at [http://oxpedia.org/wiki/index.php?title=OLOX\\_Migration](http://oxpedia.org/wiki/index.php?title=OLOX_Migration)

### 1.15.2. Known Issues

- After the start of the new OLOX 2 profile, contacts, appointments and tasks will be synchronized
- Per default server configuration, mails older as one year won't be synchronized
- Notice and Journal information won't be synchronized. It is possible to export and import the information via the Outlook functionalities



## Chapter 2. Improvements Overview of 6.20.x to 6.22 Backend

## 2.1. New Exception Framework

Exception handling is the process of responding to the occurrence, during computation, of exceptions – anomalous or exceptional situations requiring special processing – often changing the normal flow of program execution.

With Open-Xchange Server v6.22 the exception handling has been heavily simplified. There is only a single class named `OXException`. As prerequisite for remodeling the exception handling, existing error code notations – e.g. APP-0015 – and uniquely identifying exception ID – `exceptionID=-1272648052-227787` – need to be maintained. Newly introduced classes `OXExceptionCode` and `OXExceptionFactory` now replace formerly used classes `Code`, `ErrorMessage`, and `ExceptionFactory` respectively.

Moreover the new exception framework distinguishes between log and display messages. The log messages technically describe the occurred error with optional debug information (e.g. user, context, ...). Whereby the display message is intended as a short, understandable and translatable message for the Open-Xchange user. The display messages are provided as public constants by a simple class implementing `com.openexchange.i18n.LocalizableStrings` interface.

These simplifications to exception handling imply severe impact on existing OX6-compliant source code that need special developer's intention:

- There's no more the need to create own exception class, but only creating an enum that implements `OXExceptionCode`.
- Special handling through catch-clauses: Since there is only one exception class, there is no possibility for flow control through catch-clauses anymore. To look for a special error, the method `OXExceptionCode.equals(OXException)` is suggested for being used.
- Special handling by error code numbers: Only comparing by code number may ignore equality of the associated code prefix. Using `OXExceptionCode.equals(OXException)` is recommended in this case, too.
- Moreover the developer should be sure that the right category is selected for a certain error code. The category decides if exception is displayed to user or logged with certain log levels.

## 2.2. Unified OSGi

For developing OSGi bundles for Open-Xchange Server the helper class `HousekeepingActivator` is recommended. This subclass of OSGi's `BundleActivator` interface offers many utility methods to register new services or to track needed ones.

Both, `ServiceRegistrations` and `ServiceTrackers`, are internally stored and automatically release if the `stop()` method is invoked. Thus it is ensured that any opened OSGi resource is orderly closed on bundle stop.

## 2.3. Central Dispatcher

The Open-Xchange Server generation v6.20.x and upward implements a HTTP based protocol with JSON formatted payloads to allow clients, mostly our own HTML/CSS/Javascript frontend, access to its functionality. Historically every module was implemented in a separate servlet making it hard to address overarching topics and leading to a lot of code duplication. In v6.22 this has been streamlined by the introduction of a new framework for implementing HTTP API requests. While regular servlets will continue to function it is strongly recommended to migrate backend extensions that are accessed by HTTP API clients to the new framework to benefit from more generalized features (e.g. preview generation for file data, resizing and rotation of pictures, formatting options for output etc.)

To do so, you need to provide an implementation of the `AJAXActionFactory` interface which delivers an `AJAXActionService` implementation for every `?action=someAction` type parameter in the HTTP API for your module. The `AJAXActionFactory` can be registered in the OSGi container by having your `Activator` subclass `ModuleActivator` and using its `#registerModule` method.

The meat of your HTTP API implementation will usually reside in the `AJAXActionService` implementations. They are expected to return an `AJAXRequestResult` for a given `AJAXRequestData` (which typically wraps an HTTP request, but could just as well emanate from a „multiple“ batch request or another interface). The `AJAXRequestData` provides access to the actions parameters and body data, already pre-parsed as JSON data, if that was possible.

`AJAXRequestResults` consist of the payload and the format that payload is provided in by the `AJAXActionService` implementation. This is used to automatically turn a given result type (say „contact“, which would be one or many contact objects) into, say a „vcard“, depending on what the client requested as desired format. Typically the response will be in JSON format, though.

Known types you can stick into an `AJAXRequestResponse` are:

- „string“ which will be sent to the client as is
- „json“, which will be wrapped in a `{data: <your payload>}` json structure as per HTTP API conventions
- „file“, for which you will need to provide an `IFileHolder` (with lot's of useful implementations already ready to use) implementation to have file data delivered to the client

For simple use cases that is enough. If you work with highly structured data (like OXs main data types contacts, appointments, tasks, files, mails) and introduce your own complex object type ( for the sake of argument say: an `Order` in a logistics application), it'd be best to introduce your own format („order“, or „ox:order“ with your own prefix instead of „ox“. Just pick one) and (at minimum) an implementation of `ResultConverter` that knows how to turn whatever object you supply as an „order“ into „json“. That way you can later easily add different output options for different clients (e.g. „csv“ to print a list of orders in a spreadsheet friendly csv file). OSGi: Open Services Gateway initiative HTTP: HyperText Transfer Protocol JSON: JavaScript Object Notation

## Chapter 3. Updating Open-Xchange Server packages

This chapter describes how to update Open-Xchange Server packages from one service pack to another.

### 3.1. How to get updates?

Open-Xchange Server 6 updates can be accessed by customers with a valid license for

- OX SE
- OX HE

Have a look at the article: [How to create an OXAccount and unlock Keys within the License Database](http://sdb.open-xchange.com/node/65) [http://sdb.open-xchange.com/node/65] for more information about how to create an account in the LDB [https://ldb.open-xchange.com/licensePortal/index.do].

In addition, you need to configure the [OXReportClient](http://oxpedia.org/wiki/index.php?title=OXReportClient) [http://oxpedia.org/wiki/index.php?title=OXReportClient].

## 3.2. Installing Updates

A new service pack usually introduces new packages and requires configuration changes. To get all required new packages and configuration changes, the following **must** be done when installing updates.

### 3.2.1. On Debian based distributions

To ensure, that all required configuration file changes will be applied to the Open-Xchange packages, you need to leave the original files as they are and the postinst mechanism will automatically apply all new configuration options to the existing configuration files. Existing configuration parameters will not be automatically updated and need to be reviewed manually.

You can do that in answering all the questions like e.g. the following with the default answer "N":

```
Configuration file `/opt/open-xchange/etc/groupware/system.properties'
==> Modified (by you or by a script) since installation.
==> Package distributor has shipped an updated version.
What would you like to do about it ? Your options are:
  Y or I : install the package maintainer's version
  N or O : keep your currently-installed version
  D      : show the differences between the versions
  Z      : background this process to examine the situation
The default action is to keep your current version.
*** system.properties (Y/I/N/O/D/Z) [default=N] ?
```

Note: this will not replace the existing configuration files. Depending on the new Open-Xchange version you're installing it is mandatory that configuration options shipped with the new packages are taken over to the configuration. This can be done by using diff on the currently installed configuration and the updated configuration files which are copied to the configuration directory and have the file extension .dPKG-dist.

If you don't want to do that every time, you could tell apt-get to answer this question for you, just cut and paste the following command in a shell as root user:

```
cat<<EOF > /etc/apt/apt.conf.d/01oxupdater
DPkg::options {"--force-confold"};
EOF
```

Note: This change will apply to ALL packages you are going to update in the future, not only Open-Xchange packages.

Add the following entry to /etc/apt/sources.list

```
deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/updates/DebianLenny /
```

Then run:

```
$ apt-get update
```

```
$ apt-get dist-upgrade
```

If you want to see, what apt-get is going to do without actually doing it, you can run:

```
$ apt-get dist-upgrade -s
```

After the new packages are installed, the groupware and admin process needs a restart:

```
$ /etc/init.d/open-xchange-groupware restart
$ /etc/init.d/open-xchange-admin restart
```

**NOTE: Please take care, that you do not restart Open-Xchange during the process where it updates its database. A database update can happen after installing minor or major updates. As soon as the first user tries to log in to the system or if any provisioning action is done, this update starts.**

## 3.2.2. On RPM based distributions

### 3.2.2.1. RHEL6/CentOS6

Add the following entry to `/etc/yum.repos.d/ox.repo`:

```
[ox-updates]
name=Open-Xchange Updates
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/updates/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

and run:

```
$ yum update
```

```
$ yum upgrade
```

After the new packages are installed, the groupware and admin process needs a restart:

```
$ /etc/init.d/open-xchange-groupware restart
$ /etc/init.d/open-xchange-admin restart
```

**NOTE: Please take care, that you do not restart Open-Xchange during the process where it updates its database. A database update can happen after installing minor or major updates. As soon as the first user tries to log in to the system or if any provisioning action is done, this update starts.**

### 3.2.2.2. RHEL5/CentOS5

Add the following entry to `/etc/yum.repos.d/ox.repo`:

```
[ox-updates]
name=Open-Xchange Updates
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/updates/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

and run:

```
$ yum update
```



```
$ yum upgrade
```

After the new packages are installed, the groupware and admin process needs a restart:

```
$ /etc/init.d/open-xchange-groupware restart  
$ /etc/init.d/open-xchange-admin restart
```

**NOTE: Please take care, that you do not restart Open-Xchange during the process where it updates its database. A database update can happen after installing minor or major updates. As soon as the first user tries to log in to the system or if any provisioning action is done, this update starts.**

### 3.2.2.3. SLES11

Add the updates repository to the repository list:

```
$ zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/updates/SLES11/ OXUPDATES  
and run:
```

```
$ zypper dup -r OXUPDATES
```

You might need to run:

```
$ zypper ref
```

to update the repository metadata before running zypper up.

After the new packages are installed, the groupware and admin process needs a restart:

```
$ /etc/init.d/open-xchange-groupware restart  
$ /etc/init.d/open-xchange-admin restart
```

**NOTE: Please take care, that you do not restart Open-Xchange during the process where it updates its database. A database update can happen after installing minor or major updates. As soon as the first user tries to log in to the system or if any provisioning action is done, this update starts.**



## Chapter 4. New Packages Structure with 6.22

## 4.1. Package name changes with 6.22

Old package(s)	New package
open-xchange-common	open-xchange-osgi
open-xchange-activation	
open-xchange-cache	open-xchange-core
open-xchange-calendar	
open-xchange-charset	
open-xchange-common	
open-xchange-config-cascade	
open-xchange-config-cascade-context	
open-xchange-config-cascade-user	
open-xchange-configread	
open-xchange-contactcollector	
open-xchange-conversion	
open-xchange-conversion-engine	
open-xchange-conversion-servlet	
open-xchange-crypto	
open-xchange-data-conversion-ical4j	
open-xchange-dataretention	
open-xchange-genconf	
open-xchange-genconf-mysql	
open-xchange-file-storage	
open-xchange-file-storage-composition	
open-xchange-file-storage-config	
open-xchange-file-storage-generic	
open-xchange-file-storage-infostore	
open-xchange-file-storage-json	
open-xchange-folder-json	
open-xchange-frontend-uwa	
open-xchange-frontend-uwa-json	
open-xchange-global	
open-xchange-html	
open-xchange-i18n	
open-xchange-jcharset	

Old package(s)	New package
open-xchange-logging	
open-xchange-management	
open-xchange-modules-json	
open-xchange-modules-model	
open-xchange-modules-storage	
open-xchange-monitoring	
open-xchange-proxy	
open-xchange-proxy-servlet	
open-xchange-publish-basic	
open-xchange-publish-infostore-online	
open-xchange-push	
open-xchange-push-udp	
open-xchange-secret	
open-xchange-secret-recovery	
open-xchange-secret-recovery-json	
open-xchange-secret-recovery-mail	
open-xchange-server	
open-xchange-sessiond	
open-xchange-settings-extensions	
open-xchange-sql	
open-xchange-templating	
open-xchange-templating-base	
open-xchange-threadpool	
open-xchange-tx	
open-xchange-user-json	
open-xchange-xml	
open-xchange-messaging-facebook	open-xchange-messaging
open-xchange-messaging-generic	
open-xchange-messaging-json	
open-xchange-messaging-rss	
open-xchange-messaging	
open-xchange-twitter	
open-xchange-publish-json	open-xchange-oauth
open-xchange-publish-microformats	

Old package(s)	New package
open-xchange-templating-json	
open-xchange-http-deferrer	open-xchange-oauth
open-xchange-oauth-facebook	
open-xchange-oauth-json	
open-xchange-oauth-linkedin	
open-xchange-oauth-msn	
open-xchange-oauth-twitter	
open-xchange-oauth-yahoo	
open-xchange-unifiedinbox	open-xchange-unifiedmail
open-xchange-admin*	open-xchange-admin
open-xchange-admin-plugin-hosting*	
open-xchange-admin-plugin-reseller	open-xchange-admin-reseller
open-xchange-admin-plugin-usermove	open-xchange-admin-user-copy
open-xchange-admin-plugin-contextrestore	open-xchange-admin-contextrestore
open-xchange-admin-plugin-autocontextid	open-xchange-admin-autocontextid
open-xchange-http-deferrer	open-xchange-dav
open-xchange-caldav	
open-xchange-carddav	
open-xchange-webdav-directory	
open-xchange-webdav-acl	
open-xchange-upsell-generic	open-xchange-upsell-multiple (-gui)

## Chapter 5. Packaging changes in Open-Xchange Server v6.22

This page describes changes to our configuration directory layout. This is important if you have custom plugins for your Open-Xchange Server systems which you are maintaining and packaging yourself as RPM or Debian packages.

If Open-Xchange has built and is maintaining custom packages for you, please check with your contact person at Open-Xchange when updated packages will be available.

## 5.1. Configuration file location

In v6.22 we simplified the directory tree containing all configuration files to not longer include the subdirectories admindaemon, common and groupware.

If one of your custom packages contains a configuration file which needs to be read in by Open-Xchange Server, you need to install this file now in the new location. This is typically the case for UI plugins which add some server configuration. In v6.20 and earlier, these plugins used to put their configuration files below:

```
/opt/open-xchange/etc/groupware/settings
```

Now these files need to be put in:

```
/opt/open-xchange/etc/settings
```

If you are accessing configuration files from your own Java code by absolute path, you are of course free to move these files to our new directory layout or just leave them where they are.



## 5.2. Theme packages

In v6.20 and earlier, custom themes were registered in the file

```
/opt/open-xchange/etc/groupware/settings/themes.properties
```

by adding a line following this format:

```
modules/themes/customtheme=Custom Theme
```

In v6.22 and later, every theme installs its own configuration file:

```
/opt/open-xchange/etc/settings/customtheme.properties
```

The format of the this file is unchanged, so it would still contain the one line documented above.

If you have made changes to the file themes.properties in 6.20.7 or earlier, the changed file will be moved to the new location and you configuration will continue to work.



## Chapter 6. Code changes necessary for Open-Xchange Server v6.22

## 6.1. Backend Improvements

Please see the page [2: \*Improvements Overview of 6.20.x to 6.22 Backend\* \(page 17\)](#) for an overview of improvements to the Open-Xchange architecture.

Make sure to check the section [2: \*Improvements Overview of 6.20.x to 6.22 Backend\* \(page 17\)](#) about the new exception framework, many custom bundles use this and need to be changed to work with v6.22 and later.

## 6.2. Authentication plugins

Custom authentication bundles must now implement an additional method to handle Autologin (if desired).

For this, just add

```
@Override
public Authenticated handleAutoLoginInfo(LoginInfo loginInfo) throws OXException {
    throw LoginExceptionCodes.NOT_SUPPORTED.create(MyAuthentication.class.getName());
}
```

In addition, you need to return an Authenticated in handleLoginInfo(). This can be done by adding the implementation class as inner class like this:

```
[...]
private static final class AuthenticatedImpl implements Authenticated {

    private final String[] splitted;

    protected AuthenticatedImpl(String[] splitted) {
        this.splitted = splitted;
    }

    @Override
    public String getContextInfo() {
        return splitted[0];
    }

    @Override
    public String getUserInfo() {
        return splitted[1];
    }
}
[...]
```



## Chapter 7. Open-Xchange Server 6 (v6.22) on Debian GNU/Linux 6.0

This chapter will guide you through the installation of the Open-Xchange server, it describes the basic configuration and software requirements. As it is intended as a quick walk-through it assumes an existing installation of the operating system and requires average system administration skills. More, this guide will show you how to setup a basic installation with none of the typically used distributed environment settings. The target of this guide is:

- To setup a single server installation
- To setup a single Open-Xchange instance, no cluster
- To setup a database for a single database service, no replication
- To provide a basic configuration setup, no mailserver configuration

**Important: This installation guide will only work for v6.22. If you want to install v6.20 please use the installation guide for earlier versions.**

## 7.1. Requirements

- Plain installed Debian GNU/Linux 6.0, no graphical tools required
- A supported Java Virtual Machine ([learn more \[http://oxpedia.org/wiki/index.php?title=SupportedJavaRuntimes\]](http://oxpedia.org/wiki/index.php?title=SupportedJavaRuntimes))
- A working internet connection
- vim is not installed by default on Debian Squeeze. If you want to copy and paste the commands from this article into a shell window, you need to apt-get install vim first.



## 7.2. Add Open-Xchange Repository

Open-Xchange maintains public available software repositories for different platforms, such as Debian. This repository should be added to the Debian installation to enable simple installation and updates.

Start a console and modify the Debian repository information file. It is required to add the non-free section of the Debian main repository for Sun Java. Also add the Open-Xchange software repository:

```
$ vim /etc/apt/sources.list
```

```
deb http://ftp.de.debian.org/debian/ squeeze main contrib non-free
deb-src http://ftp.de.debian.org/debian/ squeeze main contrib non-free
```

```
deb http://security.debian.org/ squeeze/updates main contrib
deb-src http://security.debian.org/ squeeze/updates main contrib
```

```
deb http://software.open-xchange.com/OX6/6.22/frontend/DebianSqueeze/ /
deb http://software.open-xchange.com/OX6/6.22/backend/DebianSqueeze/ /
deb http://software.open-xchange.com/OX6/6.22/usm/DebianSqueeze/ /
```

```
# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/DebianSqueeze /
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/DebianSqueeze /
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/DebianSqueeze /
```

## 7.3. Updating repositories and install packages

It is highly recommended to import the Open-Xchange build key to your package systems trusted keyring in order to make sure only Open-Xchange packages with valid signing are installed on the system. Otherwise you'll encounter warnings about untrusted package sources. To import the Open-Xchange buildkey, please refer to this [quick guide: Importing OX Buildkey](http://oxpedia.org/wiki/index.php?title=Importing_OX_Buildkey#Importing_key_into_apt_based_systems) [http://oxpedia.org/wiki/index.php?title=Importing\_OX\_Buildkey#Importing\_key\_into\_apt\_based\_systems].

Reload the package index. This will download the package descriptions available at the software repositories and will enable the Open-Xchange repository as a valid source for signed packages:

```
$ apt-get update
```

The following command starts the download and installation process of all required package for Open-Xchange deployment

If you want to install everything on a single server, just run

```
$ apt-get install mysql-server open-xchange open-xchange-authentication-database open-xchange-ajp open-xchange-admin open-xchange-gui
```

**Note:** You have to choose between one of the available spamhandler and authentication packages depending on your requirements.

You will be asked multiple times to enter a MySQL password, please do not enter a password at this point. You should enter a strong MySQL admin password for the user "mysql" after the installation has been finished. See: [MySQL Reference Manual](http://dev.mysql.com/doc/refman/5.0/en/passwords.html) [http://dev.mysql.com/doc/refman/5.0/en/passwords.html]

**Important:** Some of the scripts assume you have mysql root access from the command line, therefore the advice of "not" to enter a password. If you do, you may find problems following the instructions provided in this howto.

## 7.4. Open-Xchange configuration

To avoid confusion right at the start notice that Open-Xchange uses multiple administration levels and requires different credentials at some stages at the installation and server management. Note that the passwords chosen at this guide are weak and should be replaced by stronger passwords.

- The MySQL database user
  - Username: openexchange
  - Password used at this guide: db\_password
  - Responsibility: Execute all kinds of database operations
- The Open-Xchange Admin Master
  - Username: oxadminmaster
  - Password used at this guide: admin\_master\_password
  - Responsibility: Manage contexts, manage all kinds of low level server configuration
- The Context Admin
  - Username: oxadmin
  - Password used at this guide: admin\_password
  - Responsibility: Manage users/groups/resources inside a context

In order to setup the Open-Xchange Server it is mandatory to have the database running:

```
$ /etc/init.d/mysql start
```

**Note:** in case of a distributed setup, it is recommended to start mysql with `--skip-name-resolve` or to add all hosts to the hosts file of the database server so that slow DNS responses do not slow down the creation of new database connections. In a distributed setup you should also take care of the fact that Open-Xchange supports only a Statement Based Replication at the moment (<http://dev.mysql.com/doc/refman/5.1/en/replication-formats.html>). See also [Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering) [[http://oxpedia.org/wiki/index.php?title=Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering)]

a good idea is to add the Open-Xchange binaries to PATH:

```
$ echo PATH=$PATH:/opt/open-xchange/sbin/ >> ~/.bashrc && . ~/.bashrc
```

Now we have to initialize the Open-Xchange configdb database. This can all be done by executing the `initconfigdb` script.

```
$ /opt/open-xchange/sbin/initconfigdb --configdb-pass=db_password -a
```

Add the `-i` option if you want to remove an already existing open-xchange configdb.

**Note:** The `-a` parameter adds an administrative account to mysql, this administrative account is required for the creation of the `oxdatabase` database, you may find problems following the instructions of this tutorial if you either set a mysql root password or do not create this administrative account, if you have manually setup this administrative account, grant the permissions for database creation or you may find a problem in the context creation.

Before starting any service, all basic configuration files need to be set up correctly. The `--configdb-pass` option indicates the password of the openexchange database user previously created, the `--master-pass` options specifies the password of the Open-Xchange adminmaster user that will be created when executing the `oxinstaller` script.

Now is a good time to configure the way OX will authenticate to your mail server. Edit the file `/opt/open-xchange/etc/groupware/mail.properties` and change the `com.openexchange.mail.loginSource` to `use`. This is very important for servers that require your full email address to log in with.

**Important:** You should have your Open-Xchange license code at hand. If you do not plan to license Open-Xchange, you can use the option `--no-license` instead. Please also check [OXReportClient](#)

[<http://oxpedia.org/wiki/index.php?title=OXReportClient>] documentation for more information about configuring a supported and maintained Open-Xchange server.

**Important:** For MAX\_MEMORY\_FOR\_JAVAVM a rule of thumb for simple installations is half available system memory. For production environments please consult our [Sizing Whitepaper](#) [<http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf>].

```
$ /opt/open-xchange/sbin/oxinstaller --add-license=YOUR-OX-LICENSE-CODE \  
--servername=oxserver --configdb-pass=db_password \  
--master-pass=admin_master_password --ajp-bind-port=localhost --servermemory MAX_MEMORY_FOR_JAVAVM
```

**Note:** In a clustered setup, --ajp-bind-port must be set to \*

After initializing the configuration, start the Open-Xchange service by executing:

```
$ /etc/init.d/open-xchange start
```

Next we have to register the local server at the Open-Xchange configdb database:

```
$ /opt/open-xchange/sbin/registerserver -n oxserver -A oxadminmaster -P admin_master_password
```

Now we have to create a local directory that should be used as Open-Xchange filestore. This directory will contain all Infostore content and files attached to groupware objects. To maintain access by the Open-Xchange Groupware service, it is required to grant permissions to the open-xchange system user.

```
$ mkdir /var/opt/filestore  
$ chown open-xchange:open-xchange /var/opt/filestore
```

Now register the directory as a filestore at the Open-Xchange server:

```
$ /opt/open-xchange/sbin/registerfilestore -A oxadminmaster -P admin_master_password \  
-t file:/var/opt/filestore -s 1000000
```

**Note:** You might want to adapt the value provided with -s, the "The maximum size of the filestore in MB", see registerfilestore --help.

Finally register the groupware database, this is a separated database where all groupware specific data is stored:

```
$ /opt/open-xchange/sbin/registerdatabase -A oxadminmaster -P admin_master_password \  
-n oxdatabase -p db_password -m true
```

## 7.5. Configure services

Now as the Open-Xchange Server has been set up and the database is running, we have to configure the Apache webserver and the `mod_proxy_ajp` module to access the groupware frontend. To gain better GUI performance, the usage of `mod_expires` and `mod_deflate` is strongly recommended. Those modules will limit the amount of client requests and compress the delivered content.

```
$ a2enmod proxy proxy_ajp proxy_balancer expires deflate headers rewrite mime setenvif
```

Configure the `mod_proxy_ajp` module by creating a new Apache configuration file.

```
$ vim /etc/apache2/conf.d/proxy_ajp.conf
```

```
<Location /servlet/axis2/services>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168.10.172
</Location>

<IfModule mod_proxy_ajp.c>
  ProxyRequests Off
  <Proxy balancer://oxcluster>
    Order deny,allow
    Allow from all
    # multiple server setups need to have the hostname inserted instead localhost
    BalancerMember ajp://localhost:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX1
    # Enable and maybe add additional hosts running OX here
    # BalancerMember ajp://oxhost2:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX2
    ProxySet stickysession=JSESSIONID
  </Proxy>
  <Proxy /ajax>
    ProxyPass balancer://oxcluster/ajax
  </Proxy>
  <Proxy /servlet>
    ProxyPass balancer://oxcluster/servlet
  </Proxy>
  <Proxy /infostore>
    ProxyPass balancer://oxcluster/infostore
  </Proxy>
  <Proxy /publications>
    ProxyPass balancer://oxcluster/publications
  </Proxy>
  <Proxy /Microsoft-Server-ActiveSync>
    ProxyPass balancer://oxcluster/Microsoft-Server-ActiveSync
  </Proxy>
  <Proxy /usm-json>
    ProxyPass balancer://oxcluster/usm-json
  </Proxy>
</IfModule>
```

Modify the default website settings to display the Open-Xchange GUI

```
$ vim /etc/apache2/sites-enabled/000-default
```

```
<VirtualHost *:80>
ServerAdmin webmaster@localhost

DocumentRoot /var/www/

<Directory /var/www/>
AllowOverride None
Order allow,deny
allow from all
RedirectMatch ^/$ /ox6/
    Options +FollowSymLinks +SymLinksIfOwnerMatch
</Directory>
    # deflate
    AddOutputFilterByType DEFLATE text/html text/plain text/javascript application/javascript text/css text/xml application/xml text/xml

# pre-compressed files
AddType text/javascript .jsz
AddType text/css .cssz
AddType text/xml .xmlz
    AddType text/plain .po

AddEncoding gzip .jsz .cssz .xmlz
SetEnvIf Request_URI "\.(jsz|cssz|xmlz)$" no-gzip

ExpiresActive On

<Location /ox6>
    # Expires (via ExpiresByType to override global settings)
    ExpiresByType image/gif "access plus 6 months"
    ExpiresByType image/png "access plus 6 months"
    ExpiresByType image/jpg "access plus 6 months"
    ExpiresByType image/jpeg "access plus 6 months"
    ExpiresByType text/css "access plus 6 months"
    ExpiresByType text/html "access plus 6 months"
    ExpiresByType text/xml "access plus 6 months"
    ExpiresByType text/javascript "access plus 6 months"
    ExpiresByType text/x-js "access plus 6 months"
    ExpiresByType application/x-javascript "access plus 6 months"
    ExpiresDefault "access plus 6 months"
    Header append Cache-Control "private"
    Header unset Last-Modified
    Header unset Vary
    # Strip version
    RewriteEngine On
    RewriteRule v=\w+/(.+)$ $1 [L]
    # Turn off ETag
    Header unset ETag
    FileETag None
</Location>

<Location /ox6/ox.html>
    ExpiresByType text/html "now"
    ExpiresDefault "now"
```

```
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/index.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>
</VirtualHost>
```

After the configuration is done, restart the Apache webserver

```
$ /etc/init.d/apache2 restart
```

Finally restart the Open-Xchange service

```
$ /etc/init.d/open-xchange restart
```

## 7.6. Creating contexts and users

Now as the whole setup is complete and you already should get a login screen when accessing the server with a webbrowser, we have to setup a context and a default user as the last step of this tutorial.

The mapping defaultcontext will allow you to set this context as the default one of the entire system so that users which will be created within this context can login into Open-Xchange Server without specifying their domain at the login screen. Only one context can be specified as defaultcontext. The oxadmin user that will be created by this command is the default admin of the created context. This account will gather additional functions that are also described in the administration manual. The context id parameter must to be unique and numeric, otherwise the server will complain when you try to create a context. New contexts must be created by the oxadminmaster user, user accounts inside a context are created with the credentials of the contexts oxadmin account. The access-combination-name property defines the set of available modules and functions for users of the context.

```
$ /opt/open-xchange/sbin/createcontext -A oxadminmaster -P admin_master_password -c 1 \  
-u oxadmin -d "Context Admin" -g Admin -s User -p admin_password -L defaultcontext \  
-e oxadmin@example.com -q 1024 --access-combination-name=all
```

Create a user for testing purposes (Make sure the password you use here for the user is the same password as your email account or you will not be able to use the email module until it is set right):

```
$ /opt/open-xchange/sbin/createuser -c 1 -A oxadmin -P admin_password -u testuser \  
-d "Test User" -g Test -s User -p secret -e testuser@example.com \  
--imaplogin testuser --imapserver 127.0.0.1 --smtpserver 127.0.0.1
```

Now connect to the server with a webbrowser and login using the credentials testuser / secret.

If you need to migrate a batch of users and contexts at once, check the [CSV Batch Import documentation page](http://oxpedia.org/wiki/index.php?title=Csv_import) [http://oxpedia.org/wiki/index.php?title=Csv\_import].



## 7.7. Log files and issue tracking

### 7.7.1. Default logging mechanism

Whenever unexpected or erroneous behavior takes place, it will be logged depending on the configured loglevel. All logfiles are stored at the operating systems default location. Events triggered by the Open-Xchange Groupware services are logged to a rotating file `open-xchange.log`, events triggered by the Open-Xchange Administration service are logged to `open-xchange-admin.log`. Those files are the very first place to monitor.

```
$ tail -f -n200 /var/log/open-xchange/open-xchange.log.0
$ tail -f -n200 /var/log/open-xchange/open-xchange-admin.log.0
```

### 7.7.2. Alternative logging mechanism using Syslog

Apart from the default file logging mechanism, Open-Xchange supports logging via syslog in using Apache log4j which is a standard framework for application message and error logging. Using log4j makes it possible to directly log to a local or remote syslog daemon or other services. Log4j is highly customizable, please see the [Apache log4j \[1\] project websites](http://logging.apache.org/log4j/2.x/) [http://logging.apache.org/log4j/2.x/] for more information. Note, the default logging locations at `/var/log/open-xchange` will not be used anymore when installing the log4j bundles, please make sure to check out the [configuration guide](http://oxpedia.org/wiki/index.php?title=Syslog_Configuration) [http://oxpedia.org/wiki/index.php?title=Syslog\_Configuration].

## 7.8. Performance and Tuning Tips

Depending on your setup and the user accounts, it's often helpful to know, how to get a better performance from the complete system. This section will try to assist you, how to tune the components within an OX setup, before you need to install a second server, add more RAM, add new CPU to existing servers.

### 7.8.1. MySQL

Since OX itself used very specific features from MySQL like InnoDB instead of MyISAM as DB Engine, it's often needed, how to increase performance of the OX databases. In general, you should always monitor your MySQL system via tools like "munin", to see when your system reaches it's limits. Once, you recognized, the system responds more and more slowly, you start to read and research on the internet how to change your mysql configuration, specially, the my.cnf file. But due to the fact, that nearly every system is different in regards of hardware etc. you cannot just copy and paste existing configurations. At this point, a tool called "mysq tuner.pl" can help you. MySQLTuner is a script written in Perl that will assist you with your MySQL configuration and make recommendations for increased performance and stability. Within seconds, it will display statistics about your MySQL installation and the areas where it can be improved. To work with this tool, you need unrestricted read access to the MySQL server (OS root access is recommended). Just download and execute as shown below, and modify your existing my.cnf configuration file.

IMPORTANT INFO: The MySQL system must run for several days, to gather statistics and informations about queries etc. from OX. After these days, you should execute mysq tuner.pl script. It does not work if you run it directly after installing an OX/MySQL setup. You can force traffic to OX while writing automatic testcases or jmeter plans.

As already said, this is just ONE way to analyze MySQL systems. You can also check MYSQL.com for a consultant service or similar.

```
$ wget http://mysq tuner.pl/mysq tuner.pl
```

Make the PERL script executable:

```
$ chmod +x mysq tuner.pl
```

Execute the PERL script:

```
$ ./mysq tuner.pl
```

If prompted, enter your MySQL credentials and read carefully through the complete output of the script. Now you have very good informations, how to change your mysql system.

## 7.9. Installing Open-Xchange Update packages

Please read [3: Updating Open-Xchange Server packages \(page 21\)](#) on how to get access to the latest Open-Xchange packages.



---

## Chapter 8. Open-Xchange Server 6 (v6.22) on SuSE Linux Enterprise Server 11

This chapter will guide you through the installation of the Open-Xchange server, it describes the basic configuration and software requirements. As it is intended as a quick walk-through it assumes an existing installation of the operating system and requires average system administration skills. More, this guide will show you how to setup a basic installation with none of the typically used distributed environment settings. The target of this guide is:

- To setup a single server installation
- To setup a single Open-Xchange instance, no cluster
- To setup a database for a single database service, no replication
- To provide a basic configuration setup, no mailserver configuration

**Important: This installation guide will only work for v6.22. If you want to install v6.20 please use the installation guide for earlier versions.**

## 8.1. Requirements

- Plain installed SuSE Linux Enterprise Server 11 with latest updates
- Valid access to the Novell onlineupdate service
- A configured internet connection

## 8.2. Add Open-Xchange Repository

Open-Xchange maintains public available software repositories for different platforms, such as SLES. This repository should be added to the SLES installation to enable simple installation and updates.

Start a console and add the Open-Xchange software repository for SLES11:

```
zypper ar http://software.open-xchange.com/OX6/6.22/frontend/SLES11/ ox-frontend
zypper ar http://software.open-xchange.com/OX6/6.22/backend/SLES11/ ox-backend
zypper ar http://software.open-xchange.com/OX6/6.22/usm/SLES11/ ox-usm
```

If you have a valid maintenance subscription, please run the following command so that the most recent packages get installed:

```
zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/SLES11/ ox-updates
zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/SLES11/ ox-updates
zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/SLES11/ ox-updates-usm
```

A warning will be shown because the Open-Xchange packages are not yet signed by a cryptographic key. To accept and continue the installation, press Y.

## 8.3. Updating repositories and install packages

The following command starts the download and installation process of all required package for Open-Xchange deployment:

If you want to install everything on a single server, just run

```
$ zypper install mysql open-xchange open-xchange-authentication-database open-xchange-ajp open-xchange-admin open-xchange-gui
```

**Note:** You have to choose between one of the available spamhandler and authentication packages depending on your requirements.

A warning will be shown because the Open-Xchange packages are not yet signed by a cryptographic key. To accept and continue the installation, press Y.



## 8.4. Open-Xchange configuration

To avoid confusion right at the start notice that Open-Xchange uses multiple administration levels and requires different credentials at some stages at the installation and server management. Note that the passwords chosen at this guide are weak and should be replaced by stronger passwords.

- The MySQL database user
  - Username: openexchange
  - Password used at this guide: db\_password
  - Responsibility: Execute all kinds of database operations
- The Open-Xchange Admin Master
  - Username: oxadminmaster
  - Password used at this guide: admin\_master\_password
  - Responsibility: Manage contexts, manage all kinds of low level server configuration
- The Context Admin
  - Username: oxadmin
  - Password used at this guide: admin\_password
  - Responsibility: Manage users/groups/resources inside a context

In order to setup the Open-Xchange Server it is mandatory to have the database running:

```
$ rcmysql start
```

**Note:** in case of a distributed setup, it is recommended to start mysql with `--skip-name-resolve` or to add all hosts to the hosts file of the database server so that slow DNS responses do not slow down the creation of new database connections. In a distributed setup you should also take care of the fact that Open-Xchange supports only a Statement Based Replication at the moment (<http://dev.mysql.com/doc/refman/5.1/en/replication-for-mats.html>). See also [Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering) [[http://oxpedia.org/wiki/index.php?title=Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering)]

a good idea is to add the Open-Xchange binaries to PATH:

```
$ echo PATH=$PATH:/opt/open-xchange/sbin/ >> ~/.bashrc && . ~/.bashrc
```

Now we have to initialize the Open-Xchange configdb database. This can all be done by executing the `initconfigdb` script.

```
$ /opt/open-xchange/sbin/initconfigdb --configdb-pass=db_password -a
```

Add the `-i` option if you want to remove an already existing open-xchange configdb.

**Note:** The `-a` parameter adds an administrative account to mysql, this administrative account is required for the creation of the `oxdatabase` database, you may find problems following the instructions of this tutorial if you either set a mysql root password or do not create this administrative account, if you have manually setup this administrative account, grant the permissions for database creation or you may find a problem in the context creation

Before starting any service, all basic configuration files need to be set up correctly. The `--configdb-pass` option indicates the password of the openexchange database user previously created, the `--master-pass` options specifies the password of the Open-Xchange adminmaster user that will be created when executing the `oxinstaller` script.

Now is a good time to configure the way OX will authenticate to your mail server. Edit the file `/opt/open-xchange/etc/groupware/mail.properties` and change the `com.openexchange.mail.loginSource` to `use`. This is very important for servers that require your full email address to log in with.

**Important:** You should have your Open-Xchange license code at hand. If you do not plan to license Open-Xchange, you can use the option `--no-license` instead. Please also check [OXReportClient](#)

[<http://oxpedia.org/wiki/index.php?title=OXReportClient>] documentation for more information about configuring a supported and maintained Open-Xchange server.

**Important:** For MAX\_MEMORY\_FOR\_JAVAVM a rule of thumb for simple installations is half available system memory. For production environments please consult our [Sizing Whitepaper](#) [<http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf>].

```
$ /opt/open-xchange/sbin/oxinstaller --add-license=YOUR-OX-LICENSE-CODE \  
--servername=oxserver --configdb-pass=db_password \  
--master-pass=admin_master_password --ajp-bind-port=localhost --servermemory MAX_MEMORY_FOR_JAVAVM
```

**Note:** In a clustered setup, --ajp-bind-port must be set to \*

After initializing the configuration, start the Open-Xchange service by executing:

```
$ rcopen-xchange start
```

Next we have to register the local server at the Open-Xchange configdb database:

```
$ /opt/open-xchange/sbin/registerserver -n oxserver -A oxadminmaster -P admin_master_password
```

Now we have to create a local directory that should be used as Open-Xchange filestore. This directory will contain all Infostore content and files attached to groupware objects. To maintain access by the Open-Xchange Groupware service, it is required to grant permissions to the open-xchange system user.

```
$ mkdir /var/opt/filestore  
$ chown open-xchange:open-xchange /var/opt/filestore
```

Now register the directory as a filestore at the Open-Xchange server:

```
$ /opt/open-xchange/sbin/registerfilestore -A oxadminmaster -P admin_master_password \  
-t file:/var/opt/filestore -s 1000000
```

**Note:** You might want to adapt the value provided with -s, the "The maximum size of the filestore in MB", see registerfilestore --help.

Finally register the groupware database, this is a separated database where all groupware specific data is stored:

```
$ /opt/open-xchange/sbin/registerdatabase -A oxadminmaster -P admin_master_password \  
-n oxdatabase -p db_password -m true
```

## 8.5. Configure services

Now as the Open-Xchange Server has been set up and the database is running, we have to configure the Apache webserver and the `mod_proxy_ajp` module to access the groupware frontend. To gain better GUI performance, the usage of `mod_expires` and `mod_deflate` is strongly recommended. Those modules will limit the amount of client requests and compress the delivered content.

```
$ a2enmod proxy && a2enmod proxy_ajp && a2enmod expires && a2enmod deflate && a2enmod headers && a2enmod rewrite
```

To be on the safe side and not interfere with YaST or SuSEconfig, add the following to `/etc/sysconfig/apache2`:

```
APACHE_MODULES="actions alias auth_basic authn_file authz_host authz_groupfile authz_user authn_dbm autoindex cgi d
expires include log_config mime negotiation setenvif ssl suexec userdir proxy headers deflate authz_default proxy_ajp
rewrite proxy_balancer"
```

Configure the `mod_proxy_ajp` module by creating a new Apache configuration file.

```
$ vim /etc/apache2/conf.d/proxy_ajp.conf
```

```
<Location /servlet/axis2/services>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168.10.172
</Location>
```

```
<IfModule mod_proxy_ajp.c>
  ProxyRequests Off
  <Proxy balancer://oxcluster>
    Order deny,allow
    Allow from all
    # multiple server setups need to have the hostname inserted instead localhost
    BalancerMember ajp://localhost:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX1
    # Enable and maybe add additional hosts running OX here
    # BalancerMember ajp://oxhost2:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX2
    ProxySet stickysession=JSESSIONID
  </Proxy>
  <Proxy /ajax>
    ProxyPass balancer://oxcluster/ajax
  </Proxy>
  <Proxy /servlet>
    ProxyPass balancer://oxcluster/servlet
  </Proxy>
  <Proxy /infostore>
    ProxyPass balancer://oxcluster/infostore
  </Proxy>
  <Proxy /publications>
    ProxyPass balancer://oxcluster/publications
  </Proxy>
```

```
<Proxy /Microsoft-Server-ActiveSync>
  ProxyPass balancer://oxcluster/Microsoft-Server-ActiveSync
</Proxy>
<Proxy /usm-json>
  ProxyPass balancer://oxcluster/usm-json
</Proxy>
</IfModule>
```

Modify the default website settings to display the Open-Xchange GUI

```
$ vim /etc/apache2/vhosts.d/ox.conf
```

```
<VirtualHost *:80>
  ServerAdmin webmaster@localhost

  DocumentRoot /srv/www/htdocs/

  <Directory /srv/www/htdocs/>
    AllowOverride None
    Order allow,deny
    allow from all
    RedirectMatch ^/$ /ox6/
      Options +FollowSymLinks +SymLinksIfOwnerMatch
  </Directory>
  # deflate
  AddOutputFilterByType DEFLATE text/html text/plain text/javascript application/javascript text/css text/xml application/xml text/xml

  # pre-compressed files
  AddType text/javascript .jsz
  AddType text/css .cssz
  AddType text/xml .xmlz
  AddType text/plain .poz

  AddEncoding gzip .jsz .cssz .xmlz
  SetEnvIf Request_URI "\.(jsz|cssz|xmlz)$" no-gzip

  ExpiresActive On

  <Location /ox6>
    # Expires (via ExpiresByType to override global settings)
    ExpiresByType image/gif "access plus 6 months"
    ExpiresByType image/png "access plus 6 months"
    ExpiresByType image/jpeg "access plus 6 months"
    ExpiresByType image/jpg "access plus 6 months"
    ExpiresByType text/css "access plus 6 months"
    ExpiresByType text/html "access plus 6 months"
    ExpiresByType text/xml "access plus 6 months"
    ExpiresByType text/javascript "access plus 6 months"
    ExpiresByType text/x-javascript "access plus 6 months"
    ExpiresByType application/x-javascript "access plus 6 months"
    ExpiresDefault "access plus 6 months"
    Header append Cache-Control "private"
    Header unset Last-Modified
    Header unset Vary
    # Strip version
    RewriteEngine On
```

```
RewriteRule v=\w+/(.+) $1 [L]
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/ox.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/index.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
Header unset ETag
FileETag None
</Location>
</VirtualHost>
```

After the configuration is done, restart the Apache webserver

```
$ rcapache2 restart
```

Finally restart the Open-Xchange service

```
$ rcopen-xchange restart
```

## 8.6. Adding services to runlevels

The new services are now installed and configured, but to make them start up on a server boot, they need to be added to some runlevels:

```
$ insserv mysql  
$ insserv apache2  
$ insserv open-xchange
```

## 8.7. Creating contexts and users

Now as the whole setup is complete and you already should get a login screen when accessing the server with a webbrowser, we have to setup a context and a default user as the last step of this tutorial.

The mapping defaultcontext will allow you to set this context as the default one of the entire system so that users which will be created within this context can login into Open-Xchange Server without specifying their domain at the login screen. Only one context can be specified as defaultcontext. The oxadmin user that will be created by this command is the default admin of the created context. This account will gather additional functions that are also described in the administration manual. The context id parameter must to be unique and numeric, otherwise the server will complain when you try to create a context. New contexts must be created by the oxadminmaster user, user accounts inside a context are created with the credentials of the contexts oxadmin account. The access-combination-name property defines the set of available modules and functions for users of the context.

```
$ /opt/open-xchange/sbin/createcontext -A oxadminmaster -P admin_master_password -c 1 \  
-u oxadmin -d "Context Admin" -g Admin -s User -p admin_password -L defaultcontext \  
-e oxadmin@example.com -q 1024 --access-combination-name=all
```

Create a user for testing purposes (Make sure the password you use here for the user is the same password as your email account or you will not be able to use the email module until it is set right):

```
$ /opt/open-xchange/sbin/createuser -c 1 -A oxadmin -P admin_password -u testuser \  
-d "Test User" -g Test -s User -p secret -e testuser@example.com \  
--imaplogin testuser --imapserver 127.0.0.1 --smtpserver 127.0.0.1
```

Now connect to the server with a webbrowser and login using the credentials testuser / secret.

If you need to migrate a batch of users and contexts at once, check the [CSV Batch Import documentation page](http://oxpedia.org/wiki/index.php?title=Csv_import) [http://oxpedia.org/wiki/index.php?title=Csv\_import].

## 8.8. Log files and issue tracking

### 8.8.1. Default logging mechanism

Whenever unexpected or erroneous behavior takes place, it will be logged depending on the configured loglevel. All logfiles are stored at the operating systems default location. Events triggered by the Open-Xchange Groupware services are logged to a rotating file `open-xchange.log`, events triggered by the Open-Xchange Administration service are logged to `open-xchange-admin.log`. Those files are the very first place to monitor.

```
$ tail -f -n200 /var/log/open-xchange/open-xchange.log.0  
$ tail -f -n200 /var/log/open-xchange/open-xchange-admin.log.0
```

### 8.8.2. Alternative logging mechanism using Syslog

Apart from the default file logging mechanism, Open-Xchange supports logging via syslog in using Apache log4j which is a standard framework for application message and error logging. Using log4j makes it possible to directly log to a local or remote syslog daemon or other services. Log4j is highly customizable, please see the [Apache log4j \[1\] project websites](http://logging.apache.org/log4j/2.x/) [http://logging.apache.org/log4j/2.x/] for more information. Note, the default logging locations at `/var/log/open-xchange` will not be used anymore when installing the log4j bundles, please make sure to check out the [configuration guide](http://oxpedia.org/wiki/index.php?title=Syslog_Configuration) [http://oxpedia.org/wiki/index.php?title=Syslog\_Configuration].



## 8.9. Performance and Tuning Tips

Depending on your setup and the user accounts, it's often helpful to know, how to get a better performance from the complete system. This section will try to assist you, how to tune the components within an OX setup, before you need to install a second server, add more RAM, add new CPU to existing servers.

### 8.9.1. MySQL

Since OX itself used very specific features from MySQL like InnoDB instead of MyISAM as DB Engine, it's often needed, how to increase performance of the OX databases. In general, you should always monitor your MySQL system via tools like "munin", to see when your system reaches it's limits. Once, you recognized, the system responds more and more slowly, you start to read and research on the internet how to change your mysql configuration, specially, the my.cnf file. But due to the fact, that nearly every system is different in regards of hardware etc. you cannot just copy and paste existing configurations. At this point, a tool called "mysqltuner.pl" can help you. MySQLTuner is a script written in Perl that will assist you with your MySQL configuration and make recommendations for increased performance and stability. Within seconds, it will display statistics about your MySQL installation and the areas where it can be improved. To work with this tool, you need unrestricted read access to the MySQL server (OS root access is recommended). Just download and execute as shown below, and modify your existing my.cnf configuration file.

**IMPORTANT INFO:** The MySQL system must run for several days, to gather statistics and informations about queries etc. from OX. After these days, you should execute mysqltuner.pl script. It does not work if you run it directly after installing an OX/MySQL setup. You can force traffic to OX while writing automatic testcases or jmeter plans.

As already said, this is just ONE way to analyze MySQL systems. You can also check MYSQL.com for a consultant service or similar.

```
$ wget http://mysqltuner.pl/mysqltuner.pl
```

Make the PERL script executable:

```
$ chmod +x mysqltuner.pl
```

Execute the PERL script:

```
$ ./mysqltuner.pl
```

If prompted, enter your MySQL credentials and read carefully through the complete output of the script. Now you have very good informations, how to change your mysql system.

## 8.10. Installing Open-Xchange Update packages

Please read [3: Updating Open-Xchange Server packages \(page 21\)](#) on how to get access to the latest Open-Xchange packages.

---

## Chapter 9. Open-Xchange Server 6 (v6.22) on RedHat Enterprise Linux 5

This chapter will guide you through the installation of the Open-Xchange server, it describes the basic configuration and software requirements. As it is intended as a quick walk-through it assumes an existing installation of the operating system and requires average system administration skills. More, this guide will show you how to setup a basic installation with none of the typically used distributed environment settings. The target of this guide is:

- To set up a single server installation
- To set up a single Open-Xchange instance, no cluster
- To set up a database for a single database service, no replication
- To provide a basic configuration setup, no mailserver configuration

**Important: This installation guide will only work for v6.22. If you want to install v6.20 please use the installation guide for earlier versions.**

## 9.1. Requirements

- Plain installed RedHat Enterprise Linux 5 with latest updates
- Valid access to the RedHat Network
- A configured internet connection

## 9.2. Enabling required RedHat Repositories

When setting up RedHat Enterprise Linux (RHEL), only the base software channel is subscribed, this alone does not provide all required software packages. Before you start, please login to the RedHat Network (<https://rhn.redhat.com> [<https://access.redhat.com/subscriptions/rhntransition/>]) using your RedHat Account and enable the channel RHEL Supplementary (v. 5 for ...) by selecting the registered RHEL deployment and using the "Alter Subscriptions" button. After saving this configuration, the RHEL installation is capable to fetch all required software packages for Open-Xchange to work properly.

## 9.3. Add Open-Xchange Repository

Open-Xchange maintains public available software repositories for different platforms, such as RHEL. This repository should be added to the RHEL installation to enable simple installation and updates.

Start a console and create a software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
```

```
[ox-frontend]
```

```
name=Open-Xchange-frontend  
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL5/  
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

```
[ox-backend]
```

```
name=Open-Xchange-backend  
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL5/  
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

```
[ox-usm]
```

```
name=Open-Xchange-USM  
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL5/  
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

```
# if you have a valid maintenance subscription, please uncomment the  
# following and add the ldb account data to the url so that the most recent  
# packages get installed
```

```
[ox-updates-frontend]
```

```
name=Open-Xchange Updates-frontend  
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL5/  
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

```
[ox-updates-backend]
```

```
name=Open-Xchange Updates-backend  
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL5/  
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

```
[ox-updates-usm]
```

```
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)

## 9.4. Updating repositories and installing packages

Reload the package index. This will download the package descriptions available at the software repositories:

```
$ yum update
```

The following command starts the download and installation process of all required package for Open-Xchange deployment:

If you want to install everything on a single server, just run

```
$ yum install mysql-server open-xchange open-xchange-  
authentication-database open-xchange-ajp open-xchange-admin  
open-xchange-gui
```

**Note:** You have to choose between one of the available spamhandler and authentication packages depending on your requirements.



## 9.5. Open-Xchange configuration

To avoid confusion right at the start notice that Open-Xchange uses multiple administration levels and requires different credentials at some stages at the installation and server management. Note that the passwords chosen at this guide are weak and should be replaced by stronger passwords.

- The MySQL database user
  - Username: openexchange
  - Password used at this guide: db\_password
  - Responsibility: Execute all kinds of database operations
- The Open-Xchange Admin Master
  - Username: oxadminmaster
  - Password used at this guide: admin\_master\_password
  - Responsibility: Manage contexts, manage all kinds of low level server configuration
- The Context Admin
  - Username: oxadmin
  - Password used at this guide: admin\_password
  - Responsibility: Manage users/groups/resources inside a context

In order to setup the Open-Xchange Server it is mandatory to have the database running:

```
$ /etc/init.d/mysqld start
```

**Note:** in case of a distributed setup, it is recommended to start mysql with `--skip-name-resolve` or to add all hosts to the hosts file of the database server so that slow DNS responses do not slow down the creation of new database connections. In a distributed setup you should also take care of the fact that Open-Xchange supports only a Statement Based Replication at the moment (<http://dev.mysql.com/doc/refman/5.1/en/replication-formats.html>). See also [Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering) [[http://oxpedia.org/wiki/index.php?title=Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering)]

a good idea is to add the Open-Xchange binaries to PATH:

```
$ echo PATH=$PATH:/opt/open-xchange/sbin/ >> ~/.bashrc && .  
~/.bashrc
```

Now we have to initialize the Open-Xchange configdb database. This can all be done by executing the `initconfigdb` script.

```
$ /opt/open-xchange/sbin/initconfigdb --configdb-pass=db_password  
-a
```

Add the `-i` option if you want to remove an already existing open-xchange configdb.

**Note:** The `-a` parameter adds an administrative account to mysql, this administrative account is required for the creation of the `oxdatabase` database, you may find problems following the instructions of this tutorial if you either set a mysql root password or do not create this administrative account, if you have manually setup this administrative account, grant the permissions for database creation or you may find a problem in the context creation

Before starting any service, all basic configuration files need to be set up correctly. The `--configdb-pass` option indicates the password of the openexchange database user previously created, the `--master-pass` options specifies the password of the Open-Xchange adminmaster user that will be created when executing the `oxinstaller` script.

Now is a good time to configure the way OX will authenticate to your mail server. Edit the file `/opt/open-xchange/etc/groupware/mail.properties` and change the `com.openexchange.mail.loginSource` to `use`. This is very important for servers that require your full email address to log in with.

**Important:** You should have your Open-Xchange license code at hand. If you do not plan to license Open-Xchange, you can use the option `--no-license` instead. Please also check [OXReportClient](http://oxpedia.org/wiki/index.php?title=OXReportClient) [http://oxpedia.org/wiki/index.php?title=OXReportClient] documentation for more information about configuring a supported and maintained Open-Xchange server.

**Important:** For `MAX_MEMORY_FOR_JAVAVM` a rule of thumb for simple installations is half available system memory. For production environments please consult our [Sizing Whitepaper](http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf) [http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf].

```
$ /opt/open-xchange/sbin/oxinstaller --add-license=YOUR-OX-LICENSE-CODE \  
--servername=oxserver --configdb-pass=db_password \  
--master-pass=admin_master_password --ajp-bind-port=localhost \  
--servermemory MAX_MEMORY_FOR_JAVAVM
```

**Note:** In a clustered setup, `--ajp-bind-port` must be set to `*`

After initializing the configuration, start the Open-Xchange service by executing:

```
$ /etc/init.d/open-xchange start
```

Next we have to register the local server at the Open-Xchange configdb database:

```
$ /opt/open-xchange/sbin/registerserver -n oxserver -A  
oxadminmaster -P admin_master_password
```

Now we have to create a local directory that should be used as Open-Xchange filestore. This directory will contain all Infostore content and files attached to groupware objects. To maintain access by the Open-Xchange Groupware service, it is required to grant permissions to the open-xchange system user.

```
$ mkdir /var/opt/filestore  
$ chown open-xchange:open-xchange /var/opt/filestore
```

Now register the directory as a filestore at the Open-Xchange server:

```
$ /opt/open-xchange/sbin/registerfilestore -A oxadminmaster -P  
admin_master_password \  
-t file:/var/opt/filestore -s 1000000
```

**Note:** You might want to adapt the value provided with `-s`, the "The maximum size of the filestore in MB", see `registerfilestore --help`.

Finally register the groupware database, this is a separated database where all groupware specific data is stored:

```
$ /opt/open-xchange/sbin/registerdatabase -A oxadminmaster -P  
admin_master_password \  
-n oxdatabase -p db_password -m true
```

## 9.6. Configure services

Now as the Open-Xchange Server has been set up and the database is running, we have to configure the Apache webserver and the `mod_proxy_ajp` module to access the groupware frontend. To gain better GUI performance, the usage of `mod_expires` and `mod_deflate` is strongly recommended. Those modules will limit the amount of client requests and compress the delivered content. The default installation of the Apache webserver on RHEL provides a welcome screen which is not necessary for server operation, it can be removed by deleting the corresponding configuration file:

```
$ rm /etc/httpd/conf.d/welcome.conf
```

Configure the `mod_proxy_ajp` module by creating a new Apache configuration file.

```
$ vim /etc/httpd/conf.d/proxy_ajp.conf
```

```
<Location /servlet/axis2/services>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168.10.172
</Location>

LoadModule proxy_ajp_module modules/mod_proxy_ajp.so

<IfModule mod_proxy_ajp.c>
  ProxyRequests Off
  <Proxy balancer://oxcluster>
    Order deny,allow
    Allow from all
    # multiple server setups need to have the hostname inserted instead localhost
    BalancerMember ajp://localhost:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX1
    # Enable and maybe add additional hosts running OX here
    # BalancerMember ajp://oxhost2:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX2
    ProxySet stickysession=JSESSIONID
  </Proxy>
  <Proxy /ajax>
    ProxyPass balancer://oxcluster/ajax
  </Proxy>
  <Proxy /servlet>
    ProxyPass balancer://oxcluster/servlet
  </Proxy>
  <Proxy /infostore>
    ProxyPass balancer://oxcluster/infostore
  </Proxy>
  <Proxy /publications>
    ProxyPass balancer://oxcluster/publications
  </Proxy>
  <Proxy /Microsoft-Server-ActiveSync>
    ProxyPass balancer://oxcluster/Microsoft-Server-ActiveSync
  </Proxy>
  <Proxy /usm-json>
    ProxyPass balancer://oxcluster/usm-json
  </Proxy>
</IfModule>
```

Modify the default website settings to display the Open-Xchange GUI

```
$ vim /etc/httpd/conf.d/ox.conf
```

```
<VirtualHost *:80>
ServerAdmin webmaster@localhost
```

```
DocumentRoot /var/www/html/
```

```
<Directory /var/www/html/>
```

```
AllowOverride None
```

```
Order allow,deny
```

```
allow from all
```

```
RedirectMatch ^/$ /ox6/
```

```
Options +FollowSymLinks +SymLinksIfOwnerMatch
```

```
</Directory>
```

```
# deflate
```

```
AddOutputFilterByType DEFLATE text/html text/plain text/javascript application/javascript text/css text/xml application/xml text
```

```
# pre-compressed files
```

```
AddType text/javascript .jsz
```

```
AddType text/css .cssz
```

```
AddType text/xml .xmlz
```

```
AddType text/plain .poz
```

```
AddEncoding gzip .jsz .cssz .xmlz
```

```
SetEnvIf Request_URI "\.(jsz|cssz|xmlz)$" no-gzip
```

```
ExpiresActive On
```

```
<Location /ox6>
```

```
# Expires (via ExpiresByType to override global settings)
```

```
ExpiresByType image/gif "access plus 6 months"
```

```
ExpiresByType image/png "access plus 6 months"
```

```
ExpiresByType image/jpg "access plus 6 months"
```

```
ExpiresByType image/jpeg "access plus 6 months"
```

```
ExpiresByType text/css "access plus 6 months"
```

```
ExpiresByType text/html "access plus 6 months"
```

```
ExpiresByType text/xml "access plus 6 months"
```

```
ExpiresByType text/javascript "access plus 6 months"
```

```
ExpiresByType text/x-javascript "access plus 6 months"
```

```
ExpiresByType application/x-javascript "access plus 6 months"
```

```
ExpiresDefault "access plus 6 months"
```

```
Header append Cache-Control "private"
```

```
Header unset Last-Modified
```

```
Header unset Vary
```

```
# Strip version
```

```
RewriteEngine On
```

```
RewriteRule v=\w+/(.+)$ $1 [L]
```

```
# Turn off ETag
```

```
Header unset ETag
```

```
FileETag None
```

```
</Location>
```

```
<Location /ox6/ox.html>
  ExpiresByType text/html "now"
  ExpiresDefault "now"
  Header unset Last-Modified
  Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
  # Turn off ETag
  Header unset ETag
  FileETag None
</Location>

<Location /ox6/index.html>
  ExpiresByType text/html "now"
  ExpiresDefault "now"
  Header unset Last-Modified
  Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
  # Turn off ETag
  Header unset ETag
  FileETag None
</Location>
</VirtualHost>
```

After the configuration is done, restart the Apache webserver

```
$ /etc/init.d/httpd restart
```

Finally restart the Open-Xchange service

```
$ /etc/init.d/open-xchange restart
```

## 9.7. Adding services to runlevels

The new services are now installed and configured, but to make them start up on a server boot, they need to be added to some runlevels:

```
$ chkconfig --level 345 mysqld on  
$ chkconfig --level 345 httpd on  
$ chkconfig --level 345 open-xchange on
```

## 9.8. Creating contexts and users

Now as the whole setup is complete and you already should get a login screen when accessing the server with a webbrowser, we have to setup a context and a default user as the last step of this tutorial.

The mapping defaultcontext will allow you to set this context as the default one of the entire system so that users which will be created within this context can login into Open-Xchange Server without specifying their domain at the login screen. Only one context can be specified as defaultcontext. The oxadmin user that will be created by this command is the default admin of the created context. This account will gather additional functions that are also described in the administration manual. The context id parameter must to be unique and numeric, otherwise the server will complain when you try to create a context. New contexts must be created by the oxadminmaster user, user accounts inside a context are created with the credentials of the contexts oxadmin account. The access-combination-name property defines the set of available modules and functions for users of the context.

```
$ /opt/open-xchange/sbin/createcontext -A oxadminmaster -P admin_master_password -c 1 \  
-u oxadmin -d "Context Admin" -g Admin -s User -p admin_password -L defaultcontext \  
-e oxadmin@example.com -q 1024 --access-combination-name=all
```

Create a user for testing purposes (Make sure the password you use here for the user is the same password as your email account or you will not be able to use the email module until it is set right):

```
$ /opt/open-xchange/sbin/createuser -c 1 -A oxadmin -P admin_password -u testuser \  
-d "Test User" -g Test -s User -p secret -e testuser@example.com \  
--imaplogin testuser --imapserver 127.0.0.1 --smtpserver 127.0.0.1
```

Now connect to the server with a webbrowser and login using the credentials testuser / secret.

If you need to migrate a batch of users and contexts at once, check the [CSV Batch Import documentation page](http://oxpedia.org/wiki/index.php?title=Csv_import) [http://oxpedia.org/wiki/index.php?title=Csv\_import].

## 9.9. Log files and issue tracking

### 9.9.1. Default logging mechanism

Whenever unexpected or erroneous behavior takes place, it will be logged depending on the configured loglevel. All logfiles are stored at the operating systems default location. Events triggered by the Open-Xchange Groupware services are logged to a rotating file `open-xchange.log`, events triggered by the Open-Xchange Administration service are logged to `open-xchange-admin.log`. Those files are the very first place to monitor.

```
$ tail -f -n200 /var/log/open-xchange/open-xchange.log.0  
$ tail -f -n200 /var/log/open-xchange/open-xchange-admin.log.0
```

### 9.9.2. Alternative logging mechanism using Syslog

Apart from the default file logging mechanism, Open-Xchange supports logging via syslog in using Apache log4j which is a standard framework for application message and error logging. Using log4j makes it possible to directly log to a local or remote syslog daemon or other services. Log4j is highly customizable, please see the [Apache log4j \[1\] project websites](http://logging.apache.org/log4j/2.x/) [http://logging.apache.org/log4j/2.x/] for more information. Note, the default logging locations at `/var/log/open-xchange` will not be used anymore when installing the log4j bundles, please make sure to check out the [configuration guide](http://oxpedia.org/wiki/index.php?title=Syslog_Configuration) [http://oxpedia.org/wiki/index.php?title=Syslog\_Configuration].



## 9.10. Performance and Tuning Tips

Depending on your setup and the user accounts, it's often helpful to know, how to get a better performance from the complete system. This section will try to assist you, how to tune the components within an OX setup, before you need to install a second server, add more RAM, add new CPU to existing servers.

### 9.10.1. MySQL

Since OX itself used very specific features from MySQL like InnoDB instead of MyISAM as DB Engine, it's often needed, how to increase performance of the OX databases. In general, you should always monitor your MySQL system via tools like "munin", to see when your system reaches it's limits. Once, you recognized, the system responds more and more slowly, you start to read and research on the internet how to change your mysql configuration, specially, the my.cnf file. But due to the fact, that nearly every system is different in regards of hardware etc. you cannot just copy and paste existing configurations. At this point, a tool called "mysqltuner.pl" can help you. MySQLTuner is a script written in Perl that will assist you with your MySQL configuration and make recommendations for increased performance and stability. Within seconds, it will display statistics about your MySQL installation and the areas where it can be improved. To work with this tool, you need unrestricted read access to the MySQL server (OS root access is recommended). Just download and execute as shown below, and modify your existing my.cnf configuration file.

**IMPORTANT INFO:** The MySQL system must run for several days, to gather statistics and informations about queries etc. from OX. After these days, you should execute mysqltuner.pl script. It does not work if you run it directly after installing an OX/MySQL setup. You can force traffic to OX while writing automatic testcases or jmeter plans.

As already said, this is just ONE way to analyze MySQL systems. You can also check MYSQL.com for a consultant service or similar.

```
$ wget http://mysqltuner.pl/mysqltuner.pl
```

Make the PERL script executable:

```
$ chmod +x mysqltuner.pl
```

Execute the PERL script:

```
$ ./mysqltuner.pl
```

If prompted, enter your MySQL credentials and read carefully through the complete output of the script. Now you have very good information, how to change your mysql system.

## 9.11. Installing Open-Xchange Update packages

Please read [3: Updating Open-Xchange Server packages \(page 21\)](#) on how to get access to the latest Open-Xchange packages.

## Chapter 10. Open-Xchange Server 6 (v6.22) on RedHat Enterprise Linux 6

This chapter will guide you through the installation of the Open-Xchange server, it describes the basic configuration and software requirements. As it is intended as a quick walk-through it assumes an existing installation of the operating system and requires average system administration skills. More, this guide will show you how to setup a basic installation with none of the typically used distributed environment settings. The target of this guide is:

- To set up a single server installation
- To set up a single Open-Xchange instance, no cluster
- To set up a database for a single database service, no replication
- To provide a basic configuration setup, no mailserver configuration

**Important: This installation guide will only work for v6.22. If you want to install v6.20 please use the installation guide for earlier versions.**

## 10.1. Requirements

- Plain installed RedHat Enterprise Linux 6 with latest updates
- Valid access to the RedHat Network
- A configured internet connection

## 10.2. Enabling required RedHat Repositories

When setting up RedHat Enterprise Linux (RHEL), only the base software channel is subscribed, this alone does not provide all required software packages. Before you start, please login to the RedHat Network (<https://rhn.redhat.com> [<https://access.redhat.com/subscriptions/rhntransition/>]) using your RedHat Account and enable the channel RHEL Supplementary (v. 6 for ...) by selecting the registered RHEL deployment and using the "Alter Subscriptions" button. After saving this configuration, the RHEL installation is capable to fetch all required software packages for Open-Xchange to work properly.

## 10.3. Add Open-Xchange Repository

Open-Xchange maintains public available software repositories for different platforms, such as RHEL. This repository should be added to the RHEL installation to enable simple installation and updates.

Start a console and create a software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
```

```
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
name=Open-Xchange Updates-USM
```

```
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL6/  
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)

## 10.4. Updating repositories and installing packages

Reload the package index. This will download the package descriptions available at the software repositories:

```
$ yum update
```

The following command starts the download and installation process of all required package for Open-Xchange deployment:

If you want to install everything on a single server, just run

```
$ yum install mysql-server open-xchange open-xchange-  
authentication-database open-xchange-ajp open-xchange-admin  
open-xchange-gui java-sun
```

**Note:** You have to choose between one of the available spamhandler and authentication packages depending on your requirements.

**Note:** Instead of java-sun, you can also use java-openjdk.



## 10.5. Open-Xchange configuration

To avoid confusion right at the start notice that Open-Xchange uses multiple administration levels and requires different credentials at some stages at the installation and server management. Note that the passwords chosen at this guide are weak and should be replaced by stronger passwords.

- The MySQL database user
  - Username: openexchange
  - Password used at this guide: db\_password
  - Responsibility: Execute all kinds of database operations
- The Open-Xchange Admin Master
  - Username: oxadminmaster
  - Password used at this guide: admin\_master\_password
  - Responsibility: Manage contexts, manage all kinds of low level server configuration
- The Context Admin
  - Username: oxadmin
  - Password used at this guide: admin\_password
  - Responsibility: Manage users/groups/resources inside a context

In order to setup the Open-Xchange Server it is mandatory to have the database running:

```
$ /etc/init.d/mysqld start
```

**Note:** in case of a distributed setup, it is recommended to start mysql with `--skip-name-resolve` or to add all hosts to the hosts file of the database server so that slow DNS responses do not slow down the creation of new database connections. In a distributed setup you should also take care of the fact that Open-Xchange supports only a Statement Based Replication at the moment (<http://dev.mysql.com/doc/refman/5.1/en/replication-formats.html>). See also [Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering) [[http://oxpedia.org/wiki/index.php?title=Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering)]

a good idea is to add the Open-Xchange binaries to PATH:

```
$ echo PATH=$PATH:/opt/open-xchange/sbin/ >> ~/.bashrc && .  
~/.bashrc
```

Now we have to initialize the Open-Xchange configdb database. This can all be done by executing the `initconfigdb` script.

```
$ /opt/open-xchange/sbin/initconfigdb --configdb-pass=db_password  
-a
```

Add the `-i` option if you want to remove an already existing open-xchange configdb.

**Note:** The `-a` parameter adds an administrative account to mysql, this administrative account is required for the creation of the `oxdatabase` database, you may find problems following the instructions of this tutorial if you either set a mysql root password or do not create this administrative account, if you have manually setup this administrative account, grant the permissions for database creation or you may find a problem in the context creation

Before starting any service, all basic configuration files need to be set up correctly. The `--configdb-pass` option indicates the password of the openexchange database user previously created, the `--master-pass` options specifies the password of the Open-Xchange adminmaster user that will be created when executing the `oxinstaller` script.

Now is a good time to configure the way OX will authenticate to your mail server. Edit the file `/opt/open-xchange/etc/groupware/mail.properties` and change the `com.openexchange.mail.loginSource` to `use`. This is very important for servers that require your full email address to log in with.

**Important:** You should have your Open-Xchange license code at hand. If you do not plan to license Open-Xchange, you can use the option `--no-license` instead. Please also check [OXReportClient](http://oxpedia.org/wiki/index.php?title=OXReportClient) [http://oxpedia.org/wiki/index.php?title=OXReportClient] documentation for more information about configuring a supported and maintained Open-Xchange server.

**Important:** For `MAX_MEMORY_FOR_JAVAVM` a rule of thumb for simple installations is half available system memory. For production environments please consult our [Sizing Whitepaper](http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf) [http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf].

```
$ /opt/open-xchange/sbin/oxinstaller --add-license=YOUR-OX-LICENSE-CODE \  
--servername=oxserver --configdb-pass=db_password \  
--master-pass=admin_master_password --ajp-bind-port=localhost \  
--servermemory MAX_MEMORY_FOR_JAVAVM
```

**Note:** In a clustered setup, `--ajp-bind-port` must be set to `*`

After initializing the configuration, start the Open-Xchange service by executing:

```
$ /etc/init.d/open-xchange start
```

Next we have to register the local server at the Open-Xchange configdb database:

```
$ /opt/open-xchange/sbin/registerserver -n oxserver -A  
oxadminmaster -P admin_master_password
```

Now we have to create a local directory that should be used as Open-Xchange filestore. This directory will contain all Infostore content and files attached to groupware objects. To maintain access by the Open-Xchange Groupware service, it is required to grant permissions to the open-xchange system user.

```
$ mkdir /var/opt/filestore  
$ chown open-xchange:open-xchange /var/opt/filestore
```

Now register the directory as a filestore at the Open-Xchange server:

```
$ /opt/open-xchange/sbin/registerfilestore -A oxadminmaster -P  
admin_master_password \  
-t file:/var/opt/filestore -s 1000000
```

**Note:** You might want to adapt the value provided with `-s`, the "The maximum size of the filestore in MB", see `registerfilestore --help`.

Finally register the groupware database, this is a separated database where all groupware specific data is stored:

```
$ /opt/open-xchange/sbin/registerdatabase -A oxadminmaster -P  
admin_master_password \  
-n oxdatabase -p db_password -m true
```

## 10.6. Configure services

Now as the Open-Xchange Server has been set up and the database is running, we have to configure the Apache webserver and the `mod_proxy_ajp` module to access the groupware frontend. To gain better GUI performance, the usage of `mod_expires` and `mod_deflate` is strongly recommended. Those modules will limit the amount of client requests and compress the delivered content. The default installation of the Apache webserver on RHEL provides a welcome screen which is not necessary for server operation, it can be removed by deleting the corresponding configuration file:

```
$ rm /etc/httpd/conf.d/welcome.conf
```

Configure the `mod_proxy_ajp` module by creating a new Apache configuration file.

```
$ vim /etc/httpd/conf.d/proxy_ajp.conf
```

```
# Please note that the servlet path to the soap API has changed:
```

```
<Location /webservices>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168 10 172.16
</Location>
# the old path is kept for compatibility reasons
```

```
<Location /servlet/axis2/services>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168 10 172.16
</Location>
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
```

```
<IfModule mod_proxy_ajp.c>
  ProxyRequests Off
  <Proxy balancer://oxcluster>
    Order deny,allow
    Allow from all
    # multiple server setups need to have the hostname inserted instead localhost
    BalancerMember ajp://localhost:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX1
    # Enable and maybe add additional hosts running OX here
    # BalancerMember ajp://oxhost2:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX2
    ProxySet stickysession=JSESSIONID
  </Proxy>
  <Proxy /ajax>
    ProxyPass balancer://oxcluster/ajax
  </Proxy>
  <Proxy /servlet>
    ProxyPass balancer://oxcluster/servlet
  </Proxy>
```

```
<Proxy /infostore>
  ProxyPass balancer://oxcluster/infostore
</Proxy>
<Proxy /publications>
  ProxyPass balancer://oxcluster/publications
</Proxy>
<Proxy /Microsoft-Server-ActiveSync>
  ProxyPass balancer://oxcluster/Microsoft-Server-ActiveSync
</Proxy>
<Proxy /usm-json>
  ProxyPass balancer://oxcluster/usm-json
</Proxy>
<Proxy /webservice>
  ProxyPass balancer://oxcluster/webservice
</Proxy>
</IfModule>
```

Modify the default website settings to display the Open-Xchange GUI

```
$ vim /etc/httpd/conf.d/ox.conf
```

```
<VirtualHost *:80>
ServerAdmin webmaster@localhost

DocumentRoot /var/www/html/

<Directory /var/www/html/>
AllowOverride None
Order allow,deny
allow from all
RedirectMatch ^/$ /ox6/
  Options +FollowSymLinks +SymLinksIfOwnerMatch
</Directory>
  # deflate
  AddOutputFilterByType DEFLATE text/html text/plain text/javascript application/javascript text/css text/xml application/xml text/xml

# pre-compressed files
AddType text/javascript .jsz
AddType text/css .cssz
AddType text/xml .xmlz
  AddType text/plain .po

AddEncoding gzip .jsz .cssz .xmlz
SetEnvIf Request_URI "\.(jsz|cssz|xmlz)$" no-gzip

ExpiresActive On

<Location /ox6>
  # Expires (via ExpiresByType to override global settings)
  ExpiresByType image/gif "access plus 6 months"
  ExpiresByType image/png "access plus 6 months"
  ExpiresByType image/jpg "access plus 6 months"
  ExpiresByType image/jpeg "access plus 6 months"
  ExpiresByType text/css "access plus 6 months"
  ExpiresByType text/html "access plus 6 months"
```

```
ExpiresByType text/xml "access plus 6 months"
ExpiresByType text/javascript "access plus 6 months"
ExpiresByType text/x-js "access plus 6 months"
ExpiresByType application/x-javascript "access plus 6 months"
ExpiresDefault "access plus 6 months"
Header append Cache-Control "private"
Header unset Last-Modified
Header unset Vary
# Strip version
RewriteEngine On
RewriteRule v=\w+/(.+)$ $1 [L]
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/ox.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/index.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>
</VirtualHost>
```

After the configuration is done, restart the Apache webserver

```
$ /etc/init.d/httpd restart
```

Finally restart the Open-Xchange service

```
$ /etc/init.d/open-xchange restart
```

## 10.7. Adding services to runlevels

The new services are now installed and configured, but to make them start up on a server boot, they need to be added to some runlevels:

```
$ chkconfig --level 345 mysqld on  
$ chkconfig --level 345 httpd on  
$ chkconfig --level 345 open-xchange on
```

## 10.8. Creating contexts and users

Now as the whole setup is complete and you already should get a login screen when accessing the server with a webbrowser, we have to setup a context and a default user as the last step of this tutorial.

The mapping defaultcontext will allow you to set this context as the default one of the entire system so that users which will be created within this context can login into Open-Xchange Server without specifying their domain at the login screen. Only one context can be specified as defaultcontext. The oxadmin user that will be created by this command is the default admin of the created context. This account will gather additional functions that are also described in the administration manual. The context id parameter must to be unique and numeric, otherwise the server will complain when you try to create a context. New contexts must be created by the oxadminmaster user, user accounts inside a context are created with the credentials of the contexts oxadmin account. The access-combination-name property defines the set of available modules and functions for users of the context.

```
$ /opt/open-xchange/sbin/createcontext -A oxadminmaster -P admin_master_password -c 1 \  
-u oxadmin -d "Context Admin" -g Admin -s User -p admin_password -L defaultcontext \  
-e oxadmin@example.com -q 1024 --access-combination-name=all
```

Create a user for testing purposes (Make sure the password you use here for the user is the same password as your email account or you will not be able to use the email module until it is set right):

```
$ /opt/open-xchange/sbin/createuser -c 1 -A oxadmin -P admin_password -u testuser \  
-d "Test User" -g Test -s User -p secret -e testuser@example.com \  
--imaplogin testuser --imapserver 127.0.0.1 --smtpserver 127.0.0.1
```

Now connect to the server with a webbrowser and login using the credentials testuser / secret.

If you need to migrate a batch of users and contexts at once, check the [CSV Batch Import documentation page](http://oxpedia.org/wiki/index.php?title=Csv_import) [http://oxpedia.org/wiki/index.php?title=Csv\_import].

## 10.9. Log files and issue tracking

### 10.9.1. Default logging mechanism

Whenever unexpected or erroneous behavior takes place, it will be logged depending on the configured loglevel. All logfiles are stored at the operating systems default location. Events triggered by the Open-Xchange Groupware services are logged to a rotating file `open-xchange.log`, events triggered by the Open-Xchange Administration service are logged to `open-xchange-admin.log`. Those files are the very first place to monitor.

```
$ tail -f -n200 /var/log/open-xchange/open-xchange.log.0  
$ tail -f -n200 /var/log/open-xchange/open-xchange-admin.log.0
```

### 10.9.2. Alternative logging mechanism using Syslog

Apart from the default file logging mechanism, Open-Xchange supports logging via syslog in using Apache log4j which is a standard framework for application message and error logging. Using log4j makes it possible to directly log to a local or remote syslog daemon or other services. Log4j is highly customizable, please see the [Apache log4j \[1\] project websites](http://logging.apache.org/log4j/2.x/) [http://logging.apache.org/log4j/2.x/] for more information. Note, the default logging locations at `/var/log/open-xchange` will not be used anymore when installing the log4j bundles, please make sure to check out the [configuration guide](http://oxpedia.org/wiki/index.php?title=Syslog_Configuration) [http://oxpedia.org/wiki/index.php?title=Syslog\_Configuration].



## 10.10. Performance and Tuning Tips

Depending on your setup and the user accounts, it's often helpful to know, how to get a better performance from the complete system. This section will try to assist you, how to tune the components within an OX setup, before you need to install a second server, add more RAM, add new CPU to existing servers.

### 10.10.1. MySQL

Since OX itself used very specific features from MySQL like InnoDB instead of MyISAM as DB Engine, it's often needed, how to increase performance of the OX databases. In general, you should always monitor your MySQL system via tools like "munin", to see when your system reaches it's limits. Once, you recognized, the system responds more and more slowly, you start to read and research on the internet how to change your mysql configuration, specially, the my.cnf file. But due to the fact, that nearly every system is different in regards of hardware etc. you cannot just copy and paste existing configurations. At this point, a tool called "mysqltuner.pl" can help you. MySQLTuner is a script written in Perl that will assist you with your MySQL configuration and make recommendations for increased performance and stability. Within seconds, it will display statistics about your MySQL installation and the areas where it can be improved. To work with this tool, you need unrestricted read access to the MySQL server (OS root access is recommended). Just download and execute as shown below, and modify your existing my.cnf configuration file.

**IMPORTANT INFO:** The MySQL system must run for several days, to gather statistics and informations about queries etc. from OX. After these days, you should execute mysqltuner.pl script. It does not work if you run it directly after installing an OX/MySQL setup. You can force traffic to OX while writing automatic testcases or jmeter plans.

As already said, this is just ONE way to analyze MySQL systems. You can also check MYSQL.com for a consultant service or similar.

```
$ wget http://mysqltuner.pl/mysqltuner.pl
```

Make the PERL script executable:

```
$ chmod +x mysqltuner.pl
```

Execute the PERL script:

```
$ ./mysqltuner.pl
```

If prompted, enter your MySQL credentials and read carefully through the complete output of the script. Now you have very good information, how to change your mysql system.

## 10.11. Installing Open-Xchange Update packages

Please read [3: Updating Open-Xchange Server packages \(page 21\)](#) on how to get access to the latest Open-Xchange packages.

## Chapter 11. Open-Xchange Server 6 (v6.22) on CentOS5 Linux

This chapter will guide you through the installation of the Open-Xchange server, it describes the basic configuration and software requirements. As it is intended as a quick walk-through it assumes an existing installation of the operating system and requires average system administration skills. More, this guide will show you how to setup a basic installation with none of the typically used distributed environment settings. The target of this guide is:

- To set up a single server installation
- To set up a single Open-Xchange instance, no cluster
- To set up a database for a single database service, no replication
- To provide a basic configuration setup, no mailserver configuration

**Important: This installation guide will only work for v6.22. If you want to install v6.20 please use the installation guide for earlier versions.**

## 11.1. Requirements

- Plain installed CentOS5 with latest updates
- A configured internet connection

## 11.2. Add Open-Xchange Repository

Open-Xchange maintains public available software repositories for different platforms, such as RHEL. This repository should be added to the RHEL installation to enable simple installation and updates.

Start a console and create a software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
```

```
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
```

```
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)

In addition, you need to add this repository for the special meta package for centos:

repo below is for open-xchange-meta-centos

```
[ox-centos]
name=Open-Xchange Misc
baseurl=http://software.open-xchange.com/OX6/6.22/backend/CentOS5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

**Note: You need the open-xchange-meta-centos package because CentOS does not ship Sun Java packages and thus, installing Open-Xchange packages will fail because of missing dependencies. open-xchange-meta-centos fulfills the sun-java dependency and depends on openjdk6 as shipped with Centos.**

## 11.3. Updating repositories and installing packages

Reload the package index. This will download the package descriptions available at the software repositories:

```
$ yum update
```

The following command starts the download and installation process of all required package for Open-Xchange deployment:

If you want to install everything on a single server, just run

```
$ yum install mysql-server open-xchange-meta-centos open-xchange  
open-xchange-authentication-database open-xchange-ajp  
open-xchange-admin open-xchange-gui
```

**Note:** You have to choose between one of the available spamhandler and authentication packages depending on your requirements.

## 11.4. Open-Xchange configuration

To avoid confusion right at the start notice that Open-Xchange uses multiple administration levels and requires different credentials at some stages at the installation and server management. Note that the passwords chosen at this guide are weak and should be replaced by stronger passwords.

- The MySQL database user
  - Username: openexchange
  - Password used at this guide: db\_password
  - Responsibility: Execute all kinds of database operations
- The Open-Xchange Admin Master
  - Username: oxadminmaster
  - Password used at this guide: admin\_master\_password
  - Responsibility: Manage contexts, manage all kinds of low level server configuration
- The Context Admin
  - Username: oxadmin
  - Password used at this guide: admin\_password
  - Responsibility: Manage users/groups/resources inside a context

In order to setup the Open-Xchange Server it is mandatory to have the database running:

```
$ /etc/init.d/mysqld start
```

**Note:** in case of a distributed setup, it is recommended to start mysql with `--skip-name-resolve` or to add all hosts to the hosts file of the database server so that slow DNS responses do not slow down the creation of new database connections. In a distributed setup you should also take care of the fact that Open-Xchange supports only a Statement Based Replication at the moment (<http://dev.mysql.com/doc/refman/5.1/en/replication-formats.html>). See also [Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering) [[http://oxpedia.org/wiki/index.php?title=Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering)]

a good idea is to add the Open-Xchange binaries to PATH:

```
$ echo PATH=$PATH:/opt/open-xchange/sbin/ >> ~/.bashrc && .  
~/.bashrc
```

Now we have to initialize the Open-Xchange configdb database. This can all be done by executing the `initconfigdb` script.

```
$ /opt/open-xchange/sbin/initconfigdb --configdb-pass=db_password  
-a
```

Add the `-i` option if you want to remove an already existing open-xchange configdb.

**Note:** The `-a` parameter adds an administrative account to mysql, this administrative account is required for the creation of the `oxdatabase` database, you may find problems following the instructions of this tutorial if you either set a mysql root password or do not create this administrative account, if you have manually setup this administrative account, grant the permissions for database creation or you may find a problem in the context creation

Before starting any service, all basic configuration files need to be set up correctly. The `--configdb-pass` option indicates the password of the `openexchange` database user previously created, the `--master-pass` options specifies the password of the Open-Xchange `adminmaster` user that will be created when executing the `oxinstaller` script.

Now is a good time to configure the way OX will authenticate to your mail server. Edit the file `/opt/open-xchange/etc/groupware/mail.properties` and change the `com.openexchange.mail.loginSource` to `use`. This is very important for servers that require your full email address to log in with.



**Important:** You should have your Open-Xchange license code at hand. If you do not plan to license Open-Xchange, you can use the option `--no-license` instead. Please also check [OXReportClient](http://oxpedia.org/wiki/index.php?title=OXReportClient) [http://oxpedia.org/wiki/index.php?title=OXReportClient] documentation for more information about configuring a supported and maintained Open-Xchange server.

**Important:** For `MAX_MEMORY_FOR_JAVAVM` a rule of thumb for simple installations is half available system memory. For production environments please consult our [Sizing Whitepaper](http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf) [http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf].

```
$ /opt/open-xchange/sbin/oxinstaller --add-license=YOUR-OX-LICENSE-CODE \  
--servername=oxserver --configdb-pass=db_password \  
--master-pass=admin_master_password --ajp-bind-port=localhost \  
--servermemory MAX_MEMORY_FOR_JAVAVM
```

**Note:** In a clustered setup, `--ajp-bind-port` must be set to `*`

After initializing the configuration, start the Open-Xchange service by executing:

```
$ /etc/init.d/open-xchange start
```

Next we have to register the local server at the Open-Xchange configdb database:

```
$ /opt/open-xchange/sbin/registerserver -n oxserver -A  
oxadminmaster -P admin_master_password
```

Now we have to create a local directory that should be used as Open-Xchange filestore. This directory will contain all Infostore content and files attached to groupware objects. To maintain access by the Open-Xchange Groupware service, it is required to grant permissions to the open-xchange system user.

```
$ mkdir /var/opt/filestore  
$ chown open-xchange:open-xchange /var/opt/filestore
```

Now register the directory as a filestore at the Open-Xchange server:

```
$ /opt/open-xchange/sbin/registerfilestore -A oxadminmaster -P  
admin_master_password \  
-t file:/var/opt/filestore -s 1000000
```

**Note:** You might want to adapt the value provided with `-s`, the "The maximum size of the filestore in MB", see `registerfilestore --help`.

Finally register the groupware database, this is a separated database where all groupware specific data is stored:

```
$ /opt/open-xchange/sbin/registerdatabase -A oxadminmaster -P  
admin_master_password \  
-n oxdatabase -p db_password -m true
```

## 11.5. Configure services

Now as the Open-Xchange Server has been set up and the database is running, we have to configure the Apache webserver and the `mod_proxy_ajp` module to access the groupware frontend. To gain better GUI performance, the usage of `mod_expires` and `mod_deflate` is strongly recommended. Those modules will limit the amount of client requests and compress the delivered content. The default installation of the Apache webserver on RHEL provides a welcome screen which is not necessary for server operation, it can be removed by deleting the corresponding configuration file:

```
$ rm /etc/httpd/conf.d/welcome.conf
```

Configure the `mod_proxy_ajp` module by creating a new Apache configuration file.

```
$ vim /etc/httpd/conf.d/proxy_ajp.conf
```

```
# Please note that the servlet path to the soap API has changed:
```

```
<Location /webservices>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168 10 172.16
</Location>
# the old path is kept for compatibility reasons
```

```
<Location /servlet/axis2/services>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168 10 172.16
</Location>
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
```

```
<IfModule mod_proxy_ajp.c>
  ProxyRequests Off
  <Proxy balancer://oxcluster>
    Order deny,allow
    Allow from all
    # multiple server setups need to have the hostname inserted instead localhost
    BalancerMember ajp://localhost:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX1
    # Enable and maybe add additional hosts running OX here
    # BalancerMember ajp://oxhost2:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX2
    ProxySet stickysession=JSESSIONID
  </Proxy>
  <Proxy /ajax>
    ProxyPass balancer://oxcluster/ajax
  </Proxy>
  <Proxy /servlet>
    ProxyPass balancer://oxcluster/servlet
  </Proxy>
```

```

<Proxy /infostore>
    ProxyPass balancer://oxcluster/infostore
</Proxy>
<Proxy /publications>
    ProxyPass balancer://oxcluster/publications
</Proxy>
<Proxy /Microsoft-Server-ActiveSync>
    ProxyPass balancer://oxcluster/Microsoft-Server-ActiveSync
</Proxy>
<Proxy /usm-json>
    ProxyPass balancer://oxcluster/usm-json
</Proxy>
<Proxy /webservices>
    ProxyPass balancer://oxcluster/webservices
</Proxy>
</IfModule>

```

Modify the default website settings to display the Open-Xchange GUI

```
$ vim /etc/httpd/conf.d/ox.conf
```

```

<VirtualHost *:80>
ServerAdmin webmaster@localhost

DocumentRoot /var/www/html

<Directory /var/www/html>
    AllowOverride None
    Order allow,deny
    allow from all
    RedirectMatch ^/$ /ox6/
        Options +FollowSymLinks +SymLinksIfOwnerMatch
</Directory>
    # deflate
    AddOutputFilterByType DEFLATE text/html text/plain text/javascript application/javascript text/css text/xml application/xr

# pre-compressed files
AddType text/javascript .jsz
AddType text/css .cssz
AddType text/xml .xmlz
    AddType text/plain .po

AddEncoding gzip .jsz .cssz .xmlz
SetEnvIf Request_URI "\.(jsz|cssz|xmlz)$" no-gzip

ExpiresActive On

<Location /ox6>
    # Expires (via ExpiresByType to override global settings)
    ExpiresByType image/gif "access plus 6 months"
    ExpiresByType image/png "access plus 6 months"
    ExpiresByType image/jpg "access plus 6 months"
    ExpiresByType image/jpeg "access plus 6 months"
    ExpiresByType text/css "access plus 6 months"
    ExpiresByType text/html "access plus 6 months"

```

```

ExpiresByType text/xml "access plus 6 months"
ExpiresByType text/javascript "access plus 6 months"
ExpiresByType text/x-js "access plus 6 months"
ExpiresByType application/x-javascript "access plus 6 months"
ExpiresDefault "access plus 6 months"
Header append Cache-Control "private"
Header unset Last-Modified
Header unset Vary
# Strip version
RewriteEngine On
RewriteRule v=\w+/(.+)$1 [L]
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/ox.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/index.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>
</VirtualHost>

```

After the configuration is done, restart the Apache webserver

```
$ /etc/init.d/httpd restart
```

## 11.6. Adding services to runlevels

The new services are now installed and configured, but to make them start up on a server boot, they need to be added to some runlevels:

```
$ chkconfig --level 345 mysqld on  
$ chkconfig --level 345 httpd on  
$ chkconfig --level 345 open-xchange on
```

## 11.7. Creating contexts and users

Now as the whole setup is complete and you already should get a login screen when accessing the server with a webbrowser, we have to setup a context and a default user as the last step of this tutorial.

The mapping defaultcontext will allow you to set this context as the default one of the entire system so that users which will be created within this context can login into Open-Xchange Server without specifying their domain at the login screen. Only one context can be specified as defaultcontext. The oxadmin user that will be created by this command is the default admin of the created context. This account will gather additional functions that are also described in the administration manual. The context id parameter must to be unique and numeric, otherwise the server will complain when you try to create a context. New contexts must be created by the oxadminmaster user, user accounts inside a context are created with the credentials of the contexts oxadmin account. The access-combination-name property defines the set of available modules and functions for users of the context.

```
$ /opt/open-xchange/sbin/createcontext -A oxadminmaster -P admin_master_password -c 1 \  
-u oxadmin -d "Context Admin" -g Admin -s User -p secret -L defaultcontext \  
-e oxadmin@example.com -q 1024 --access-combination-name=all
```

Create a user for testing purposes:

```
$ /opt/open-xchange/sbin/createuser -c 1 -A oxadmin -P secret -u testuser \  
-d "Test User" -g Test -s User -p secret -e testuser@example.com \  
--imaplogin testuser --imapserver 127.0.0.1 --smtpserver 127.0.0.1
```

Now connect to the server with a webbrowser and login using the credentials testuser / secret.

## 11.8. Log files and issue tracking

Whenever unexpected or erroneous behavior takes place, it will be logged depending on the configured loglevel. All logfiles are stored at the operating systems default location. Events triggered by the Open-Xchange Groupware services are logged to a rotating file `open-xchange.log`, events triggered by the Open-Xchange Administration service are logged to `open-xchange-admin.log`. Those files are the very first place to monitor.

```
$ tail -f -n200 /var/log/open-xchange/open-xchange.log.0  
$ tail -f -n200 /var/log/open-xchange/open-xchange-admin.log.0
```





## Chapter 12. Open-Xchange Server 6 (v6.22) on CentOS6 Linux

This chapter will guide you through the installation of the Open-Xchange server, it describes the basic configuration and software requirements. As it is intended as a quick walk-through it assumes an existing installation of the operating system and requires average system administration skills. More, this guide will show you how to setup a basic installation with none of the typically used distributed environment settings. The target of this guide is:

- To set up a single server installation
- To set up a single Open-Xchange instance, no cluster
- To set up a database for a single database service, no replication
- To provide a basic configuration setup, no mailserver configuration

**Important: This installation guide will only work for v6.22. If you want to install v6.20 please use the installation guide for earlier versions.**

## 12.1. Requirements

- Plain installed CentOS5 with latest updates
- A configured internet connection

## 12.2. Add Open-Xchange Repository

Open-Xchange maintains public available software repositories for different platforms, such as RHEL. This repository should be added to the RHEL installation to enable simple installation and updates.

Start a console and create a software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
```

```
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL6/
```

```
gpgkey=http://software.open-xchange.com/oxbuildkey.pub  
enabled=1  
gpgcheck=1  
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)

## 12.3. Updating repositories and installing packages

Reload the package index. This will download the package descriptions available at the software repositories:

```
$ yum update
```

The following command starts the download and installation process of all required package for Open-Xchange deployment:

If you want to install everything on a single server, just run

```
$ yum install mysql-server open-xchange open-xchange-authentication-database open-xchange-ajp open-xchange-admin open-xchange-activesync
```

**Note:** You have to choose between one of the available spamhandler and authentication packages depending on your requirements.

## 12.4. Open-Xchange configuration

To avoid confusion right at the start notice that Open-Xchange uses multiple administration levels and requires different credentials at some stages at the installation and server management. Note that the passwords chosen at this guide are weak and should be replaced by stronger passwords.

- The MySQL database user
  - Username: openexchange
  - Password used at this guide: db\_password
  - Responsibility: Execute all kinds of database operations
- The Open-Xchange Admin Master
  - Username: oxadminmaster
  - Password used at this guide: admin\_master\_password
  - Responsibility: Manage contexts, manage all kinds of low level server configuration
- The Context Admin
  - Username: oxadmin
  - Password used at this guide: admin\_password
  - Responsibility: Manage users/groups/resources inside a context

In order to setup the Open-Xchange Server it is mandatory to have the database running:

```
$ /etc/init.d/mysqld start
```

**Note:** In case of a distributed setup, it is recommended to start mysql with `--skip-name-resolve` or to add all hosts to the hosts file of the database server so that slow DNS responses do not slow down the creation of new database connections. In a distributed setup you should also take care of the fact that Open-Xchange supports only a Statement Based Replication at the moment (<http://dev.mysql.com/doc/refman/5.1/en/replication-formats.html>). See also [Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering) [[http://oxpedia.org/wiki/index.php?title=Load\\_balancing\\_and\\_clustering](http://oxpedia.org/wiki/index.php?title=Load_balancing_and_clustering)]

a good idea is to add the Open-Xchange binaries to PATH:

```
$ echo PATH=$PATH:/opt/open-xchange/sbin/ >> ~/.bashrc && .  
~/.bashrc
```

Now we have to initialize the Open-Xchange configdb database. This can all be done by executing the `initconfigdb` script.

```
$ /opt/open-xchange/sbin/initconfigdb --configdb-pass=db_password  
-a
```

Add the `-i` option if you want to remove an already existing open-xchange configdb.

**Note:** The `-a` parameter adds an administrative account to mysql, this administrative account is required for the creation of the `oxdatabase` database, you may find problems following the instructions of this tutorial if you either set a mysql root password or do not create this administrative account, if you have manually setup this administrative account, grant the permissions for database creation or you may find a problem in the context creation

Before starting any service, all basic configuration files need to be set up correctly. The `--configdb-pass` option indicates the password of the `openexchange` database user previously created, the `--master-pass` options specifies the password of the Open-Xchange `adminmaster` user that will be created when executing the `oxinstaller` script.

Now is a good time to configure the way OX will authenticate to your mail server. Edit the file `/opt/open-xchange/etc/groupware/mail.properties` and change the `com.openexchange.mail.loginSource` to `use`. This is very important for servers that require your full email address to log in with.

**Important:** You should have your Open-Xchange license code at hand. If you do not plan to license Open-Xchange, you can use the option `--no-license` instead. Please also check [OXReportClient](http://oxpedia.org/wiki/index.php?title=OXReportClient) [http://oxpedia.org/wiki/index.php?title=OXReportClient] documentation for more information about configuring a supported and maintained Open-Xchange server.

**Important:** For `MAX_MEMORY_FOR_JAVAVM` a rule of thumb for simple installations is half available system memory. For production environments please consult our [Sizing Whitepaper](http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf) [http://software.open-xchange.com/OX6/doc/whitepaper/OX6-Sizing-Whitepaper.pdf].

```
$ /opt/open-xchange/sbin/oxinstaller --add-license=YOUR-OX-LICENSE-CODE \  
--servername=oxserver --configdb-pass=db_password \  
--master-pass=admin_master_password --ajp-bind-port=localhost --servermemory MAX_MEMORY_FOR_JAVAVM
```

**Note:** In a clustered setup, `--ajp-bind-port` must be set to `*`

After initializing the configuration, start the Open-Xchange service by executing:

```
$ /etc/init.d/open-xchange start
```

Next we have to register the local server at the Open-Xchange configdb database:

```
$ /opt/open-xchange/sbin/registerserver -n oxserver -A  
oxadminmaster -P admin_master_password
```

Now we have to create a local directory that should be used as Open-Xchange filestore. This directory will contain all Infostore content and files attached to groupware objects. To maintain access by the Open-Xchange Groupware service, it is required to grant permissions to the open-xchange system user.

```
$ mkdir /var/opt/filestore  
$ chown open-xchange:open-xchange /var/opt/filestore
```

Now register the directory as a filestore at the Open-Xchange server:

```
$ /opt/open-xchange/sbin/registerfilestore -A oxadminmaster -P  
admin_master_password \  
-t file:/var/opt/filestore -s 1000000
```

**Note:** You might want to adapt the value provided with `-s`, the "The maximum size of the filestore in MB", see `registerfilestore --help`.

Finally register the groupware database, this is a separated database where all groupware specific data is stored:

```
$ /opt/open-xchange/sbin/registerdatabase -A oxadminmaster -P  
admin_master_password \  
-n oxdatabase -p db_password -m true
```

## 12.5. Configure services

Now as the Open-Xchange Server has been set up and the database is running, we have to configure the Apache webserver and the `mod_proxy_ajp` module to access the groupware frontend. To gain better GUI performance, the usage of `mod_expires` and `mod_deflate` is strongly recommended. Those modules will limit the amount of client requests and compress the delivered content. The default installation of the Apache webserver on RHEL provides a welcome screen which is not necessary for server operation, it can be removed by deleting the corresponding configuration file:

```
$ rm /etc/httpd/conf.d/welcome.conf
```

Configure the `mod_proxy_ajp` module by creating a new Apache configuration file.

```
$ vim /etc/httpd/conf.d/proxy_ajp.conf
```

```
# Please note that the servlet path to the soap API has changed:
```

```
<Location /webservices>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168 10 172.16
</Location>
# the old path is kept for compatibility reasons
```

```
<Location /servlet/axis2/services>
  # restrict access to the soap provisioning API
  Order Deny,Allow
  Deny from all
  Allow from 127.0.0.1
  # you might add more ip addresses / networks here
  # Allow from 192.168 10 172.16
</Location>
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
```

```
<IfModule mod_proxy_ajp.c>
  ProxyRequests Off
  <Proxy balancer://oxcluster>
    Order deny,allow
    Allow from all
    # multiple server setups need to have the hostname inserted instead localhost
    BalancerMember ajp://localhost:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX1
    # Enable and maybe add additional hosts running OX here
    # BalancerMember ajp://oxhost2:8009 timeout=100 smax=0 ttl=60 retry=60 loadfactor=50 route=OX2
    ProxySet stickysession=JSESSIONID
  </Proxy>
  <Proxy /ajax>
    ProxyPass balancer://oxcluster/ajax
  </Proxy>
  <Proxy /servlet>
    ProxyPass balancer://oxcluster/servlet
  </Proxy>
```



```

<Proxy /infostore>
  ProxyPass balancer://oxcluster/infostore
</Proxy>
<Proxy /publications>
  ProxyPass balancer://oxcluster/publications
</Proxy>
<Proxy /Microsoft-Server-ActiveSync>
  ProxyPass balancer://oxcluster/Microsoft-Server-ActiveSync
</Proxy>
<Proxy /usm-json>
  ProxyPass balancer://oxcluster/usm-json
</Proxy>
<Proxy /webservices>
  ProxyPass balancer://oxcluster/webservices
</Proxy>
</IfModule>

```

Modify the default website settings to display the Open-Xchange GUI

```
$ vim /etc/httpd/conf.d/ox.conf
```

```

<VirtualHost *:80>
  ServerAdmin webmaster@localhost

  DocumentRoot /var/www/html

  <Directory /var/www/html>
    AllowOverride None
    Order allow,deny
    allow from all
    RedirectMatch ^/$ /ox6/
      Options +FollowSymLinks +SymLinksIfOwnerMatch
  </Directory>
  # deflate
  AddOutputFilterByType DEFLATE text/html text/plain text/javascript application/javascript text/css text/xml application/xr

  # pre-compressed files
  AddType text/javascript .jsz
  AddType text/css .cssz
  AddType text/xml .xmlz
    AddType text/plain .po

  AddEncoding gzip .jsz .cssz .xmlz
  SetEnvIf Request_URI "\.(jsz|cssz|xmlz)$" no-gzip

  ExpiresActive On

  <Location /ox6>
    # Expires (via ExpiresByType to override global settings)
    ExpiresByType image/gif "access plus 6 months"
    ExpiresByType image/png "access plus 6 months"
    ExpiresByType image/jpg "access plus 6 months"
    ExpiresByType image/jpeg "access plus 6 months"
    ExpiresByType text/css "access plus 6 months"
    ExpiresByType text/html "access plus 6 months"

```

```
ExpiresByType text/xml "access plus 6 months"
ExpiresByType text/javascript "access plus 6 months"
ExpiresByType text/x-js "access plus 6 months"
ExpiresByType application/x-javascript "access plus 6 months"
ExpiresDefault "access plus 6 months"
Header append Cache-Control "private"
Header unset Last-Modified
Header unset Vary
# Strip version
RewriteEngine On
RewriteRule v=\w+/(.+)$1 [L]
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/ox.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>

<Location /ox6/index.html>
ExpiresByType text/html "now"
ExpiresDefault "now"
Header unset Last-Modified
Header set Cache-Control "no-store, no-cache, must-revalidate, post-check=0, pre-check=0"
# Turn off ETag
Header unset ETag
FileETag None
</Location>
</VirtualHost>
```

After the configuration is done, restart the Apache webserver

```
$ /etc/init.d/httpd restart
```

## 12.6. Adding services to runlevels

The new services are now installed and configured, but to make them start up on a server boot, they need to be added to some runlevels:

```
$ chkconfig --level 345 mysqld on  
$ chkconfig --level 345 httpd on  
$ chkconfig --level 345 open-xchange on
```

## 12.7. Creating contexts and users

Now as the whole setup is complete and you already should get a login screen when accessing the server with a webbrowser, we have to setup a context and a default user as the last step of this tutorial.

The mapping defaultcontext will allow you to set this context as the default one of the entire system so that users which will be created within this context can login into Open-Xchange Server without specifying their domain at the login screen. Only one context can be specified as defaultcontext. The oxadmin user that will be created by this command is the default admin of the created context. This account will gather additional functions that are also described in the administration manual. The context id parameter must to be unique and numeric, otherwise the server will complain when you try to create a context. New contexts must be created by the oxadminmaster user, user accounts inside a context are created with the credentials of the contexts oxadmin account. The access-combination-name property defines the set of available modules and functions for users of the context.

```
$ /opt/open-xchange/sbin/createcontext -A oxadminmaster -P admin_master_password -c 1 \  
-u oxadmin -d "Context Admin" -g Admin -s User -p secret -L defaultcontext \  
-e oxadmin@example.com -q 1024 --access-combination-name=all
```

Create a user for testing purposes:

```
$ /opt/open-xchange/sbin/createuser -c 1 -A oxadmin -P secret -u testuser \  
-d "Test User" -g Test -s User -p secret -e testuser@example.com \  
--imaplogin testuser --imapserver 127.0.0.1 --smtpserver 127.0.0.1
```

Now connect to the server with a webbrowser and login using the credentials testuser / secret.

## 12.8. Log files and issue tracking

Whenever unexpected or erroneous behavior takes place, it will be logged depending on the configured loglevel. All logfiles are stored at the operating systems default location. Events triggered by the Open-Xchange Groupware services are logged to a rotating file `open-xchange.log`, events triggered by the Open-Xchange Administration service are logged to `open-xchange-admin.log`. Those files are the very first place to monitor.

```
$ tail -f -n200 /var/log/open-xchange/open-xchange.log.0  
$ tail -f -n200 /var/log/open-xchange/open-xchange-admin.log.0
```



## **Chapter 13. Update of Open-Xchange Server v6.20 to v6.22 on Debian GNU/Linux 6.0**

This chapter will guide you through the update of an existing Open-Xchange Server 6 installation to the newest major release, v6.22.

## 13.1. Supported update path

Please note that the update to v6.22 is only supported from an installed version 6.20.7 or later. If you have an earlier version of Open-Xchange Server 6 installed, please update to the latest release of v6.20 before attempting an update to v6.22.

The latest v6.20 release will remain accessible on our servers. If you need to access the repository after the release of v6.22, please use the following lines in your apt repository configuration to access v6.20 packages:

```
deb http://software.open-xchange.com/OX6/6.20/DebianSqueeze/ /
```

```
# if you have a valid maintenance subscription, please uncomment the  
# following and add the ldb account data to the url so that the most recent  
# packages get installed  
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.20/updates/DebianSqueeze /
```



## 13.2. Requirements

- An Open-Xchange Server installation v6.20.7 or later. This update guide is valid for a system installed through our [7: Open-Xchange Server 6 \(v6.22\) on Debian GNU/Linux 6.0](#) (page 39) Download and Installation Guide for Debian GNU/Linux 6.0 (Squeeze)
- If you have custom packages done by Open-Xchange, please discuss with your Open-Xchange contact when these packages are available for 6.22. Do not attempt the update earlier
- If you have built custom packages yourself which install config files in the OX config tree, please check the page [5: Packaging changes in Open-Xchange Server v6.22](#) (page 31)
- If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the pages [5: Packaging changes in Open-Xchange Server v6.22](#) (page 31) and [6: Code changes necessary for Open-Xchange Server v6.22](#) (page 35) for changes you might need to do.
- Custom packages built for 6.20.7 or earlier might not work with 6.22.
- As for every update we strongly recommend that you make a backup of your system(s) before you proceed.

### 13.3. Add Open-Xchange Repository

Add the following repositories to your apt configuration to access the v6.22 packages:

```
deb http://software.open-xchange.com/OX6/6.22/frontend/DebianSqueeze/ /
deb http://software.open-xchange.com/OX6/6.22/backend/DebianSqueeze/ /
deb http://software.open-xchange.com/OX6/6.22/usm/DebianSqueeze/ /
```

```
# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the urls so that the most recent
# packages get installed
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/DebianSqueeze /
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/DebianSqueeze /
# deb http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/DebianSqueeze /
```

Please note that frontend and backend packages are now provided from two different repositories. Depending on your setup and the packages installed on the specific system you're updating it is possible that you only need one of these repositories. All packages providing open-xchange-admin functionality are included in the backend repository.

## 13.4. Updating repositories and updating packages

Reload the package index:

```
$ apt-get update
```

Download and update all installed packages:

```
$ apt-get dist-upgrade
```

**IMPORTANT:** Please be extremely careful when executing `apt-get autoremove` after the upgrade. On some test systems packages were marked for automatic removal even if they were still needed.

To remove a package from the autoremove list, you can use:

```
$ apt-mark unmarkauto package1 [package2 [package3 [...]]]
```

## 13.5. Install additional language packages if necessary

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update.

For German:

```
$ apt-get install open-xchange-l10n-de-de open-xchange-gui-l10n-de-de
```

For French:

```
$ apt-get install open-xchange-l10n-fr-fr open-xchange-gui-l10n-fr-fr
```

For British English:

```
$ apt-get install open-xchange-gui-l10n-en-gb
```

## 13.6. Restart Open-Xchange

To restart Open-Xchange Server after the update, run

```
$ /etc/init.d/open-xchange restart
```

This script will check on startup if the old processes for open-xchange-groupware and open-xchange-admin are running, and stops them if they are. You might still want to check with

```
$ ps aux | grep open-xchange
```

that there is now only one process running Open-Xchange Server

## 13.7. Leftover configuration files and runtime data

After the update you may see leftover configuration files and runtime data below `/opt/open-xchange/etc`.

Some of these files belong to packages which have been uninstalled during the update, they are marked with the status `rc` in the output of `dpkg -l`. You can remove these packages with the command

```
$ dpkg --purge <packagename>
```

Other orphaned files may be runtime data or temporary files which do not belong to any package and therefore couldn't be removed during the package update.

Finally, there may be backup files created by the package manager during earlier updates.

It is safe to remove:

- All files and subdirectories below:

```
/opt/open-xchange/etc/admind daemon
```

```
/opt/open-xchange/etc/common
```

```
/opt/open-xchange/etc/groupware
```

unless you have built your own packages which install files into these directories.

- All files ending in `.dpkg-bak` or `.dpkg-remove`

---

## Chapter 14. Update of Open-Xchange Server v6.20 to v6.22 on SLES11

This chapter will guide you through the update of an existing Open-Xchange Server 6 installation to the newest major release, v6.22.

## 14.1. Supported update path

Please note that the update to v6.22 is only supported from an installed version 6.20.7 or later. If you have an earlier version of Open-Xchange Server 6 installed, please update to the latest release of v6.20 before attempting an update to v6.22.

The latest v6.20 release will remain accessible on our servers. If you need to access the repository after the release of v6.22, please use the following lines in your apt repository configuration to access v6.20 packages.

First, list your configured repositories:

```
$ zypper lr
```

Next, disable your existing Open-Xchange package repository. Assuming it is called ox, the command would be:

```
$ zypper mr -d ox
```

Finally, add the repository for 6.20.7 packages:

```
$ zypper ar http://software.open-xchange.com/OX6/6.20/SLES11/ ox-6.20
```

After updating your system, disable the repository again:

```
$ zypper mr -d ox-6.20
```

Instead of disabling the repositories you can also remove them with the command `zypper rr`.



## 14.2. Requirements

- An Open-Xchange Server installation v6.20.7 or later. This update guide is valid for a system installed through our [8: Open-Xchange Server 6 \(v6.22\) on SuSE Linux Enterprise Server 11 \(page 53\)](#)
- If you have custom packages done by Open-Xchange, please discuss with your Open-Xchange contact when these packages are available for 6.22. Do not attempt the update earlier
- If you have built custom packages yourself which install config files in the OX config tree, please check the [page 5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#)
- If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the [pages 5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#) and [6: Code changes necessary for Open-Xchange Server v6.22 \(page 35\)](#) for changes you might need to do.
- Custom packages built for 6.20.7 or earlier might not work with 6.22.
- As for every update we strongly recommend that you make a backup of your system(s) before you proceed.

## 14.3. Add Open-Xchange Repository

First, you need to add the current repositories to your zypper configuration to access the v6.22 packages.

To do so, start with listing your existing repositories.

```
$ zypper lr
```

Then, disable your configured Open-Xchange repositories. Assuming they are called ox and ox-updates, the commands would be:

```
$ zypper mr -d ox  
$ zypper mr -d ox-updates
```

Instead of disabling the repositories, you can also remove them with zypper rr.

Finally, add the new Open-Xchange repositories for SLES11:

```
$ zypper ar http://software.open-xchange.com/OX6/6.22/frontend/SLES11/ ox-frontend  
$ zypper ar http://software.open-xchange.com/OX6/6.22/backend/SLES11/ ox-backend  
$ zypper ar http://software.open-xchange.com/OX6/6.22/usm/SLES11/ ox-usm
```

If you have a valid maintenance subscription, please run the following command so that the most recent packages get installed:

```
$ zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/SLES11/ ox-updates-  
$ zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/SLES11/ ox-updates-  
$ zypper ar http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/SLES11/ ox-updates-usm
```

A warning will be shown because the Open-Xchange packages are not yet signed by a cryptographic key. To accept and continue the installation, press Y.

Please note that frontend and backend packages are now provided from two different repositories. Depending on your setup and the packages installed on the specific system you're updating it is possible that you only need one of these repositories. All packages providing open-xchange-admin functionality are included in the backend repository. The repository usm is also only needed on backend servers.

## 14.4. Updating repositories and updating packages

Reload the package index:

```
$ zypper ref
```

A warning will be shown because the Open-Xchange packages are not yet signed by a cryptographic key. To accept and continue the installation, press Y.

Download and update all installed Open-Xchange packages:

```
$ zypper dup -r ox-backend -r ox-frontend -r ox-usm
```

## 14.5. Install additional language packages if necessary

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update.

For German:

```
$ zypper in open-xchange-l10n-de-de open-xchange-gui-l10n-de-de
```

For French:

```
$ zypper in open-xchange-l10n-fr-fr open-xchange-gui-l10n-fr-fr
```

For British English:

```
$ zypper in open-xchange-gui-l10n-en-gb
```

## 14.6. Adjusting runlevel configuration

Starting with v6.22 there are no longer two separate process, but only one, open-xchange. Therefore, the runlevel configuration needs to be adjusted:

```
$ inserv /sbin/rcopen-xchange
```

**NOTE:** Admin functionality is only available if the package open-xchange-admin is installed. If you are updating a system without admin packages installed it still won't have admin functionality after the update.

## 14.7. Restart Open-Xchange

To restart Open-Xchange Server after the update, run

```
$ rcopen-xchange restart
```

This script will check on startup if the old processes for open-xchange-groupware and open-xchange-admin are running, and stops them if they are. You might still want to check with

```
$ ps aux | grep open-xchange
```

that there is now only one process running Open-Xchange Server

## 14.8. Leftover configuration files and runtime data

After the update you may see leftover configuration files and runtime data below `/opt/open-xchange/etc`.

Some of these files belong to packages which have been uninstalled during the update.

Other orphaned files may be runtime data or temporary files which do not belong to any package and therefore couldn't be removed during the package update.

Finally, there may be backup files created by the package manager during earlier updates.

It is safe to remove:

- All files and subdirectories below:

`/opt/open-xchange/etc/admindamon`  
`/opt/open-xchange/etc/common`  
`/opt/open-xchange/etc/groupware`

unless you have built your own packages which install files into these directories.

- All files ending in `.rpmsave` or `.rpmnew` once you are confident that your configuration is working after the update.





## Chapter 15. Update of Open-Xchange Server v6.20 to v6.22 on RHEL 5

This chapter will guide you through the update of an existing Open-Xchange Server 6 installation to the newest major release, v6.22.

## 15.1. Supported update path

Please note that the update to v6.22 is only supported from an installed version 6.20.7 or later. If you have an earlier version of Open-Xchange Server 6 installed, please update to the latest release of v6.20 before attempting an update to v6.22.

The latest v6.20 release will remain accessible on our servers. If you need to access the repository after the release of v6.22, please use the following lines in your yum repository configuration to access v6.20 packages.

Start a console and change the software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
[ox]
name=Open-Xchange
baseurl=http://software.open-xchange.com/OX6/6.20/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates]
name=Open-Xchange Updates
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.20/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

## 15.2. Requirements

- An Open-Xchange Server installation v6.20.7 or later. This update guide is valid for a system installed through our [9: Open-Xchange Server 6 \(v6.22\) on RedHat Enterprise Linux 5 \(page 67\)](#)
- If you have custom packages done by Open-Xchange, please discuss with your Open-Xchange contact when these packages are available for 6.22. Do not attempt the update earlier
- If you have built custom packages yourself which install config files in the OX config tree, please check the page [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#)
- If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the pages [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#) and [6: Code changes necessary for Open-Xchange Server v6.22 \(page 35\)](#) for changes you might need to do.
- Custom packages built for 6.20.7 or earlier might not work with 6.22.
- As for every update we strongly recommend that you make a backup of your system(s) before you proceed.

## 15.3. Update Open-Xchange Repository

Add the following repositories to your apt configuration to access the v6.22 packages:

```
$ vim /etc/yum.repos.d/ox.repo
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp) [[http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)]

Please note that frontend and backend packages are now provided from two different repositories. Depending on your setup and the packages installed on the specific system you're updating it is possible that you only need one of these repositories. All packages providing open-xchange-admin functionality are included in the backend repository.

## 15.4. Updating repositories and updating packages

Reload the package index:

```
$ yum update  
$ yum upgrade
```

## 15.5. Install additional language packages if necessary

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update.

For German:

```
$ yum install open-xchange-l10n-de-de open-xchange-gui-l10n-de-de
```

For French:

```
$ yum install open-xchange-l10n-fr-fr open-xchange-gui-l10n-fr-fr
```

For British English:

```
$ yum install open-xchange-gui-l10n-en-gb
```

## 15.6. Restart Open-Xchange

To restart Open-Xchange Server after the update, run

```
$ /etc/init.d/open-xchange restart
```

This script will check on startup if the old processes for open-xchange-groupware and open-xchange-admin are running, and stops them if they are. You might still want to check with

```
$ ps aux | grep open-xchange
```

that there is now only one process running Open-Xchange Server



## 15.7. Leftover configuration files and runtime data

After the update you may see leftover configuration files and runtime data below `/opt/open-xchange/etc`.

Some of these files belong to packages which have been uninstalled during the update. Other orphaned files may be runtime data or temporary files which do not belong to any package and therefore couldn't be removed during the package update.

```
package-cleanup --orphans | grep open-x*
```

Finally, there may be backup files created by the package manager during earlier updates.

It is safe to remove:

- All files and subdirectories below:

```
/opt/open-xchange/etc/admindaemon  
/opt/open-xchange/etc/common  
/opt/open-xchange/etc/groupware
```

unless you have built your own packages which install files into these directories.

- All files ending in `.rpmsave` or `.rpmnew` once you are confident that your configuration is working after the update.



## **Chapter 16. Update of Open-Xchange Server v6.20 to v6.22 on RHEL 6**

This chapter will guide you through the update of an existing Open-Xchange Server 6 installation to the newest major release, v6.22.

## 16.1. Supported update path

Please note that the update to v6.22 is only supported from an installed version 6.20.7 or later. If you have an earlier version of Open-Xchange Server 6 installed, please update to the latest release of v6.20 before attempting an update to v6.22.

The latest v6.20 release will remain accessible on our servers. If you need to access the repository after the release of v6.22, please use the following lines in your yum repository configuration to access v6.20 packages.

Start a console and change the software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
[ox]
name=Open-Xchange
baseurl=http://software.open-xchange.com/OX6/6.20/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates]
name=Open-Xchange Updates
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.20/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

## 16.2. Requirements

- An Open-Xchange Server installation v6.20.7 or later. This update guide is valid for a system installed through our [10: Open-Xchange Server 6 \(v6.22\) on RedHat Enterprise Linux 6 \(page 83\)](#)
- If you have custom packages done by Open-Xchange, please discuss with your Open-Xchange contact when these packages are available for 6.22. Do not attempt the update earlier
- If you have built custom packages yourself which install config files in the OX config tree, please check the page [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#)
- If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the pages [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#) and [6: Code changes necessary for Open-Xchange Server v6.22 \(page 35\)](#) for changes you might need to do.
- Custom packages built for 6.20.7 or earlier might not work with 6.22.
- As for every update we strongly recommend that you make a backup of your system(s) before you proceed.

## 16.3. Update Open-Xchange Repository

Add the following repositories to your apt configuration to access the v6.22 packages:

```
$ vim /etc/yum.repos.d/ox.repo
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp) [[http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)]

Please note that frontend and backend packages are now provided from two different repositories. Depending on your setup and the packages installed on the specific system you're updating it is possible that you only need one of these repositories. All packages providing open-xchange-admin functionality are included in the backend repository.

## 16.4. Updating repositories and updating packages

Reload the package index and update all installed packages:

```
$ yum update  
$ yum upgrade
```



## 16.5. Install additional language packages if necessary

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update.

For German:

```
$ yum install open-xchange-l10n-de-de open-xchange-gui-l10n-de-de
```

For French:

```
$ yum install open-xchange-l10n-fr-fr open-xchange-gui-l10n-fr-fr
```

For British English:

```
$ yum install open-xchange-gui-l10n-en-gb
```

## 16.6. Restart Open-Xchange

To restart Open-Xchange Server after the update, run

```
$ /etc/init.d/open-xchange restart
```

This script will check on startup if the old processes for open-xchange-groupware and open-xchange-admin are running, and stops them if they are. You might still want to check with

```
$ ps aux | grep open-xchange
```

that there is now only one process running Open-Xchange Server

## 16.7. Leftover configuration files and runtime data

After the update you may see leftover configuration files and runtime data below `/opt/open-xchange/etc`.

Some of these files belong to packages which have been uninstalled during the update. Other orphaned files may be runtime data or temporary files which do not belong to any package and therefore couldn't be removed during the package update.

```
package-cleanup --orphans | grep open-x*
```

Finally, there may be backup files created by the package manager during earlier updates.

It is safe to remove:

- All files and subdirectories below:

```
/opt/open-xchange/etc/admindaemon  
/opt/open-xchange/etc/common  
/opt/open-xchange/etc/groupware
```

unless you have built your own packages which install files into these directories.

- All files ending in `.rpmsave` or `.rpmnew` once you are confident that your configuration is working after the update.



## Chapter 17. Update of Open-Xchange Server v6.20 to v6.22 on CentOS 5

This chapter will guide you through the update of an existing Open-Xchange Server 6 installation to the newest major release, v6.22.

## 17.1. Supported update path

Please note that the update to v6.22 is only supported from an installed version 6.20.7 or later. If you have an earlier version of Open-Xchange Server 6 installed, please update to the latest release of v6.20 before attempting an update to v6.22.

The latest v6.20 release will remain accessible on our servers. If you need to access the repository after the release of v6.22, please use the following lines in your yum repository configuration to access v6.20 packages.

Start a console and change the software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
[ox]
name=Open-Xchange
baseurl=http://software.open-xchange.com/OX6/6.20/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates]
name=Open-Xchange Updates
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.20/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```

## 17.2. Requirements

- An Open-Xchange Server installation v6.20.7 or later. This update guide is valid for a system installed through our [11: Open-Xchange Server 6 \(v6.22\) on CentOS5 Linux \(page 99\)](#)
- If you have custom packages done by Open-Xchange, please discuss with your Open-Xchange contact when these packages are available for 6.22. Do not attempt the update earlier
- If you have built custom packages yourself which install config files in the OX config tree, please check the page [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#)
- If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the pages [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#) and [Chapter 6, Code changes necessary for Open-Xchange Server v6.22](#) for changes you might need to do.
- Custom packages built for 6.20.7 or earlier might not work with 6.22.
- As for every update we strongly recommend that you make a backup of your system(s) before you proceed.

## 17.3. Update Open-Xchange Repository

Add the following repositories to your apt configuration to access the v6.22 packages:

```
$ vim /etc/yum.repos.d/ox.repo
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL5/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
```



```
gpgcheck=1  
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp) [[http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)]

Please note that frontend and backend packages are now provided from two different repositories. Depending on your setup and the packages installed on the specific system you're updating it is possible that you only need one of these repositories. All packages providing open-xchange-admin functionality are included in the backend repository.

## 17.4. Updating repositories and updating packages

Reload the package index and update all installed packages:

```
$ yum update  
$ yum upgrade
```

## 17.5. Install additional language packages if necessary

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update.

For German:

```
$ yum install open-xchange-l10n-de-de open-xchange-gui-l10n-de-de
```

For French:

```
$ yum install open-xchange-l10n-fr-fr open-xchange-gui-l10n-fr-fr
```

For British English:

```
$ yum install open-xchange-gui-l10n-en-gb
```

## 17.6. Restart Open-Xchange

To restart Open-Xchange Server after the update, run

```
$ /etc/init.d/open-xchange restart
```

This script will check on startup if the old processes for open-xchange-groupware and open-xchange-admin are running, and stops them if they are. You might still want to check with

```
$ ps aux | grep open-xchange
```

that there is now only one process running Open-Xchange Server

## 17.7. Leftover configuration files and runtime data

After the update you may see leftover configuration files and runtime data below `/opt/open-xchange/etc`.

Some of these files belong to packages which have been uninstalled during the update. Other orphaned files may be runtime data or temporary files which do not belong to any package and therefore couldn't be removed during the package update.

```
package-cleanup --orphans | grep open-x*
```

Finally, there may be backup files created by the package manager during earlier updates.

It is safe to remove:

- All files and subdirectories below:

```
/opt/open-xchange/etc/admindaemon  
/opt/open-xchange/etc/common  
/opt/open-xchange/etc/groupware
```

unless you have built your own packages which install files into these directories.

- All files ending in `.rpmsave` or `.rpmnew` once you are confident that your configuration is working after the update.



## **Chapter 18. Update of Open-Xchange Server v6.20 to v6.22 on CentOS 6**

This chapter will guide you through the update of an existing Open-Xchange Server 6 installation to the newest major release, v6.22.

## 18.1. Supported update path

Please note that the update to v6.22 is only supported from an installed version 6.20.7 or later. If you have an earlier version of Open-Xchange Server 6 installed, please update to the latest release of v6.20 before attempting an update to v6.22.

The latest v6.20 release will remain accessible on our servers. If you need to access the repository after the release of v6.22, please use the following lines in your yum repository configuration to access v6.20 packages.

Start a console and change the software repository file for Open-Xchange:

```
$ vim /etc/yum.repos.d/ox.repo
[ox]
name=Open-Xchange
baseurl=http://software.open-xchange.com/OX6/6.20/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates]
name=Open-Xchange Updates
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.20/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m
```



## 18.2. Requirements

- An Open-Xchange Server installation v6.20.7 or later. This update guide is valid for a system installed through our [12: Open-Xchange Server 6 \(v6.22\) on CentOS6 Linux \(page 113\)](#)
- If you have custom packages done by Open-Xchange, please discuss with your Open-Xchange contact when these packages are available for 6.22. Do not attempt the update earlier
- If you have built custom packages yourself which install config files in the OX config tree, please check the page [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#)
- If you have custom plugins written by yourself which depend on Open-Xchange Server OSGI bundles, check the pages [5: Packaging changes in Open-Xchange Server v6.22 \(page 31\)](#) and [6: Code changes necessary for Open-Xchange Server v6.22 \(page 35\)](#) for changes you might need to do.
- Custom packages built for 6.20.7 or earlier might not work with 6.22.
- As for every update we strongly recommend that you make a backup of your system(s) before you proceed.

## 18.3. Update Open-Xchange Repository

Add the following repositories to your apt configuration to access the v6.22 packages:

```
$ vim /etc/yum.repos.d/ox.repo
[ox-frontend]
name=Open-Xchange-frontend
baseurl=http://software.open-xchange.com/OX6/6.22/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-backend]
name=Open-Xchange-backend
baseurl=http://software.open-xchange.com/OX6/6.22/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-usm]
name=Open-Xchange-USM
baseurl=http://software.open-xchange.com/OX6/6.22/usm/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

# if you have a valid maintenance subscription, please uncomment the
# following and add the ldb account data to the url so that the most recent
# packages get installed

[ox-updates-frontend]
name=Open-Xchange Updates-frontend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/frontend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-backend]
name=Open-Xchange Updates-backend
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/backend/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
gpgcheck=1
metadata_expire=0m

[ox-updates-usm]
name=Open-Xchange Updates-USM
baseurl=http://LDBACCOUNT:LDBPASSWORD@software.open-xchange.com/OX6/6.22/updates/usm/RHEL6/
gpgkey=http://software.open-xchange.com/oxbuildkey.pub
enabled=1
```

```
gpgcheck=1  
metadata_expire=0m
```

In case there are issues with an username and password containing URL unsafe characters, e.g. an @, they have to be entered URL encoded. Details can be found at [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp) [[http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp)]

Please note that frontend and backend packages are now provided from two different repositories. Depending on your setup and the packages installed on the specific system you're updating it is possible that you only need one of these repositories. All packages providing open-xchange-admin functionality are included in the backend repository.

## 18.4. Updating repositories and updating packages

Reload the package index and update all installed packages:

```
$ yum update  
$ yum upgrade
```

## 18.5. Install additional language packages if necessary

Starting with v6.22 the localization files for German, French and British English are no longer part of the core packages. This change was necessary to allow customers to uninstall these languages when they are not needed. If you want to offer German, French and/or British English to your customers as language option, you need to install the corresponding packages after the update.

For German:

```
$ yum install open-xchange-l10n-de-de open-xchange-gui-l10n-de-de
```

For French:

```
$ yum install open-xchange-l10n-fr-fr open-xchange-gui-l10n-fr-fr
```

For British English:

```
$ yum install open-xchange-gui-l10n-en-gb
```

## 18.6. Restart Open-Xchange

To restart Open-Xchange Server after the update, run

```
$ /etc/init.d/open-xchange restart
```

This script will check on startup if the old processes for open-xchange-groupware and open-xchange-admin are running, and stops them if they are. You might still want to check with

```
$ ps aux | grep open-xchange
```

that there is now only one process running Open-Xchange Server

## 18.7. Leftover configuration files and runtime data

After the update you may see leftover configuration files and runtime data below `/opt/open-xchange/etc`.

Some of these files belong to packages which have been uninstalled during the update. Other orphaned files may be runtime data or temporary files which do not belong to any package and therefore couldn't be removed during the package update.

```
package-cleanup --orphans | grep open-x*
```

Finally, there may be backup files created by the package manager during earlier updates.

It is safe to remove:

- All files and subdirectories below:

```
/opt/open-xchange/etc/admindaemon  
/opt/open-xchange/etc/common  
/opt/open-xchange/etc/groupware
```

unless you have built your own packages which install files into these directories.

- All files ending in `.rpmsave` or `.rpmnew` once you are confident that your configuration is working after the update.





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