Funambol Open-Xchange Connector Installation and Configuration Guide

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1. Introduction

The purpose of this document is to describe how to install and manage the Open-Xchange Sync Source component using the Administration Tool console.

This document is intended for administrators.

1.1. Requirements

In order to use the Open-Xchange connector you will need the following:

- OX-Server Express Edition version 6.1 or OX-Server Hosting Edition version 6.1
- Funambol Data Synchronization Service v6 or later

Note: Prior to installation, verify that the database server is up and running; in case you are using Funambol's Bundled version, it means that the Funambol Server Bundle must be running.

1.2. Related documents

The following documents are related to this document:

[1] Funambol Interchange Format

[2] Internet Calendaring and Scheduling Core Object Specification - [RFC 2445]

[3] Funambol Developer's Guide

[4] Funambol Administration Guide

2. Funambol Open-Xchange Synchronization Environment

2.1. Environment Description

Before starting with the installation procedure, we will provide a quick overview of Funambol's Open-Xchange (OX) synchronization environment.

The functionalities offered by the OX Connector are:

- PIM push
- Open-Xchange synchronization

To implement the PIM push functionality, the OX Connector provides the OX Listener tool (OXL), which offers a polling feature. The OXL polls the contacts and calendar folders for data changes for a given account; when data is changed for that account, the tool sends a notification to the Data Synchronization Service.

To use the OX synchronization feature, the OX Connector module must be added to the Data Synchronization Service; this component allows synchronization of a user's PIM data between the OX Server and a mobile device.

In order to manage the OX Connector, the administrator can use the panels provided in the Administration Tool after the OX Connector installation.

All data related to the OX Connector is stored in a database schema that must be added to the Funambol Data Synchronization Service Schema.

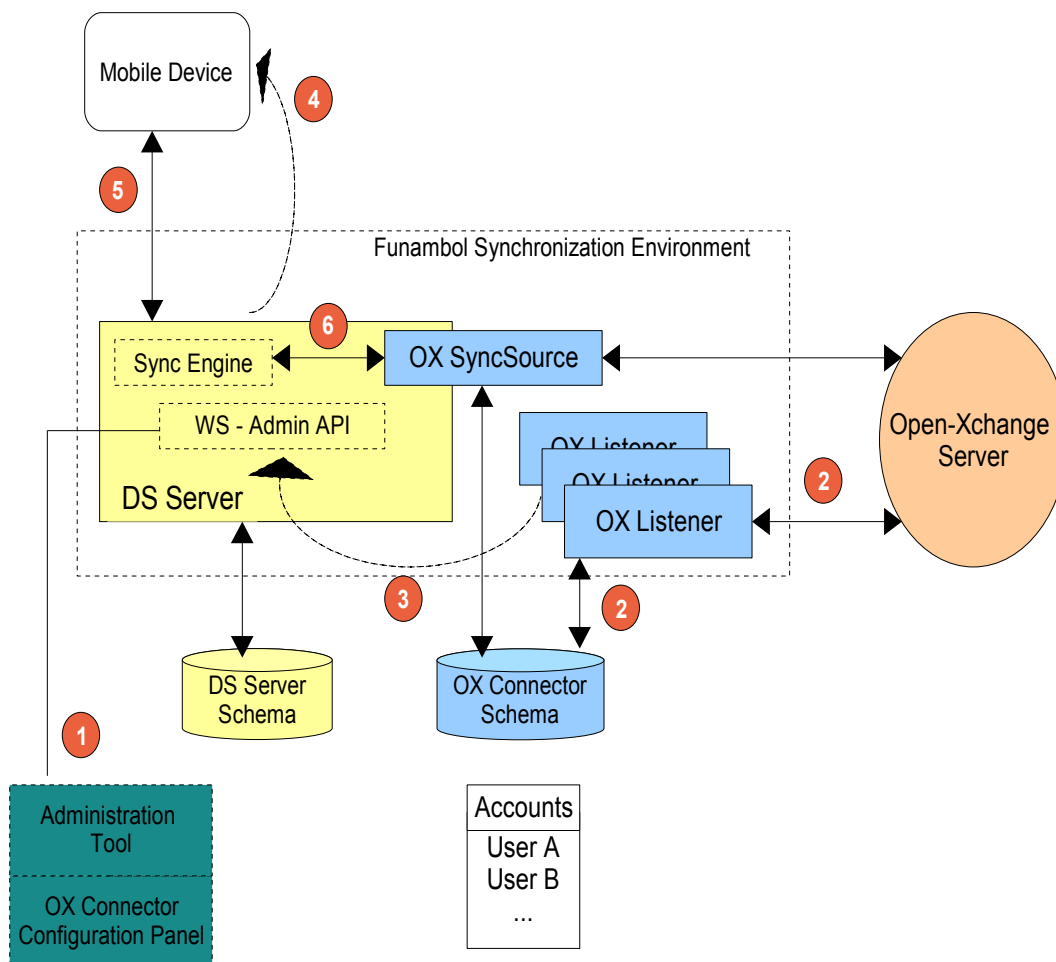The OX synchronization process is summarized in the following diagram:

Figure 1: The Funambol OX synchronization process

The mobile device performs a sync session. A sync session can be:

- driven by a Data Synchronization Service notification – the Data Synchronization Service sends a notification if there are changes in the contact or calendar folders.

- driven by the user – the user starts the sync session pressing the Sync button on the Funambol Client

1) The officer provides the "ds-user" (user in the Data Synchronization Service) and the "account" (ds-user + all the information about the OX Server) automatically.

2) The OXL uses the OX Connector DB Schema and reads data from the *Accounts* table. It also accesses the OX Server and periodically checks for data changes.

3) When there are any changes in the contacts or calendar folders, the OX Listener sends a notification to the Data Synchronization Service.

4) The Data Synchronization Service sends the notification to the user's client according to the push policy customized for each user.

5) The Data Synchronization Service uses the OX Connector in order to sync the PIM data stored on the device with the data stored on the OX Server.

3. Installing and configuring the Open-Xchange Connector

3.1. Installation Steps

The main steps required to install the Funambol OX Module, which is comprised of OX Connector and OX Listener, are the following:

- Verify that there is a DB connection (MySQL, PostgreSQL, Hypersonic)
- Install the Funambol OX Connector
  - The installation automatically creates the Connector DB schema
- Install the OX Listener Tool
  - Configure the *.xml and shell script (*.cmd or *.sh) files
- Run the Data Synchronization Service
- Run the Administration Tool
- Configure the OX Connector Properties
  - Set the OX URL in the OX Connector Panel in the Administration Tool
- Check the OX SyncSources
  - Create and set the parameters in the OX SyncSource Panel in the Administration Tool
- Configure the OX Officer in the Server Settings Panel in the Administration Tool
- Set the encryption in the OX SyncSource Panel in the Administration Tool (optional)
- Set the log level (optional)
- Set the "push environment" information in the Device Settings Panel
- Run the OX Listener Tool
  - The OX Listener starts polling the contacts, calendar and tasks folders
- Run a sync session from your mobile device or wait for a notification from the Data Synchronization Service

3.2. Funambol Open-Xchange Connector Installation Procedure

The Funambol Open-Xchange (OX) Connector is distributed as a standard Funambol module (See [3]). The distribution contains the following files:

- funambol-ox-<major>.<minor>.<build number>.s4j (the module)
- the release notes
- this guide

To install the module, follow these steps:

1. Copy the **funambol-ox-<x.x.x>.s4j** file in the directory *<FUNAMBOL_HOME>/ds-server/modules*

2. Using a text editor, modify the file *<FUNAMBOL_HOME>/ds-server/install.properties* adding "funambol-ox-*.*.*" to the comma separated modules list:

```
modules-to-install=foundation-x.x.x,pdi-x.x.x,pimweb-x.x.x,,funambol-ox-*.*.*
```

3. Call the modules installation command, found in *<FUNAMBOL_HOME>/ds-server*:

```
bin\install-modules.cmd <application_server>        (Windows)

bin/install-modules.sh <application_server>         (Linux)
```

where the optional parameter *<application_server>* is the Tomcat version (e.g., if you have Tomcat v5.0, specify *tomcat50* as a parameter).

Note: As the installation proceeds, you will be prompted to rebuild the database for the Data Synchronization Service.

During installation, the following steps are performed automatically:

1. the database is initialized; the connector specific tables are created and the connector is registered into the service
2. the *OXOfficer.xml* file is copied in the directory: *<FUNAMBOL_HOME>/config/com/funambol/server/security*

3.3. Configuring the Open-Xchange Connector

Once the installation is complete, you can use the Administration Tool to configure the Open-Xchange (OX) Connector. Expand the tree structure on the left and click on *Modules | ox | OXConnector* (see Figure 2).

Figure 2: Connector Tree

This will bring up the OX Connector Configuration Panel (Figure 3).

Figure 3: OX Connector Configuration Panel

Specify the location of the OX server and press "Save".

3.4. Configuring the SyncSources

To set up the Open-Xchange (OX) Connector's SyncSources, open the Administration Console and expand the navigation tree as shown in Figure 4:
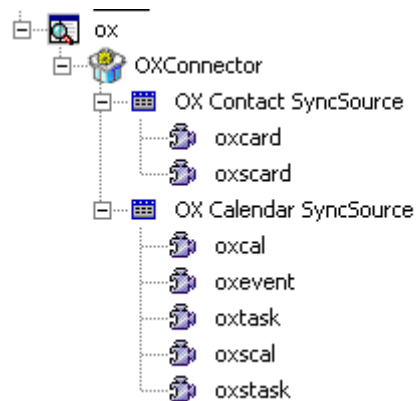

Figure 4: OX SyncSources

The Contact SyncSources have the following properties:

Property	Description
Source URI	The SyncSource URI [i.e. "./contacts"].
Name	The SyncSource name. [i.e. "contacts"]
Type	Should the data content be SIF-XML format or vcard format?
Encryption	Should the data content be encrypted using DES?
Encoding	Should the data content be encoded using Base64?

The Calendar/Task SyncSources have the following properties:

Property	Description
Source URI	The SyncSource URI [i.e. "./contacts"].
Name	The SyncSource name. [i.e. "contacts"]
Type	Should the data content be SIF-XML format or vcard format?
Subtype	If the data content is in SIF-XML format, then we will have the following value: SIF-E => Event; SIF-T => Task If the data content is in vcal format, then the value can be: event, task or both
Encryption	Should the data content be encrypted using DES?
Encoding	Should the data content be encoded using Base64?

The following tables show the configuration needed to use the OX SyncSource with mobile phones or with Funambol clients that use SIF-XML format.

OX Contact SyncSource

SyncSource	Type	Subtype	Description
OX Card	vcard	N.A.	Commonly used with cell phone devices
OX Scard	SIF-C	N.A.	Used with the Funambol clients that require SIF-XML format

OX Calendar SyncSources

SyncSource	Type	Subtype	Description
OX Cal	Vcal	Event and task	This SyncSource handles all type of the vcal entities

SyncSource	Type	Subtype	Description
OX Event	Vcal	Event	This SyncSource handles vcal / events entities
OX Task	Vcal	Task	This SyncSource handles vcal / tasks entities
OX Scal	SIF-E	Only event	This SyncSource handles SIF-E entities
OX Stask	SIF-T	Only task	This SyncSource handles SIF-T entities

3.5. Officer Configuration

In order to configure the Officer for the Funambol Open-Xchange (OX) Connector, you have to customize the following configuration file:

<FUNAMBOL_HOME>/config/com/funambol/server/security/OXOfficer.xml

This is an example of the *OXOfficer.xml* file:

```xml
<?xml version="1.0" encoding="UTF-8"?>

<java version="1.5.0" class="java.beans.XMLDecoder">

    <object class="com.funambol.ox.security.OXOfficer">

        <void property="serverAuth">

            <string>none</string>

        </void>

    </object>

</java>
```

Note: In the Administration Tool, you must set the correct Officer in the Server settings, that is specify the path *com/funambol/server/security/OXOfficer.xml*, as shown in Figure 5, if not already specified.
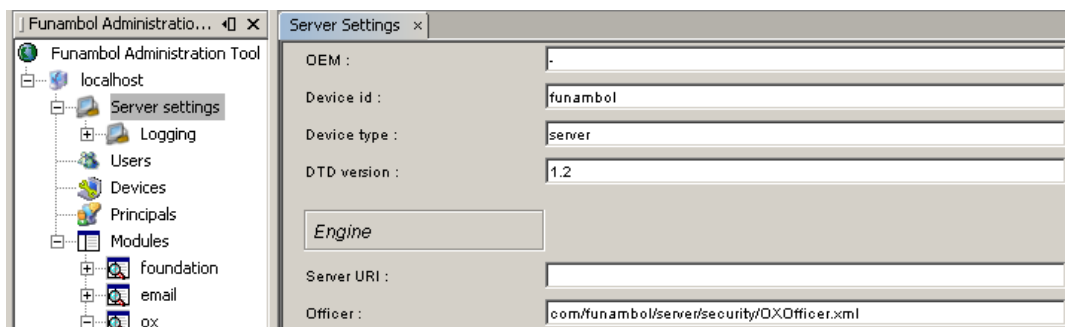

Figure 5: Officer Settings

3.6. Enabling Logging

To modify the logging level and other properties, access the Administration Tool and expand the tree structure as shown in Figure 6:
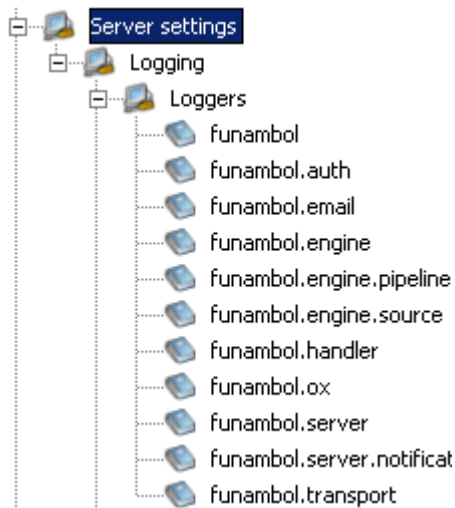
Figure 6: Logging Tree

Click on any of the categories: *funambol*, *funambol.engine* and so on, to display their logging configuration panel. To set the OX Connector's logger, double click on the *funambol.ox* node in the Logging **|** Logger tree and modify the options to obtain the desired logging level and output.

3.7. Enabling Data Transformation

In order to enable the Encryption Communication between the Funambol client (for example, the Funambol Windows Mobile Sync Client) and the Funambol Server / OX Connector, you must check the encryption/encoding checkbox in the SyncSource configuration Panel (Figure 7).
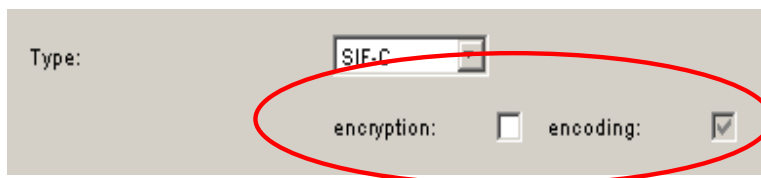

Figure 7: encryption settings

If encryption is enabled, the synchronization will be provided with DES and BASE64 encoding.

You can also check the configuration in the Data transformation panel in the Server Settings section in the Administration Tool (see Figure 8).
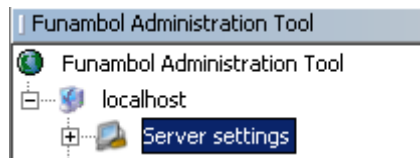

Figure 8: Server Settings

Double click on Server Settings; a panel will appear. Click the "Configure" button next to "Data transformer manager" (see Figure 9):

Figure 9: Engine Settings

another panel will appear in which you can configure "Transformer for incoming items" and "Transformer for outgoing items", if needed (see Figure 10).

Figure 10: Transformers

Link the sync source URI with the needed transformation. If the SyncSource is intended for sync with Windows Mobile devices, then "b64" transformation is required. If the Windows Mobile pug-in is configured to also use encryption, the the transformation must be set to "des;b64".

When you are done, press "Save".

Figure 11: Transformations for SyncSources

4. Installing the Open-Xchange Listener

The Funambol Open-Xchange (OX) Listener tool is included in the Funambol OX Module archive file:

- funambol-ox-<major>.<minor>.<buildnumber>.zip

To install the tool, follow these steps:

1) Unzip the archive; you will obtain a directory structure as shown in Figure 12.
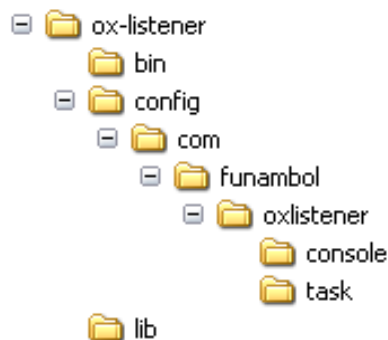
Figure 12: ox listener home

2) Modify the script:

```
bin/oxlistener.cmd     (Windows)
```

or:

```
bin/oxlistener.sh      (Linux)
```

by setting the *JAVA_HOME* parameter according to your environment

3) Modify the file:

<FUNAMBOL_HOME>/config/com/funambol/oxlistener/OXListenerConfiguration.xml

according to your environment parameters:

```
<?xml version="1.0" encoding="UTF-8"?>

<java version="1.4.2" class="java.beans.XMLDecoder">

<object
class="com.funambol.pushlistener.service.config.PushListenerConfigBean">

        <void property="maxThreadPoolSize">
```

```xml
        <int>50</int>

    </void>

    <void property="healthThreadPollingTime">

        <!-- values expressed in milliseconds -->

        <long>600000</long>

    </void>

    <void property="registryMonitorPollingTime">

        <!-- values expressed in milliseconds -->

        <long>60000</long>

    </void>

    <void property="taskPeriodTolerance">

        <double>0.1</double>

    </void>

    <void property="registryTableName">

        <string>fnbl_ox_push_registry</string>

    </void>

    <void property="pluginDirectory">

        <string>com/funambol/oxlistener/plugin</string>

    </void>

    <void property="basicDataSource">

        <object class="org.apache.commons.dbcp.BasicDataSource">

            <void property="driverClassName">

                <string>com.mysql.jdbc.Driver</string>

            </void>

            <void property="username">

                <string>funambol</string>

            </void>

            <void property="password">

                <string>funambol</string>

            </void>

            <void property="url">

                <string>jdbc:mysql://localhost:3306/fnbl_6512oao</string>

            </void>

            <void property="maxActive">
```

```xml
                <int>50</int>

            </void>

        </object>

    </void>

    <void property="WSServerInformation">

                                                                <object
class="com.funambol.pushlistener.service.ws.WSServerInformation">

            <void property="url">

                <string>http://localhost:8080/funambol/services/admin</stri
ng>

            </void>

            <void property="username">

                <string>admin</string>

            </void>

            <void property="password">

                <string>sa</string>

            </void>

        </object>

    </void>

    <!--

        Define a cluster with name pimlistener using the file jgroups.xml

        under config directory

    -->

    <void property="clusterConfiguration">

                                                                <object
class="com.funambol.framework.cluster.ClusterConfiguration">

            <void property="clusterName">

                <string>oxlistener</string>

            </void>

            <void property="configurationFile">

                <string>jgroups.xml</string>

            </void>

        </object>

    </void>

</object>

</java>
```

Note: The cluster information is needed only if you wish to install more than one OX Listener tool. In this case, you have to put the *jgroups.xml* file in the directory *ox-listener/config*.

4) Modify the file:

   <FUNAMBOL_HOME>/config/com/funambol/oxlistener/task/OXListenerTask.xml

   according to your environment parameters:

```xml
<?xml version="1.0" encoding="UTF-8"?>

<java version="1.4.2" class="java.beans.XMLDecoder">

    <object class="com.funambol.oxlistener.service.OXScheduledTask">

        <void property="sifDevicesRegExp">

             <!-- Regular expression to detect the devices that use SIF format
-->

            <string>fwm-[\p{ASCII}]*</string>

        </void>

        <void property="excludedDevicesRegExp">

              <!-- Regular expression to detect the devices that must not be
notified -->

              <string>sc-pim-[\p{ASCII}]*|fol-[\p{ASCII}]*|fmz-[\p{ASCII}]*|fbb-
[\p{ASCII}]*|fjg-[\p{ASCII}]*|fip-[\p{ASCII}]*</string>

        </void>

        <void property="syncSourceSIFContact">

            <!-- syncsource name for contacts in SIF format -->

            <string>oxscard</string>

        </void>

        <void property="syncSourceSIFEvent">

            <!-- syncsource name for events in SIF format -->

            <string>oxscal</string>

        </void>

        <void property="syncSourceSIFTask">

            <!-- syncsource name for tasks in SIF format -->

            <string>oxstask</string>

        </void>

        <void property="syncSourceContact">

            <!-- syncsource name for contacts in vcard format -->

            <string>oxcard</string>

        </void>

        <void property="syncSourceCalendar">
```

```
                <!-- syncsource name for calendar in vcal format -->

                <string>oxcal</string>

            </void>

            <void property="syncSourceEvent">

                <!-- syncsource name for events in vcal format -->

                <string>oxevent</string>

            </void>

            <void property="syncSourceTask">

                <!-- syncsource name for tasks in vcal format -->

                <string>oxtask</string>

            </void>

            <void property="OXUrl">

                <string>http://demo.open-xchange.com</string>

            </void>

        </object>

    </java>
```

5) Run the OX Listener with the following procedure:
o change directory to: *<FUNAMBOL_HOME>/ox-listener*
o run the command:

```
    bin\oxlistener.sh start    (Windows)
```

or

```
    ./bin/oxlistener start    (Linux)
```

This command can be run with the following options:
- o *start*   starts the OX Listener
- o *start -debug*   starts the OX Listener in debug mode
- o *stop*   stops the OX Listener

4.1. Clustering the Open-Xchange Listener

In order to activate OX Listener clustering, the administrator must:

- install more than one OX Listener

- copy the file *jgroups.xml* in all *ox-listener/config* directories

- insert the *clusterConfiguration* property in the *OXListenerConfiguration.xml* file

4.2. Open-Xchange Listener logger

The OX Listener uses the apache logger. The administrator should configure the file

ox-listener/config/log4j.xml

if a different behavior is needed. Please refer to log4j documentation for further details.